
AccuStandard®

Table of Contents

New & Updated Products in RED

Custom Services

- Synthesis
- Formulations
- Packaging
- Bulk Quantity Requirements

PRINTED ON RECYCLED PAPER

About the Cover

Alchemist in his Workshop
David Teniers II (Antwerp 1610-1690)
Courtesy of the Chemical Heritage Foundation Collections, and Roy Eddleman, Photograph by Will Brown

This painting is a depiction of an alchemist working at the bellows in his cluttered laboratory. In this work, the mixture of the magical aspects of alchemy (the hanging animal) mix with the more practical aspects of chemistry (the many distillation units near the hearth). Although alchemists were often looked upon as "crackpots" or charlatans, many of their experiments and theories led to modern chemistry.

New Products in this Catalog

- Phthalates 17 NEW
- Phosphate Flame Retardants (PFRs)
- PBDE Congeners (209)
- PBDE Metabolites 25 NEW
- PBCDE Metabolites
- Biocides (EU Directive)
- Pesticides Over 125 NEW
- Neonicotinoids
- Plastic Additives 20 NEW
- Bisphenol Analogs
- Halobenzoquinones
- Imidazoles
- EN14105, EN15721 Biofuels

Visit our website for the latest New Products

www.accustandard.com

3 Year Minimum Shelf Life on Single Element ICP, ICP/MS and AA

Officers

Mike Bolgar
CEO

Amy Harvey
President

Susan Meronek
General Manager

Matt Bolgar
VP

Jack Hubball
Technical Director

Technical Service

Eric D.
Manager, New Product Development

Bob U.
Organic Technical Quotation Specialist

Sheila M.
Organic Technical Quotation Specialist

Johanna G.
Organic Technical Quotation Specialist

Lee M.
Organic Technical Quotation Specialist

Dolly S.
Organic Technical Quotation Specialist

Tom A.
Inorganic Product Manager

Danielle L.
Inorganic Technical Quotation Specialist

Customer Service

Carol W.
Office Manager

Susan C.
Customer Service Rep.

Mike E.
Customer Service Rep.

Patty S.
Customer Service Rep.

Lisa L.
Customer Service Rep.

Rosemary N.
Customer Service Rep.

Jackie B.
Customer Service Rep.

About Us

AccuStandard, founded in 1986, is a leading manufacturer of Certified Reference Materials (CRMs). The company started in a business incubator co-sponsored by Yale University and The City of New Haven at the former site of Olin Chemical Company in New Haven, Connecticut, USA. Outgrowing that facility, the company moved across town in 1998 into a fully modernized facility of 37,000 square feet of laboratories, office and storage space. AccuStandard offers a comprehensive selection of organic, inorganic and petroleum reference standards for chemical analysis, serving a global market.

AccuStandard ships products to over 130 countries and maintains a distributor network in 85 of those countries. Since AccuStandard's inception the product line has grown to include over 12,000 Reference Standard products and twice that number of special formulations which have been developed for specific customer needs. Standards include those for EPA Methods, Pesticide Residue Screening, Flame Retardants, Biofuels, Plastic Additives, Dyes, Explosives, UOP and ASTM Methods and up-graded products for PIANO and Physical Property analyses.

The Company is renowned for its recognition and speedy introduction of standards to the market place. The Company's unparalleled Synthesis Department provides important and unique products and product lines, including systhesis of all 209 PCB and PBDE congeners, as well as many halogenated dioxins and dibenzofurans, PAHs and pesticides.

Among the more recent introductions are the hydroxy and methoxy PBDE congeners as well as mixed bromo/chloro hydroxy and methoxy diphenyl ethers, fluorinated PBDE congeners (used as internal standards), organophosphate flame retardants, biofuels, plastic additives (AccuStandard authored a CRC Press Handbook), EPA Method 535 pesticide derivatives and previously unavailable explosives.

AccuStandard's quality system is certified to ISO 9001 and is accredited to ISO Guide 34 and ISO/IEC 17025 as a Reference Material Producer for the manufacture of Certifed Reference Materials (CRMs). AccuStandard owes its success in large part to the excellence, loyalty and dedication of its staff. We look forward to serving our customers for many years to come.

AccuStandard, At Your Service

Synthesis

Organic and Inorganic Production

Organic and Inorganic Quality Control

Assembly / Shipping

Quality Control

Organic

- GC/MS
- GC-FID
- GE-ECD
- LC/MS/MS
- HPLC
- Sulfur analyzer

Dedicated scientists responsible for ensuring our products meet the high quality demands of our wide spectrum of clients.

Our years of experience are backed with state-of-the-art analytical instrumentation

Inorganic

- ICP-MS
- ICP
- Ion Chromatography

You Set the Standards
We make them!®

Custom Formulations

Fast Turnaround

25-Plus Years Custom Formulation Experience

Custom Standards are a cost and time saving alternative

Custom QC options

1. **Gravimetric/Volumetric Certification:**

   Each purity is measured gravimetrically and QC verified instrumentally (where applicable).

   Every component in the Standard will be within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis.

The solutions are diluted to volume using Class A glassware. A COA accompanies each Standard and documents the gravimetric values used.

2. **Full Quantitative Certification:**

   This QA/QC method includes extended GC, GC/MS or LC analysis using both internal calibration standards plus statistical analysis.

Private Labeling / OEM

Manufactured and Tested to meet your specifications

Auto Filling/Sealing Machine: Ampule sizes 0.2 mL - 20 mL / Quantites 500 to 500K

Contact Technical Service for inquiries

Quality System

ISO Guide 34 • ISO/IEC 17025 • ISO 9001

AccuStandard has a broad range of products including all 209 **PCBs**, all 209 **PBDEs** and **sulfurs** within the scope of accreditation for ISO Guide 34 and 17025. Since AccuStandard serves a diverse group of customers and industries with a broad-spectrum of quality standards, compliance with the QC requirements set by our accreditations ensures that AccuStandard products are manufactured and tested to the highest industry standards.

Our customers can be confident that our products are acceptable for use in multiple applications and across international borders. This emphasis on documented quality applies to both the organic and inorganic product lines (see below).


CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board/ACLASS

AccuStandard, Inc.
125 Market Street
New Haven, CT 06513

ISO Guide 34:2009

Reference Material Producer

SCOPE OF ACCREDITATION TO ISO GUIDE 34:2000
Certified Reference Material (CRM)
Class or Type of Reference Materials Produced

- PCBs
- Pesticides
- Explosives
- VOCs
- Semivolatiles
- Metals
- Anions / Cations
- Sulfur
- PBDEs


CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board/ACLASS

AccuStandard, Inc.
125 Market Street
New Haven, CT 06513

ISO/IEC 17025:2005

TESTING

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
Chemical Reference Standards (Neat or Solution Form)

- VOCs
- SVOCs
- PCBs
- Pesticides
- Explosives
- Sulfur
- PBDEs
- Anions and Cations
- Metals


Certificate of Registration

AccuStandard®

ISO 9001:2008

Scope of Registration

Design, Development, Production and Distribution of Inorganic and Organic Neat and Synthetic Chemical Reference Materials Formulatied to USEPA, ASTM, Internal, and Custom Designed Specifications

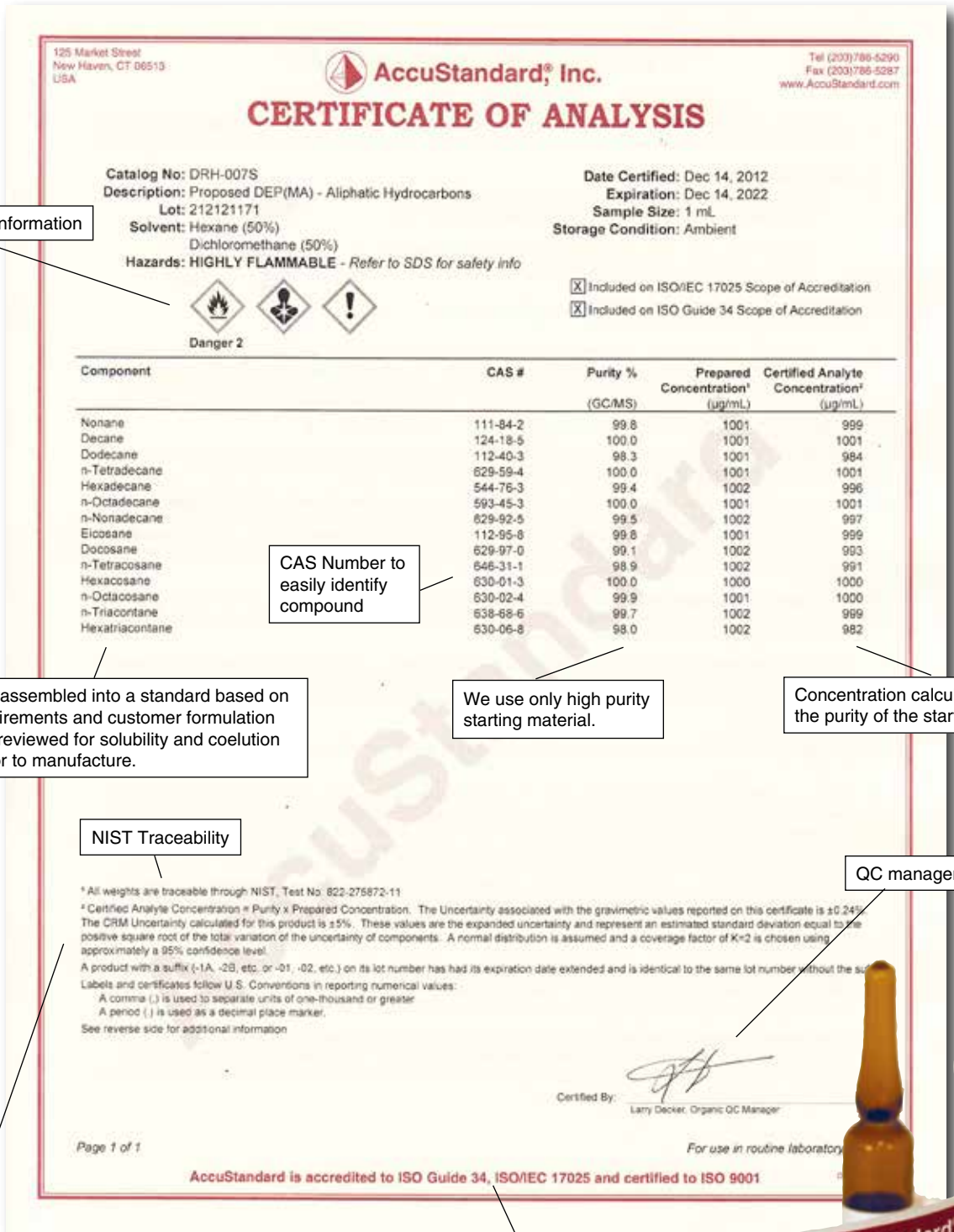
CERTIFICATE OF REGISTRATION TO ISO 9001:2008
Quality Management System
Scope of Registration

Design, Development, Production and Distribution of Inorganic and Organic Neat and Synthetic Chemical Reference Materials Formulatied to USEPA, ASTM, Internal, and Custom Designed Specifications.

AccuStandard is accedited to ISO Guide 34:2009, ISO/IEC 17025:2005 and certified to ISO 9001:2008.
Visit our website at for a copy of the latest Certificates.

Certificate of Analysis

Sample: Multi-component Organic COA



125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: DRH-007S
Description: Proposed DEP(MA) - Aliphatic Hydrocarbons
Lot: 212121171
Solvent: Hexane (50%)
Dichloromethane (50%)
Hazards: HIGHLY FLAMMABLE - *Refer to SDS for safety info*

Danger 2

Date Certified: Dec 14, 2012
Expiration: Dec 14, 2022
Sample Size: 1 mL
Storage Condition: Ambient

[X] Included on ISO/IEC 17025 Scope of Accreditation
[X] Included on ISO Guide 34 Scope of Accreditation

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1] (µg/mL)	Certified Analyte Concentration[2] (µg/mL)
Nonane	111-84-2	99.8	1001	999
Decane	124-18-5	100.0	1001	1001
Dodecane	112-40-3	98.3	1001	984
n-Tetradecane	629-59-4	100.0	1001	1001
Hexadecane	544-76-3	99.4	1002	996
n-Octadecane	593-45-3	100.0	1001	1001
n-Nonadecane	629-92-5	99.5	1002	997
Eicosane	112-95-8	99.8	1001	999
Docosane	629-97-0	99.1	1002	993
n-Tetracosane	646-31-1	98.9	1002	991
Hexacosane	630-01-3	100.0	1000	1000
n-Octacosane	630-02-4	99.9	1001	1000
n-Triacontane	638-68-6	99.7	1002	999
Hexatriacontane	630-06-8	98.0	1002	982

[1] All weights are traceable through NIST, Test No. 822-275872-11

[2] Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty associated with the gravimetric values reported on this certificate is ±0.24%. The CRM Uncertainty calculated for this product is ±5%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

Labels and certificates follow U.S. Conventions in reporting numerical values:
A comma (,) is used to separate units of one-thousand or greater
A period (.) is used as a decimal place marker.

See reverse side for additional information

Certified By:
Larry Decker, Organic QC Manager

Page 1 of 1

For use in routine laboratory

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

GHS safety information

CAS Number to easily identify compound

Compounds assembled into a standard based on method requirements and customer formulation request - all reviewed for solubility and coelution potential prior to manufacture.

We use only high purity starting material.

Concentration calculated by using the purity of the starting material

NIST Traceability

QC management approval

Uncertainty reported for statistical confidence.

Accreditations

Custom Synthesis

AccuStandard has developed hundreds of pure chemical compounds for companies, research institutions and governmental agencies around the world. Custom synthesis capabilities range from milligram to kilogram scale. AccuStandard is renowned for its quick response to customer requests for new compounds and its partnership in developing new methods.

Synthesis of many organic pollutants and their metabolites is an integral part of the department's efforts to provide the international community with previously unavailable standards. This is especially true for flame retardants, explosives and pesticides.

Custom Synthesized Products include:

- PCBs (all 209 congeners), hydroxy, methoxy and methylsulfonyl metabolites
- PBDEs (all 209 congeners), hydroxy, methoxy and chloro metabolites
- Chloro- and bromodibenzodioxins and furans
- Fluorinated PBDEs
- Brominated Flame Retardants, metabolites and isomers
- PBBs
- PAHs, nitro-PAHs and methyl-PAHs
- Pesticides and metabolites
- Explosives and metabolites
- Nonyl- and octylphenol ethoxylates
- Mono- and di-phthalate esters
- Organophosphate Flame Retardants

For additional information or
to submit your request, visit
AccuStandard.com

Organic Single Analytes and Select Mixtures

New & Updated Products in RED

Persistent Organic Pollutants (POPs)
POPs are chemical substances that persist in the environment, bioaccumulate through the food web and pose a risk of causing adverse effects to human health and the environment. A specific list of POPs was defined in 1995 by the United Nations, and this list was the center of the Stockholm Convention in 2001. The list originally included "the dirty dozen" and was expanded to include other pesticides, PBDEs, and some chemicals used in industrial processes.

Individual analytes used in EPA Methods are listed on page 67-68

Indices: Catalog Number, CAS Number and Organic Analytes are listed in the back of catalog.

Table of Contents

Visit our website for the latest New Products
www.accustandard.com

History of PCBs

PCBs

History

Polychlorinated biphenyls (PCBs) have been the subject of numerous studies and investigations over the last several decades because of their environmental persistence and bioaccumulation.

Their abundance as a pollutant stems from their worldwide manufacture as heavily-used industrial chemicals (in the USA, as Aroclors by Monsanto), with the main application as a di-electric fluid for capacitors and transformers. As late as 1984, about 758 million pounds were still in use in the United States alone.

Regulatory Actions

The overwhelming problem with PCBs is their continuing environmental impact. Their stability and widespread prior use has caused global contamination of soils, rivers and other waterways that could affect our food and water supplies for years to come.

This problem has become of paramount concern to the US EPA, which prohibited, under Section 6(e) of the Toxic Substances Control Act, the use of PCBs, except in totally enclosed systems, after July 1, 1978; the manufacture of PCBs, after January 1, 1979 and the processing and distribution in commerce of PCBs after July 1, 1979. PCBs used as industrial chemicals were totally prohibited after July 1, 1984.

Toxicity & Bioaccumulation

The chemical formulation of PCBs and their similarity to the chemical formulation of pesticides such as DDT has led to bioaccumulationin.

One of the first signals of the effect of PCBs on the environment in the United States was noted in 1970 on Great Gull Island at the entrance to Long Island Sound. Scientists observed a sharp increase in the number of abnormalities found in young sea gulls such as feather loss, crossed beaks, and four legs. In addition, the egg shells were extremely thin.

In 1968 Japan documented the first of over 1200 human patients, many of them children, who developed acne-type skin eruptions (chloracne) and other clinical symptoms. These symptoms were eventually traced to the ingestion of the industrial PCB, Kannechlor 400, (trademark of the Kanegafuchi Chemical Industry Company) which had been blended with Rice Oil (Yusho) used in cooking.

The malady was thus termed Yusho Disease. The average amount of actual PCBs consumed by the victims was estimated at 2 grams. By 1973, 22 of the 1200 victims had died, 41% from malignant tumors, suggesting a possible link to PCB ingestion.

PCB Groupings and Formulations

Toxicity and molecular structure

PCB Congeners can be grouped according to their presence in the technical mixtures (i.e. Aroclors) and according to their toxicity, generally falling into the following pattern:

Congeners that contain fewer chlorine substitutions in the ortho positions are more toxic than those having more chlorines in those positions. The most toxic are the tetra, penta and hexachlorobiphenyl congeners that are unsubstituted in the ortho position (which makes them dioxin-like).

Analytical Methods and Reference Materials

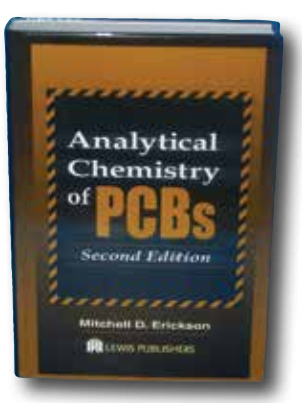
To obtain meaningful analytical data, the congeners need to be formulated into groupings of solutions that are all resolved on a gas chromatographic column. The “holy grail” of columns, the single column on which all 209 congeners are separated has, to this date, eluded all GC column manufacturers.

There are 2 columns that are closest to achieving the “holy grail” status of separating all the PCB congeners. They are Agilent DB-XLB & SGE's HT 8 which resolve all but 4 pairs of significant congeners and 5 pairs of minor congeners.

George Frame and his co-workers at General Electric Company have coordinated a seminal study of specially formulated PCB groups - five of which are composed of the congeners contained in Aroclors, the remaining four mixtures contain those congeners generally absent in Aroclors. AccuStandard prepared and supplied the nine mixtures used in Dr. Frame's study from its inventory of the 209 pure congeners.

The nine mixtures were then tested on 17 different columns by independent laboratories and column manufacturers. The resulting chromatographic retention time and response data was compiled and published. This information has proven invaluable for identification and quantification of the different Aroclors as well as for congener specific analysis.

In the course of the investigations, it was determined that some of the 209 congeners that constitute the industrial PCB product behave differently than others and it is very helpful, even essential, to the scientific and regulatory communities, that individual congeners be available. For this reason, the EPA permits the synthesis and distribution of small quanities for research purposes.



PCB Book
Analytical Chemistry of PCBs
BOOK-PCB-001

To facilitate the availability and distribution of PCBs, the EPA granted manufacturing and export exemptions to a few select standards manufacturers.

The Founder of AccuStandard, Inc. was the first to obtain this exemption. AccuStandard is the leader in synthesizing PCBs. Indeed, it is the first - and so far the only - manufacturer to have synthesized all 209 congeners. Our expertise can assist you in your PCB investigations.

Analytical Chemistry of PCBs

The Second Edition of this book is a comprehensive review of the analytical chemistry of PCBs. It is an invaluable resource for both chemists with no experience in PCB analysis and seasoned PCB researchers.

Chlorobiphenyl Congeners (PCBs)

- All 209 possible congeners are available in Neat and Solution form
- All congeners are 99+% pure by GC/FID and GC/MS

Technical Note

For specific applications (e.g. toxicological studies) that require absolute dioxin and furan free PCBs please contact Technical Service.

209 Solutions in a Set **Exclusive**

C-35-SET	35 µg/mL in Isooctane	**set of 209 x 1 mL**
C-100-SET	100 µg/mL in Isooctane	**set of 209 x 1 mL**

Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane 35 µg/mL 1 mL Cat. No.	100 µg/mL 1 mL Cat. No.
1	2-Chlorobiphenyl	2051-60-7	C-001N	50 mg	C-001S	C-001S-TP
2	3-Chlorobiphenyl	2051-61-8	C-002N	50 mg	C-002S	C-002S-TP
3	4-Chlorobiphenyl	2051-62-9	C-003N	50 mg	C-003S	C-003S-TP
4	2,2'-Dichlorobiphenyl	13029-08-8	C-004N	25 mg	C-004S	C-004S-TP
5	2,3-Dichlorobiphenyl	16605-91-7	C-005N	50 mg	C-005S	C-005S-TP
6	2,3'-Dichlorobiphenyl	25569-80-6	C-006N	5 mg	C-006S	C-006S-TP
7	2,4-Dichlorobiphenyl	33284-50-3	C-007N	25 mg	C-007S	C-007S-TP
8	2,4'-Dichlorobiphenyl	34883-43-7	C-008N	25 mg	C-008S	C-008S-TP
9	2,5-Dichlorobiphenyl	34883-39-1	C-009N	50 mg	C-009S	C-009S-TP
10	2,6-Dichlorobiphenyl	33146-45-1	C-010N	25 mg	C-010S	C-010S-TP
11	3,3'-Dichlorobiphenyl	2050-67-1	C-011N	50 mg	C-011S	C-011S-TP
12	3,4-Dichlorobiphenyl	2974-92-7	C-012N	50 mg	C-012S	C-012S-TP
13	3,4'-Dichlorobiphenyl	2974-90-5	C-013N	5 mg	C-013S	C-013S-TP
14	3,5-Dichlorobiphenyl	34883-41-5	C-014N	50 mg	C-014S	C-014S-TP
15	4,4'-Dichlorobiphenyl	2050-68-2	C-015N	10 mg	C-015S	C-015S-TP
16	2,2',3-Trichlorobiphenyl	38444-78-9	C-016N	5 mg	C-016S	C-016S-TP
17	2,2',4-Trichlorobiphenyl	37680-66-3	C-017N	5 mg	C-017S	C-017S-TP
18	2,2',5-Trichlorobiphenyl	37680-65-2	C-018N	25 mg	C-018S	C-018S-TP
19	2,2',6-Trichlorobiphenyl	38444-73-4	C-019N	5 mg	C-019S	C-019S-TP
20	2,3,3'-Trichlorobiphenyl	38444-84-7	C-020N	5 mg	C-020S	C-020S-TP
21	2,3,4-Trichlorobiphenyl	55702-46-0	C-021N	25 mg	C-021S	C-021S-TP
22	2,3,4'-Trichlorobiphenyl	38444-85-8	C-022N	5 mg	C-022S	C-022S-TP
23	2,3,5-Trichlorobiphenyl	55720-44-0	C-023N	5 mg	C-023S	C-023S-TP
24	2,3,6-Trichlorobiphenyl	55702-45-9	C-024N	10 mg	C-024S	C-024S-TP
25	2,3',4-Trichlorobiphenyl	55712-37-3	C-025N	5 mg	C-025S	C-025S-TP
26	2,3',5-Trichlorobiphenyl	38444-81-4	C-026N	25 mg	C-026S	C-026S-TP
27	2,3',6-Trichlorobiphenyl	38444-76-7	C-027N	5 mg	C-027S	C-027S-TP
28	2,4,4'-Trichlorobiphenyl	7012-37-5	C-028N	10 mg	C-028S	C-028S-TP
29	2,4,5-Trichlorobiphenyl	15862-07-4	C-029N	50 mg	C-029S	C-029S-TP
30	2,4,6-Trichlorobiphenyl	35693-92-6	C-030N	50 mg	C-030S	C-030S-TP
31	2,4',5-Trichlorobiphenyl	16606-02-3	C-031N	25 mg	C-031S	C-031S-TP
32	2,4',6-Trichlorobiphenyl	38444-77-8	C-032N	5 mg	C-032S	C-032S-TP
33	2',3,4-Trichlorobiphenyl	38444-86-9	C-033N	10 mg	C-033S	C-033S-TP
34	2',3,5-Trichlorobiphenyl	37680-68-5	C-034N	5 mg	C-034S	C-034S-TP
35	3,3',4-Trichlorobiphenyl	37680-69-6	C-035N	5 mg	C-035S	C-035S-TP
36	3,3',5-Trichlorobiphenyl	38444-87-0	C-036N	5 mg	C-036S	C-036S-TP
37	3,4,4'-Trichlorobiphenyl	38444-90-5	C-037N	5 mg	C-037S	C-037S-TP
38	3,4,5-Trichlorobiphenyl	53555-66-1	C-038N	5 mg	C-038S	C-038S-TP
39	3,4',5-Trichlorobiphenyl	38444-88-1	C-039N	5 mg	C-039S	C-039S-TP

Chlorobiphenyl Congeners (PCBs) continued on next page

Chlorobiphenyl Congeners (PCBs)

Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane 35 µg/mL 1 mL Cat. No.	100 µg/mL 1 mL Cat. No.
40	2,2',3,3'-Tetrachlorobiphenyl	38444-93-8	C-040N	50 mg	C-040S	C-040S-TP
41	2,2',3,4-Tetrachlorobiphenyl	52663-59-9	C-041N	5 mg	C-041S	C-041S-TP
42	2,2',3,4'-Tetrachlorobiphenyl	36559-22-5	C-042N	5 mg	C-042S	C-042S-TP
43	2,2',3,5-Tetrachlorobiphenyl	70362-46-8	C-043N	5 mg	C-043S	C-043S-TP
44	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	C-044N	25 mg	C-044S	C-044S-TP
45	2,2',3,6-Tetrachlorobiphenyl	70362-45-7	C-045N	5 mg	C-045S	C-045S-TP
46	2,2',3,6'-Tetrachlorobiphenyl	41464-47-5	C-046N	5 mg	C-046S	C-046S-TP
47	2,2',4,4'-Tetrachlorobiphenyl	2437-79-8	C-047N	50 mg	C-047S	C-047S-TP
48	2,2',4,5-Tetrachlorobiphenyl	70362-47-9	C-048N	5 mg	C-048S	C-048S-TP
49	2,2',4,5'-Tetrachlorobiphenyl	41464-40-8	C-049N	20 mg	C-049S	C-049S-TP
50	2,2',4,6-Tetrachlorobiphenyl	62796-65-0	C-050N	5 mg	C-050S	C-050S-TP
51	2,2',4,6'-Tetrachlorobiphenyl	68194-04-7	C-051N	5 mg	C-051S	C-051S-TP
52	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	C-052N	10 mg	C-052S	C-052S-TP
53	2,2',5,6'-Tetrachlorobiphenyl	41464-41-9	C-053N	25 mg	C-053S	C-053S-TP
54	2,2',6,6'-Tetrachlorobiphenyl	15968-05-5	C-054N	50 mg	C-054S	C-054S-TP
55	2,3,3',4-Tetrachlorobiphenyl	74338-24-2	C-055N	5 mg	C-055S	C-055S-TP
56	2,3,3',4'-Tetrachlorobiphenyl	41464-43-1	C-056N	5 mg	C-056S	C-056S-TP
57	2,3,3',5-Tetrachlorobiphenyl	70424-67-8	C-057N	5 mg	C-057S	C-057S-TP
58	2,3,3',5'-Tetrachlorobiphenyl	41464-49-7	C-058N	5 mg	C-058S	C-058S-TP
59	2,3,3',6-Tetrachlorobiphenyl	74472-33-6	C-059N	5 mg	C-059S	C-059S-TP
60	2,3,4,4'-Tetrachlorobiphenyl	33025-41-1	C-060N	5 mg	C-060S	C-060S-TP
61	2,3,4,5-Tetrachlorobiphenyl	33284-53-6	C-061N	50 mg	C-061S	C-061S-TP
62	2,3,4,6-Tetrachlorobiphenyl	54230-22-7	C-062N	5 mg	C-062S	C-062S-TP
63	2,3,4',5-Tetrachlorobiphenyl	74472-34-7	C-063N	5 mg	C-063S	C-063S-TP
64	2,3,4',6-Tetrachlorobiphenyl	52663-58-8	C-064N	5 mg	C-064S	C-064S-TP
65	2,3,5,6-Tetrachlorobiphenyl	33284-54-7	C-065N	25 mg	C-065S	C-065S-TP
66	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	C-066N	20 mg	C-066S	C-066S-TP
67	2,3',4,5-Tetrachlorobiphenyl	73557-53-8	C-067N	5 mg	C-067S	C-067S-TP
68	2,3',4,5'-Tetrachlorobiphenyl	73575-52-7	C-068N	5 mg	C-068S	C-068S-TP
69	2,3',4,6-Tetrachlorobiphenyl	60233-24-1	C-069N	5 mg	C-069S	C-069S-TP
70	2,3',4',5-Tetrachlorobiphenyl	32598-11-1	C-070N	10 mg	C-070S	C-070S-TP
71	2,3',4',6-Tetrachlorobiphenyl	41464-46-4	C-071N	5 mg	C-071S	C-071S-TP
72	2,3',5,5'-Tetrachlorobiphenyl	41464-42-0	C-072N	25 mg	C-072S	C-072S-TP
73	2,3',5',6-Tetrachlorobiphenyl	74338-23-1	C-073N	5 mg	C-073S	C-073S-TP
74	2,4,4',5-Tetrachlorobiphenyl	32690-93-0	C-074N	5 mg	C-074S	C-074S-TP
75	2,4,4',6-Tetrachlorobiphenyl	32598-12-2	C-075N	5 mg	C-075S	C-075S-TP
76	2',3,4,5-Tetrachlorobiphenyl	70362-48-0	C-076N	5 mg	C-076S	C-076S-TP
77	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	C-077N	25 mg	C-077S	C-077S-TP
78	3,3',4,5-Tetrachlorobiphenyl	70362-49-1	C-078N	5 mg	C-078S	C-078S-TP
79	3,3',4,5'-Tetrachlorobiphenyl	41464-48-6	C-079N	5 mg	C-079S	C-079S-TP
80	3,3',5,5'-Tetrachlorobiphenyl	33284-52-5	C-080N	5 mg	C-080S	C-080S-TP
81	3,4,4',5-Tetrachlorobiphenyl	70362-50-4	C-081N	5 mg	C-081S	C-081S-TP
82	2,2',3,3',4-Pentachlorobiphenyl	52663-62-4	C-082N	5 mg	C-082S	C-082S-TP
83	2,2',3,3',5-Pentachlorobiphenyl	60145-20-2	C-083N	5 mg	C-083S	C-083S-TP
84	2,2',3,3',6-Pentachlorobiphenyl	52663-60-2	C-084N	5 mg	C-084S	C-084S-TP
85	2,2',3,4,4'-Pentachlorobiphenyl	65510-45-4	C-085N	5 mg	C-085S	C-085S-TP
86	2,2',3,4,5-Pentachlorobiphenyl	55312-69-1	C-086N	5 mg	C-086S	C-086S-TP
87	2,2',3,4,5'-Pentachlorobiphenyl	38380-02-8	C-087N	10 mg	C-087S	C-087S-TP
88	2,2',3,4,6-Pentachlorobiphenyl	55215-17-3	C-088N	5 mg	C-088S	C-088S-TP
89	2,2',3,4,6'-Pentachlorobiphenyl	73575-57-2	C-089N	5 mg	C-089S	C-089S-TP
90	2,2',3,4',5-Pentachlorobiphenyl	68194-07-0	C-090N	5 mg	C-090S	C-090S-TP
91	2,2',3,4',6-Pentachlorobiphenyl	68194-05-8	C-091N	5 mg	C-091S	C-091S-TP
92	2,2',3,5,5'-Pentachlorobiphenyl	52663-61-3	C-092N	5 mg	C-092S	C-092S-TP
93	2,2',3,5,6-Pentachlorobiphenyl	73575-56-1	C-093N	5 mg	C-093S	C-093S-TP
94	2,2',3,5,6'-Pentachlorobiphenyl	73575-55-0	C-094N	5 mg	C-094S	C-094S-TP
95	2,2',3,5',6-Pentachlorobiphenyl	38379-99-6	C-095N	5 mg	C-095S	C-095S-TP
96	2,2',3,6,6'-Pentachlorobiphenyl	73575-54-9	C-096N	5 mg	C-096S	C-096S-TP
97	2,2',3',4,5-Pentachlorobiphenyl	41464-51-1	C-097N	10 mg	C-097S	C-097S-TP
98	2,2',3',4,6-Pentachlorobiphenyl	60233-25-2	C-098N	5 mg	C-098S	C-098S-TP
99	2,2',4,4',5-Pentachlorobiphenyl	38380-01-7	C-099N	5 mg	C-099S	C-099S-TP
100	2,2',4,4',6-Pentachlorobiphenyl	39485-83-1	C-100N	5 mg	C-100S	C-100S-TP
101	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	C-101N	10 mg	C-101S	C-101S-TP
102	2,2',4,5,6'-Pentachlorobiphenyl	68194-06-9	C-102N	5 mg	C-102S	C-102S-TP
103	2,2',4,5',6-Pentachlorobiphenyl	60145-21-3	C-103N	10 mg	C-103S	C-103S-TP
104	2,2',4,6,6'-Pentachlorobiphenyl	56558-16-8	C-104N	5 mg	C-104S	C-104S-TP
105	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	C-105N	5 mg	C-105S	C-105S-TP
106	2,3,3',4,5-Pentachlorobiphenyl	70424-69-0	C-106N	5 mg	C-106S	C-106S-TP

Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane 35 µg/mL 1 mL Cat. No.	100 µg/mL 1 mL Cat. No.
107	2,3,3',4',5-Pentachlorobiphenyl	70424-68-9	C-107N	5 mg	C-107S	C-107S-TP
108	2,3,3',4,5'-Pentachlorobiphenyl	70362-41-3	C-108N	5 mg	C-108S	C-108S-TP
109	2,3,3',4,6-Pentachlorobiphenyl	74472-35-8	C-109N	5 mg	C-109S	C-109S-TP
110	2,3,3',4',6-Pentachlorobiphenyl	38380-03-9	C-110N	5 mg	C-110S	C-110S-TP
111	2,3,3',5,5'-Pentachlorobiphenyl	39635-32-0	C-111N	5 mg	C-111S	C-111S-TP
112	2,3,3',5,6-Pentachlorobiphenyl	74472-36-9	C-112N	5 mg	C-112S	C-112S-TP
113	2,3,3',5',6-Pentachlorobiphenyl	68194-10-5	C-113N	5 mg	C-113S	C-113S-TP
114	2,3,4,4',5-Pentachlorobiphenyl	74472-37-0	C-114N	5 mg	C-114S	C-114S-TP
115	2,3,4,4',6-Pentachlorobiphenyl	74472-38-1	C-115N	5 mg	C-115S	C-115S-TP
116	2,3,4,5,6-Pentachlorobiphenyl	18259-05-7	C-116N	10 mg	C-116S	C-116S-TP
117	2,3,4',5,6-Pentachlorobiphenyl	68194-11-6	C-117N	5 mg	C-117S	C-117S-TP
118	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	C-118N	5 mg	C-118S	C-118S-TP
119	2,3',4,4',6-Pentachlorobiphenyl	56558-17-9	C-119N	5 mg	C-119S	C-119S-TP
120	2,3',4,5,5'-Pentachlorobiphenyl	68194-12-7	C-120N	5 mg	C-120S	C-120S-TP
121	2,3',4,5',6-Pentachlorobiphenyl	56558-18-0	C-121N	5 mg	C-121S	C-121S-TP
122	2',3,3',4,5-Pentachlorobiphenyl	76842-07-4	C-122N	5 mg	C-122S	C-122S-TP
123	2',3,4,4',5-Pentachlorobiphenyl	65510-44-3	C-123N	5 mg	C-123S	C-123S-TP
124	2',3,4,5,5'-Pentachlorobiphenyl	70424-70-3	C-124N	5 mg	C-124S	C-124S-TP
125	2',3,4,5,6'-Pentachlorobiphenyl	74472-39-2	C-125N	5 mg	C-125S	C-125S-TP
126	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	C-126N	5 mg	C-126S	C-126S-TP
127	3,3',4,5,5'-Pentachlorobiphenyl	39635-33-1	C-127N	5 mg	C-127S	C-127S-TP
128	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	C-128N	20 mg	C-128S	C-128S-TP
129	2,2',3,3',4,5-Hexachlorobiphenyl	55215-18-4	C-129N	5 mg	C-129S	C-129S-TP
130	2,2',3,3',4,5'-Hexachlorobiphenyl	52663-66-8	C-130N	5 mg	C-130S	C-130S-TP
131	2,2',3,3',4,6-Hexachlorobiphenyl	61798-70-7	C-131N	5 mg	C-131S	C-131S-TP
132	2,2',3,3',4,6'-Hexachlorobiphenyl	38380-05-1	C-132N	5 mg	C-132S	C-132S-TP
133	2,2',3,3',5,5'-Hexachlorobiphenyl	35694-04-3	C-133N	5 mg	C-133S	C-133S-TP
134	2,2',3,3',5,6-Hexachlorobiphenyl	52704-70-8	C-134N	5 mg	C-134S	C-134S-TP
135	2,2',3,3',5,6'-Hexachlorobiphenyl	52744-13-5	C-135N	5 mg	C-135S	C-135S-TP
136	2,2',3,3',6,6'-Hexachlorobiphenyl	38411-22-2	C-136N	20 mg	C-136S	C-136S-TP
137	2,2',3,4,4',5-Hexachlorobiphenyl	35694-06-5	C-137N	5 mg	C-137S	C-137S-TP
138	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	C-138N	5 mg	C-138S	C-138S-TP
139	2,2',3,4,4',6-Hexachlorobiphenyl	56030-56-9	C-139N	5 mg	C-139S	C-139S-TP
140	2,2',3,4,4',6'-Hexachlorobiphenyl	59291-64-4	C-140N	5 mg	C-140S	C-140S-TP
141	2,2',3,4,5,5'-Hexachlorobiphenyl	52712-04-6	C-141N	5 mg	C-141S	C-141S-TP
142	2,2',3,4,5,6-Hexachlorobiphenyl	41411-61-4	C-142N	5 mg	C-142S	C-142S-TP
143	2,2',3,4,5,6'-Hexachlorobiphenyl	68194-15-0	C-143N	5 mg	C-143S	C-143S-TP
144	2,2',3,4,5',6-Hexachlorobiphenyl	68194-14-9	C-144N	5 mg	C-144S	C-144S-TP
145	2,2',3,4,6,6'-Hexachlorobiphenyl	74472-40-5	C-145N	5 mg	C-145S	C-145S-TP
146	2,2',3,4',5,5'-Hexachlorobiphenyl	51908-16-8	C-146N	5 mg	C-146S	C-146S-TP
147	2,2',3,4',5,6-Hexachlorobiphenyl	68194-13-8	C-147N	5 mg	C-147S	C-147S-TP
148	2,2',3,4',5,6'-Hexachlorobiphenyl	74472-41-6	C-148N	5 mg	C-148S	C-148S-TP
149	2,2',3,4',5',6-Hexachlorobiphenyl	38380-04-0	C-149N	5 mg	C-149S	C-149S-TP
150	2,2',3,4',6,6'-Hexachlorobiphenyl	68194-08-1	C-150N	5 mg	C-150S	C-150S-TP
151	2,2',3,5,5',6-Hexachlorobiphenyl	52663-63-5	C-151N	5 mg	C-151S	C-151S-TP
152	2,2',3,5,6,6'-Hexachlorobiphenyl	68194-09-2	C-152N	5 mg	C-152S	C-152S-TP
153	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	C-153N	10 mg	C-153S	C-153S-TP
154	2,2',4,4',5,6'-Hexachlorobiphenyl	60145-22-4	C-154N	5 mg	C-154S	C-154S-TP
155	2,2',4,4',6,6'-Hexachlorobiphenyl	33979-03-2	C-155N	50 mg	C-155S	C-155S-TP
156	2,3,3',4,4',5-Hexachlorobiphenyl	38380-08-4	C-156N	5 mg	C-156S	C-156S-TP
157	2,3,3',4,4',5'-Hexachlorobiphenyl	69782-90-7	C-157N	5 mg	C-157S	C-157S-TP
158	2,3,3',4,4',6-Hexachlorobiphenyl	74472-42-7	C-158N	5 mg	C-158S	C-158S-TP
159	2,3,3',4,5,5'-Hexachlorobiphenyl	39635-35-3	C-159N	5 mg	C-159S	C-159S-TP
160	2,3,3',4,5,6-Hexachlorobiphenyl	41411-62-5	C-160N	5 mg	C-160S	C-160S-TP
161	2,3,3',4,5',6-Hexachlorobiphenyl	74474-43-8	C-161N	5 mg	C-161S	C-161S-TP
162	2,3,3',4',5,5'-Hexachlorobiphenyl	39635-34-2	C-162N	5 mg	C-162S	C-162S-TP
163	2,3,3',4',5,6-Hexachlorobiphenyl	74472-44-9	C-163N	5 mg	C-163S	C-163S-TP
164	2,3,3',4',5',6-Hexachlorobiphenyl	74472-45-0	C-164N	5 mg	C-164S	C-164S-TP
165	2,3,3',5,5',6-Hexachlorobiphenyl	74472-46-1	C-165N	5 mg	C-165S	C-165S-TP
166	2,3,4,4',5,6-Hexachlorobiphenyl	41411-63-6	C-166N	5 mg	C-166S	C-166S-TP
167	2,3',4,4',5,5'-Hexachlorobiphenyl	52663-72-6	C-167N	5 mg	C-167S	C-167S-TP
168	2,3',4,4',5',6-Hexachlorobiphenyl	59291-65-5	C-168N	5 mg	C-168S	C-168S-TP
169	3,3',4,4',5,5'-Hexachlorobiphenyl	32774-16-6	C-169N	5 mg	C-169S	C-169S-TP

Other solvents, concentrations and quantities are available upon request.

Chlorobiphenyl Congeners (PCBs) continued on next page

Chlorobiphenyl Congeners (PCBs)

Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane 35 µg/mL 1 mL Cat. No.	100 µg/mL 1 mL Cat. No.
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	C-170N	5 mg	C-170S	C-170S-TP
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	52663-71-5	C-171N	5 mg	C-171S	C-171S-TP
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	52663-74-8	C-172N	5 mg	C-172S	C-172S-TP
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	68194-16-1	C-173N	5 mg	C-173S	C-173S-TP
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	38411-25-5	C-174N	5 mg	C-174S	C-174S-TP
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	40186-70-7	C-175N	5 mg	C-175S	C-175S-TP
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	52663-65-7	C-176N	5 mg	C-176S	C-176S-TP
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	52663-70-4	C-177N	5 mg	C-177S	C-177S-TP
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	52663-67-9	C-178N	5 mg	C-178S	C-178S-TP
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	52663-64-6	C-179N	5 mg	C-179S	C-179S-TP
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	C-180N	5 mg	C-180S	C-180S-TP
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	74472-47-2	C-181N	5 mg	C-181S	C-181S-TP
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	60145-23-5	C-182N	5 mg	C-182S	C-182S-TP
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	52663-69-1	C-183N	5 mg	C-183S	C-183S-TP
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	74472-48-3	C-184N	5 mg	C-184S	C-184S-TP
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	52712-05-7	C-185N	5 mg	C-185S	C-185S-TP
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	74472-49-4	C-186N	5 mg	C-186S	C-186S-TP
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	C-187N	5 mg	C-187S	C-187S-TP
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	74487-85-7	C-188N	5 mg	C-188S	C-188S-TP
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	39635-31-9	C-189N	5 mg	C-189S	C-189S-TP
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	41411-64-7	C-190N	5 mg	C-190S	C-190S-TP
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	74472-50-7	C-191N	5 mg	C-191S	C-191S-TP
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	74472-51-8	C-192N	5 mg	C-192S	C-192S-TP
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	69782-91-8	C-193N	5 mg	C-193S	C-193S-TP
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	35694-08-7	C-194N	5 mg	C-194S	C-194S-TP
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	C-195N	5 mg	C-195S	C-195S-TP
196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	42740-50-1	C-196N	5 mg	C-196S	C-196S-TP
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	33091-17-7	C-197N	5 mg	C-197S	C-197S-TP
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	68194-17-2	C-198N	5 mg	C-198S	C-198S-TP
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	52663-75-9	C-199N-R1	5 mg	C-199S-R1	C-199S-TP-R1
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	52663-73-7	C-200N-R1	5 mg	C-200S-R1	C-200S-TP-R1
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	40186-71-8	C-201N-R1	5 mg	C-201S-R1	C-201S-TP-R1
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	2136-99-4	C-202N	5 mg	C-202S	C-202S-TP
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	52663-76-0	C-203N	5 mg	C-203S	C-203S-TP
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	74472-52-9	C-204N	5 mg	C-204S	C-204S-TP
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	74472-53-0	C-205N	5 mg	C-205S	C-205S-TP
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	C-206N	5 mg	C-206S	C-206S-TP
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	52663-79-3	C-207N	5 mg	C-207S	C-207S-TP
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	52663-77-1	C-208N	5 mg	C-208S	C-208S-TP
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	C-209N	10 mg	C-209S	C-209S-TP

Technical Note

The PCB congener numbering system is now being used. The only changes from the BZ numbering system affect congeners #199 (formerly BZ#201), #200 (formerly BZ#199) and #201 (formerly BZ#200).

Savings

Significant discounts are available on larger quantities of selected congeners.

Have PCB Questions?

AccuStandard chemists have been involved in the synthesis of PCBs and related compounds for over 35 years.

Our experience and expertise in this area can help you solve related analytical problems.

Contact our Technical Service Department

Mixtures for Congener Specific PCB Analysis

Method 1668 Congener Set of 209 Chlorinated Biphenyl Congeners by GC/MS

Set of all 209 PCB congeners for specific determination and calibration on an SPB-Octyl capillary column
M-1668A-0.01X-SET 5 x 1 mL (M-1668A-1-0.01X, M-1668A-2-0.01X, M-1668A-3-0.01X, M-1668A-4-0.01X, M-1668A-5-0.01X)

PCB Congener Mix #1

M-1668A-1-0.01X **1 x 1 mL**
At stated conc. in Isooctane 83 comps.

3-Chlorobiphenyl	(2.5 µg/mL)	2,3',4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,6-Dichlorobiphenyl	(2.5 µg/mL)	2',3,4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,5-Dichlorobiphenyl	(2.5 µg/mL)	2,3,3',4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3'-Dichlorobiphenyl	(2.5 µg/mL)	2',3,3',4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,4'-Dichlorobiphenyl	(2.5 µg/mL)	2,3,3',4,4'-Pentachlorobiphenyl	(5.0 µg/mL)
3,5-Dichlorobiphenyl	(2.5 µg/mL)	3,3',4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
3,3'-Dichlorobiphenyl	(2.5 µg/mL)	2,2',3,5,6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4,6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,3',6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4',5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4',6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,5,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2',3,5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4',5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2',3,4-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,3',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
3,3',5-Trichlorobiphenyl	(2.5 µg/mL)	2,3,3',4,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
3,4,5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',4,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
3,3',4-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,3',4,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',4,6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,4,4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',5,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',4,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3',4,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4,4',6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',5,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,3',5,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,3',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,4',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3',4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,4',5',6-Heptachlorobiphenyl	(5.0 µg/mL)
3,3',4,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4',5,6-Heptachlorobiphenyl	(5.0 µg/mL)
3,3',4,5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',6-Heptachlorobiphenyl	(5.0 µg/mL)
3,4,4',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,5'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,6,6'-Pentachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',4,5',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5,6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,6'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,3,3',5',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,5',6-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,3',5-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5',6-Octachlorobiphenyl	(7.5 µg/mL)
2,3',4,4',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,5'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,4'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	(7.5 µg/mL)
2,2',3,3',4-Pentachlorobiphenyl	(5.0 µg/mL)		

PCB Congener Mix #3

M-1668A-3-0.01X **1 x 1 mL**
At stated conc. in Isooctane 29 comps.

3,4'-Dichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4-Trichlorobiphenyl	(2.5 µg/mL)	2,3,4,5,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,4,5-Trichlorobiphenyl	(2.5 µg/mL)	2,3,3',4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3'-Trichlorobiphenyl	(2.5 µg/mL)	2,2',4,4',5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,6'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,5,6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,4',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',4,5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2',3,4,5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',6-Hexachlorobiphenyl	(5.0 µg/mL)
3,3',5,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,4',5,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5,6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)	2,3,3',4',5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,3',5,6-Pentachlorobiphenyl	(5.0 µg/mL)		

PCB Congener Set continued on next page

PCB Congener Mix #2

M-1668A-2-0.01X **1 x 1 mL**
At stated conc. in Isooctane 54 comps.

2,4-Dichlorobiphenyl	(2.5 µg/mL)
2,3-Dichlorobiphenyl	(2.5 µg/mL)
3,4-Dichlorobiphenyl	(2.5 µg/mL)
2,2',5-Trichlorobiphenyl	(2.5 µg/mL)
2,3,6-Trichlorobiphenyl	(2.5 µg/mL)
2,3,5-Trichlorobiphenyl	(2.5 µg/mL)
2,4,4'-Trichlorobiphenyl	(2.5 µg/mL)
2,3,4'-Trichlorobiphenyl	(2.5 µg/mL)
3,4',5-Trichlorobiphenyl	(2.5 µg/mL)
2,2',5,6'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,6'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',5',6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,5-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4,6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4',6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4,5'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,3',5'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4,5-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,3',4-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',3,5,6'-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4,4',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3',4,5',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4',5,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',5,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',4,4',5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',5-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,4'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',5,6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,4',6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,3',4,5,5',6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,4',5,5',6-Octachlorobiphenyl	(7.5 µg/mL)

Mixtures for Congener Specific PCB Analysis

Method 1668 Congener Set of 209 Chlorinated Biphenyl Congeners by GC/MS (continued)

PCB Congener Mix #4

M-1668A-4-0.01X — **1 x 1 mL**

At stated conc. in Isooctane — 15 comps.

2,3',4-Trichlorobiphenyl	(2.5 µg/mL)
2,3,4-Trichlorobiphenyl	(2.5 µg/mL)
2,3',4,6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',3,4'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4',6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4',5-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,5,6'-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3',4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4,4',6-Pentachlorobiphenyl	(5.0 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(5.0 µg/mL)

PCB Congener Mix #5

M-1668A-5-0.01X — **1 x 1 mL**

At stated conc. in Isooctane — 28 comps.

2-Chlorobiphenyl	(2.5 µg/mL)	2,2',3',4,6-Pentachlorobiphenyl	(5.0 µg/mL)
4-Chlorobiphenyl	(2.5 µg/mL)	2',3,4,5,6'-Pentachlorobiphenyl	(5.0 µg/mL)
2,2'-Dichlorobiphenyl	(2.5 µg/mL)	2,3,3',4',6-Pentachlorobiphenyl	(5.0 µg/mL)
4,4'-Dichlorobiphenyl	(2.5 µg/mL)	3,3',4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',4,4',6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,4',5'-Hexachlorobiphenyl	(5.0 µg/mL)
3,4,4'-Trichlorobiphenyl	(2.5 µg/mL)	3,3',4,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',6,6'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4',5,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,5'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,4,4',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5,5',6-Octachlorobiphenyl	(7.5 µg/mL)
2,3,3',4'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	(7.5 µg/mL)
3,3',4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(7.5 µg/mL)
2,2',4,6,6'-Pentachlorobiphenyl	(5.0 µg/mL)	Decachlorobiphenyl	(7.5 µg/mL)

Method 1668A/1668 Combined Congener Standards

M-1668A-C-NT-LOC-WD — **1 x 1 mL**

M-1668A-C-NT-LOC-WD-PAK — ***SAVE*** — **5 x 1 mL**

20 µg/mL each in Isooctane — 33 comps.

2-Chlorobiphenyl	2,2',4,4',6,6'-Hexachlorobiphenyl
4-Chlorobiphenyl	2,3,3',4,4',5-Hexachlorobiphenyl
2,2'-Dichlorobiphenyl	2,3,3',4,4',5'-Hexachlorobiphenyl
4,4'-Dichlorobiphenyl	2,3',4,4',5,5'-Hexachlorobiphenyl
2,2',6-Trichlorobiphenyl	3,3',4,4',5,5'-Hexachlorobiphenyl
2,3,5-Trichlorobiphenyl	2,2',3,3',4,4',5-Heptachlorobiphenyl
2',3,5-Trichlorobiphenyl	2,2',3,4,4',5,5'-Heptachlorobiphenyl
3,4,4'-Trichlorobiphenyl	2,2',3,4,4',5,6'-Heptachlorobiphenyl
2,2',6,6'-Tetrachlorobiphenyl	2,2',3,4',5,5',6-Heptachlorobiphenyl
3,3',4,4'-Tetrachlorobiphenyl	2,2',3,4',5,6,6'-Heptachlorobiphenyl
3,4,4',5-Tetrachlorobiphenyl	2,3,3',4,4',5,5'-Heptachlorobiphenyl
2,2',4,6,6'-Pentachlorobiphenyl	2,2',3,3',5,5',6,6'-Octachlorobiphenyl
2,3,3',4,4'-Pentachlorobiphenyl	2,3,3',4,4',5,5',6-Octachlorobiphenyl
2,3,4,4',5-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
2',3,4,4',5-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
3,3',4,4',5-Pentachlorobiphenyl	

GPC Calibration Solution

CLP-027-R2-WL-10ML — **1 x 10 mL**

At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(25 mg/mL)
bis(2-Ethylhexyl)phthalate	(0.5 mg/mL)
Methoxychlor	(0.1 mg/mL)
Perylene	(0.02 mg/mL)
Sulfur	(0.08 mg/mL)

Level of Chlorination Calibration/Spike Set

Determination of Chlorobiphenyl content at each level of chlorination

Calibration/Spike Set

M-1668A-LOC-SET — **2 x 1 mL (M-1668A-NAT, M-1668A-PAR)**

Native PCB Calibration Mix

M-1668A-NAT — **1 x 1 mL**

At stated conc. in Isooctane — 19 comps.

4-Chlorobiphenyl	(5 µg/mL)
4,4'-Dichlorobiphenyl	(5 µg/mL)
2,4,4'-Trichlorobiphenyl	(5 µg/mL)
3,3',4,4'-Tetrachlorobiphenyl	(1 µg/mL)
2,3,3',4,4'-Pentachlorobiphenyl	(5 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(5 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(5 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(5 µg/mL)
3,3',4,4',5-Pentachlorobiphenyl	(5 µg/mL)
2,3,3',4,4',5-Hexachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(10 µg/mL)
2,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
3,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5-Heptachlorobiphenyl	(10 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(20 µg/mL)

PAR PCB Spike Mix

M-1668A-PAR — **1 x 1 mL**

At stated conc. in Isooctane — 19 comps.

4-Chlorobiphenyl	(10 µg/mL)
4,4'-Dichlorobiphenyl	(10 µg/mL)
2,4,4'-Trichlorobiphenyl	(10 µg/mL)
3,3',4,4'-Tetrachlorobiphenyl	(0.2 µg/mL)
2,3,3',4,4'-Pentachlorobiphenyl	(10 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(10 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(10 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(10 µg/mL)
3,3',4,4',5-Pentachlorobiphenyl	(1 µg/mL)
2,3,3',4,4',5-Hexachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(10 µg/mL)
2,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
3,3',4,4',5,5'-Hexachlorobiphenyl	(2 µg/mL)
2,2',3,3',4,4',5-Heptachlorobiphenyl	(2 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5,5'-Heptachlorobiphenyl	(2 µg/mL)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(20 µg/mL)

Congener Specific PCB Analysis

Canadian Methods

A second set of four formulations has been selected by the Institute for Biological Sciences of Canada and can be purchased individually or as a complete set (C-CAN-SET). The concentration levels for these formulations are selected so that 1 mL of standard diluted into 100 mL will show equal response by ECD.

PCB Congener (Canadian RM) Set

C-CAN-SET — **4 x 1 mL** (set includes **C-CAN-01, C-CAN-02, C-CAN-03, C-CAN-04**)

PCB Congeners Mix #1

C-CAN-01 — **1 x 1 mL**

At stated conc. in Isooctane — 14 comps.

No.		
18	2,2',5-Trichlorobiphenyl	(11.8 µg/mL)
31	2,4',5-Trichlorobiphenyl	(6.6 µg/mL)
40	2,2',3,3'-Tetrachlorobiphenyl	(4.9 µg/mL)
44	2,2',3,5'-Tetrachlorobiphenyl	(5.9 µg/mL)
49	2,2',4,5'-Tetrachlorobiphenyl	(7.6 µg/mL)
54	2,2',6,6'-Tetrachlorobiphenyl	(16.6 µg/mL)
77	3,3',4,4'-Tetrachlorobiphenyl	(5.5 µg/mL)
86	2,2',3,4,5-Pentachlorobiphenyl	(2.9 µg/mL)
87	2,2',3,4,5'-Pentachlorobiphenyl	(3.8 µg/mL)
121	2,3',4,5',6-Pentachlorobiphenyl	(3.1 µg/mL)
153	2,2',4,4',5,5'-Hexachlorobiphenyl	(2.1 µg/mL)
156	2,3,3',4,4',5-Hexachlorobiphenyl	(1.5 µg/mL)
159	2,3,3',4,5,5'-Hexachlorobiphenyl	(1.2 µg/mL)
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(1.7 µg/mL)

PCB Congeners Mix #2

C-CAN-02 — **1 x 1 mL**

At stated conc. in Isooctane — 15 comps.

No.		
15	4,4'-Dichlorobiphenyl	(91.9 µg/mL)
52	2,2',5,5'-Tetrachlorobiphenyl	(15.2 µg/mL)
60	2,3,4,4'-Tetrachlorobiphenyl	(3.9 µg/mL)
103	2,2',4,5',6-Pentachlorobiphenyl	(10.8 µg/mL)
105	2,3,3',4,4'-Pentachlorobiphenyl	(4 µg/mL)
128	2,2',3,3',4,4'-Hexachlorobiphenyl	(4.9 µg/mL)
143	2,2',3,4,5,6'-Hexachlorobiphenyl	(5.7 µg/mL)
154	2,2',4,4',5,6'-Hexachlorobiphenyl	(6.2 µg/mL)
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	(2.3 µg/mL)
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	(3.8 µg/mL)
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	(3.6 µg/mL)
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	(3.2 µg/mL)
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	(3.8 µg/mL)
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	(2.4 µg/mL)
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(2.8 µg/mL)

PCB Congeners Mix #3

C-CAN-03 — **1 x 1 mL**

At stated conc. in Isooctane — 15 comps.

No.		
15	4,4'-Dichlorobiphenyl	(138.1 µg/mL)
114	2,3,4,4',5-Pentachlorobiphenyl	(6.3 µg/mL)
129	2,2',3,3',4,5-Hexachlorobiphenyl	(8.3 µg/mL)
137	2,2',3,4,4',5-Hexachlorobiphenyl	(7.4 µg/mL)
153	2,2',4,4',5,5'-Hexachlorobiphenyl	(7.3 µg/mL)
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	(5.2 µg/mL)
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	(6.6 µg/mL)
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	(3.5 µg/mL)
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	(4.7 µg/mL)
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	(5 µg/mL)
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	(7 µg/mL)
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	(4.8 µg/mL)
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	(5.1 µg/mL)
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(6.7 µg/mL)
209	Decachlorobiphenyl	(5.1 µg/mL)

PCB Congeners Mix #4

C-CAN-04 — **1 x 1 mL**

At stated conc. in Isooctane — 15 comps.

No.		
14	4,4'-Dichlorobiphenyl	(76.7 µg/mL)
101	2,2',4,5,5'-Pentachlorobiphenyl	(8.9 µg/mL)
118	2,3',4,4',5-Pentachlorobiphenyl	(3.9 µg/mL)
138	2,2',3,4,4',5'-Hexachlorobiphenyl	(4.2 µg/mL)
141	2,2',3,4,5,5'-Hexachlorobiphenyl	(2.8 µg/mL)
151	2,2',3,5,5',6-Hexachlorobiphenyl	(5 µg/mL)
153	2,2',4,4',5,5'-Hexachlorobiphenyl	(3.3 µg/mL)
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	(3 µg/mL)
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	(2.8 µg/mL)
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	(3.2 µg/mL)
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(2.4 µg/mL)
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	(2.6 µg/mL)
196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	(3.3 µg/mL)
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	(3.6 µg/mL)
209	Decachlorobiphenyl	(2.7 µg/mL)

Quebec Ministry of Environment Congener Mix

C-QME-01 — **1 x 1 mL**

At stated conc. in Isooctane — 41 comps.

No.		
17	2,2',4-Trichlorobiphenyl	(500 ng/mL)
18	2,2',5-Trichlorobiphenyl	(2000 ng/mL)
28	2,4,4'-Trichlorobiphenyl	(2000 ng/mL)
31	2,4',5-Trichlorobiphenyl	(1500 ng/mL)
33	2',3,4-Trichlorobiphenyl	(2000 ng/mL)
44	2,2',3,5'-Tetrachlorobiphenyl	(2000 ng/mL)
49	2,2',4,5'-Tetrachlorobiphenyl	(2000 ng/mL)
52	2,2',5,5'-Tetrachlorobiphenyl	(2000 ng/mL)
70	2,3',4',5-Tetrachlorobiphenyl	(2000 ng/mL)
74	2,4,4',5-Tetrachlorobiphenyl	(2000 ng/mL)
82	2,2',3,3',4-Pentachlorobiphenyl	(500 ng/mL)
87	2,2',3,4,5'-Pentachlorobiphenyl	(2000 ng/mL)
95	2,2',3,5',6-Pentachlorobiphenyl	(1000 ng/mL)
99	2,2',4,4',5-Pentachlorobiphenyl	(2000 ng/mL)
101	2,2',4,5,5'-Pentachlorobiphenyl	(2000 ng/mL)
105	2,3,3',4,4'-Pentachlorobiphenyl	(500 ng/mL)
110	2,3,3',4',6-Pentachlorobiphenyl	(2000 ng/mL)
118	2,3',4,4',5-Pentachlorobiphenyl	(2000 ng/mL)
128	2,2',3,3',4,4'-Hexachlorobiphenyl	(2000 ng/mL)
132	2,2',3,3',4,6'-Hexachlorobiphenyl	(1000 ng/mL)
138	2,2',3,4,4',5'-Hexachlorobiphenyl	(2000 ng/mL)
149	2,2',3,4',5',6-Hexachlorobiphenyl	(2000 ng/mL)
151	2,2',3,5,5',6-Hexachlorobiphenyl	(2000 ng/mL)
153	2,2',4,4',5,5'-Hexachlorobiphenyl	(2000 ng/mL)
156	2,3,3',4,4',5-Hexachlorobiphenyl	(2000 ng/mL)
158	2,3,3',4,4',6-Hexachlorobiphenyl	(500 ng/mL)
169	3,3',4,4',5,5'-Hexachlorobiphenyl	(2000 ng/mL)
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	(2000 ng/mL)
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	(2000 ng/mL)
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	(2000 ng/mL)
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	(2000 ng/mL)
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	(2000 ng/mL)
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	(2000 ng/mL)
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	(2000 ng/mL)
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(2000 ng/mL)
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	(2000 ng/mL)
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	(1500 ng/mL)
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	(2000 ng/mL)
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(2000 ng/mL)
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	(2000 ng/mL)
209	Decachlorobiphenyl	(2000 ng/mL)

Congener Specific PCB Analysis

Integrated Atmospheric Deposition Network (IADN)

The Integrated Atmospheric Deposition Network is composed of five agencies: the US EPA, Environment Canada's (EC) Metrological Service of Canada, EC's National Water Research Institute (NWRI), EC's Ecosystem Health Division of Ontario Region (EHD), and the Ontario Ministry of Environment (OME) whose goal it is to cooperatively implement the Great Lakes Water Quality Agreement.

This agreement requires certain chemicals to be monitored. The Tier 1 group specifically called for the measurement of PCB congeners. AccuStandard was requested to develop a set of IADN PCB congener standards to meet this specific chemical list.

IADN Congener Set

C-IADN-SET — **3 x 1 mL** (C-IADN-01, C-IADN-02, C-IADN-03)

IADN Congener Standard #1

C-IADN-01 — **1 x 1 mL**

30 µg/mL each in Isooctane — 28 comps.

- 2,2'-Dichlorobiphenyl
- 2,4-Dichlorobiphenyl
- 2,6-Dichlorobiphenyl
- 4,4'-Dichlorobiphenyl
- 2,2',5-Trichlorobiphenyl
- 2,4,4'-Trichlorobiphenyl
- 2,4',6-Trichlorobiphenyl
- 2,2',3,4-Tetrachlorobiphenyl
- 2,2',3,6-Tetrachlorobiphenyl
- 2,2',5,5'-Tetrachlorobiphenyl
- 2,3,3',4'-Tetrachlorobiphenyl
- 2,3',4,4'-Tetrachlorobiphenyl
- 2,4,4',5-Tetrachlorobiphenyl
- 3,4,4',5-Tetrachlorobiphenyl
- 2,2',3,4,4'-Pentachlorobiphenyl
- 2,2',3,4',6-Pentachlorobiphenyl
- 2,2',3',4,5-Pentachlorobiphenyl
- 2,2',4,5,5'-Pentachlorobiphenyl
- 2,3,4,4',5-Pentachlorobiphenyl
- 2',3,4,4',5-Pentachlorobiphenyl
- 2,2',3,3',4,6-Hexachlorobiphenyl
- 2,2',3,4,4',5'-Hexachlorobiphenyl
- 2,2',4,4',5,5'-Hexachlorobiphenyl
- 2,3',4,4',5,5'-Hexachlorobiphenyl
- 2,2',3,3',4,4',6-Heptachlorobiphenyl
- 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 2,2',3,3',4,5,6,6'-Octachlorobiphenyl
- 2,3,3',4,4',5,5',6-Octachlorobiphenyl

IADN Congener Standard #2

C-IADN-02 — **1 x 1 mL**

30 µg/mL each in Isooctane — 28 comps.

- 2,3-Dichlorobiphenyl
- 2,4'-Dichlorobiphenyl
- 3,4-Dichlorobiphenyl
- 2,2',3-Trichlorobiphenyl
- 2,2',6-Trichlorobiphenyl
- 2,3',5-Trichlorobiphenyl
- 2',3,4-Trichlorobiphenyl
- 2,2',3,4'-Tetrachlorobiphenyl
- 2,2',4,4'-Tetrachlorobiphenyl
- 2,2',4,5'-Tetrachlorobiphenyl
- 2,3,4,4'-Tetrachlorobiphenyl
- 2,3',4,5-Tetrachlorobiphenyl
- 2',3,4,5-Tetrachlorobiphenyl
- 2,2',3,3',5-Pentachlorobiphenyl
- 2,2',3,4,5'-Pentachlorobiphenyl
- 2,2',3,5,5'-Pentachlorobiphenyl
- 2,2',4,4',5-Pentachlorobiphenyl
- 2,3,3',4,4'-Pentachlorobiphenyl
- 2,3',4,4',5-Pentachlorobiphenyl
- 3,3',4,4',5-Pentachlorobiphenyl
- 2,2',3,3',4,6'-Hexachlorobiphenyl
- 2,2',3,4,5',6-Hexachlorobiphenyl
- 2,3,3',4,4',5-Hexachlorobiphenyl
- 3,3',4,4',5,5'-Hexachlorobiphenyl
- 2,2',3,3',4,5,5'-Heptachlorobiphenyl
- 2,3,3',4,4',5,6-Heptachlorobiphenyl
- 2,2',3,3',4,5,5',6'-Octachlorobiphenyl
- 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl

IADN Congener Standard #3

C-IADN-03 — **1 x 1 mL**

30 µg/mL each in Isooctane — 28 comps.

- 2,3'-Dichlorobiphenyl
- 2,5-Dichlorobiphenyl
- 3,4'-Dichlorobiphenyl
- 2,2',4-Trichlorobiphenyl
- 2,3,4'-Trichlorobiphenyl
- 2,4',5-Trichlorobiphenyl
- 3,4,4'-Trichlorobiphenyl
- 2,2',3,5'-Tetrachlorobiphenyl
- 2,2',4,5-Tetrachlorobiphenyl
- 2,2',5,6'-Tetrachlorobiphenyl
- 2,3,4',6-Tetrachlorobiphenyl
- 2,3',4',6-Tetrachlorobiphenyl
- 3,3',4,4'-Tetrachlorobiphenyl
- 2,2',3,3',6-Pentachlorobiphenyl
- 2,2',3,4,6'-Pentachlorobiphenyl
- 2,2',3,5',6-Pentachlorobiphenyl
- 2,2',4,4',6-Pentachlorobiphenyl
- 2,3,3',4',6-Pentachlorobiphenyl
- 2,3',4,4',6-Pentachlorobiphenyl
- 2,2',3,3',4,4'-Hexachlorobiphenyl
- 2,2',3,3',5,6'-Hexachlorobiphenyl
- 2,2',3,4',5',6-Hexachlorobiphenyl
- 2,3,3',4',5,6-Hexachlorobiphenyl
- 2,2',3,3',4,4',5-Heptachlorobiphenyl
- 2,2',3,3',4,5,6'-Heptachlorobiphenyl
- 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
- 2,2',3,3',5,5',6,6'-Octachlorobiphenyl
- 2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl

PCB Congener Content Evaluation

These Congener Calibration mixes have been formulated to meet the proposed International standard titled "Insulating Liquids - Contamination by PCBs - Method of Determination by Capillary Column Gas Chromatography".

Mix #1

AE-00059 — **1 x 1 mL**

AE-00059-10ML — **1 x 10 mL**

10 µg/mL each in Isooctane — 6 comps.

No.	
28	2,4,4'-Trichlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl

Mix #2

AE-00060 — **1 x 1 mL**

AE-00060-10ML — **1 x 10 mL**

10 µg/mL each in Isooctane — 3 comps.

No.	
77	3,3',4,4'-Tetrachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl
169	3,3',4,4',5,5'-Hexachlorobiphenyl

Congener Calibration Mix

AE-00061 — **1 x 1 mL**

AE-00061-10ML — **1 x 10 mL**

10 µg/mL each in Isooctane — 14 comps.

No.	
18	2,2',5-Trichlorobiphenyl
28	2,4,4'-Trichlorobiphenyl
31	2,4',5-Trichlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
118	2,3',4,4',5-Pentachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
149	2,2',3,4',5,6-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
170	2,2',3,3',4,4',5-Heptachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl
209	Decachlorobiphenyl

Internal Standards

Each at 100 µg/mL in Isooctane

C-030S-TP — **1 x 1 mL**

2,4,6-Trichlorobiphenyl

C-209S-TP — **1 x 1 mL**

2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl

Technical Note

These congener content evaluation mixtures have proven useful for European laboratories estimating the PCB content of a sample when following EU guideline 96/59/EU for cleanup of PCBs.

Congener Specific PCB Analysis

Formulations for Toxicity and Abundance Studies

Abundance Analysis

Five of the solutions AccuStandard offers are formulated to assist the investigator or analytical Chemist in their own studies and can be purchased individually or as a complete set (C-SCA-SET). According to the study the 36 congeners contained in these five groups are considered environmentally threatening due to their frequency of occurrence in environmental samples, abundance in the Aroclors and potential toxicity.

Group 1a: comprises the three congeners present to a small extent in the Aroclors that are the most toxic and have been characterized as pure 3-Methyl cholanthrene - type (3-MC) inducers.
Group 1b: congeners are mixed-type inducers but are of somewhat lesser toxicity and are very abundant in the Aroclors as well as in the environment. It includes Congener #105 which, while not as prevalent, is potentially almost as toxic as the Group 1a congeners.

Group 2: includes the congeners which are Phenobarbital - type (PB) inducers for Mixed-Function Oxidase enzymes. These are less toxic but more abundant in the environment. They represent 25-41% of total PCB content found in animal tissue.
Group 3: congeners are weak- or non-inducers representing about 10% of the PCB content of tissues.
Group 4: congeners have some potential for toxicity but have very low presence in tissue.

Toxicity Analysis

A sixth solution is prepared for the analyst who is investigating the presence of PCB congeners in food and human tissues. Specific congeners are selected by K.C. Jones [2] as outlined in his article referenced below which is titled, "Determination of polychlorinated biphenyls in human food stuffs and tissues: Suggestions for a selective congener analytical approach".

Literature Reference
V.A. McFarland and J.U. Clarke, Environmental Health Perspectives, vol. 81, pp 225-239 (1989). 2. K.C. Jones, Sci. Total Environment, vol. 68, pp 141-159 (1988).

Complete Set of PCB Congeners

C-SCA-SET — **5 x 1 mL** (includes **C-SCA-01, C-SCA-02, C-SCA-03, C-SCA-04, C-SCA-05**)

Mix #1 Group 1a (3 MC Type Inducers)

C-SCA-01 — **1 x 1 mL**
10 µg/mL each in Isooctane — 3 comps.

3,3',4,4'-Tetrachlorobiphenyl (77)
3,3',4,4',5-Pentachlorobiphenyl (126)
3,3',4,4',5,5'-Hexachlorobiphenyl (169)

Mix #2 Group 1b (Mixed Type Inducers)

C-SCA-02 — **1 x 1 mL**
10 µg/mL each in Isooctane — 6 comps.

2,3,3',4,4'-Pentachlorobiphenyl (105)
2,3',4,4',5-Pentachlorobiphenyl (118)
2,2',3,3',4,4'-Hexachlorobiphenyl (128)
2,2',3,4,4',5'-Hexachlorobiphenyl (138)
2,3,3',4,4',5-Hexachlorobiphenyl (156)
2,2',3,3',4,4',5-Heptachlorobiphenyl (170)

Mix #3 Group 2 (PB Type Inducers)

C-SCA-03 — **1 x 1 mL**
10 µg/mL each in Isooctane — 7 comps.

2,2',3,4,5'-Pentachlorobiphenyl (87)
2,2',4,4',5-Pentachlorobiphenyl (99)
2,2',4,5,5'-Pentachlorobiphenyl (101)
2,2',4,4',5,5'-Hexachlorobiphenyl (153)
2,2',3,4,4',5,5'-Heptachlorobiphenyl (180)
2,2',3,4,4',5',6-Heptachlorobiphenyl (183)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (194)

Mix #4 Group 3 (Non-Inducer Type)

C-SCA-04 — **1 x 1 mL**
10 µg/mL each in Isooctane — 10 comps.

2,2',5-Trichlorobiphenyl (18)
2,2',3,5'-Tetrachlorobiphenyl (44)
2,2',4,5'-Tetrachlorobiphenyl (49)
2,2',5,5'-Tetrachlorobiphenyl (52)
2,3',4',5-Tetrachlorobiphenyl (70)
2,4,4',5-Tetrachlorobiphenyl (74)
2,2',3,5,5',6-Hexachlorobiphenyl (151)
2,2',3,3',4',5,6-Heptachlorobiphenyl (177)
2,2',3,4',5,5',6-Heptachlorobiphenyl (187)
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (199)

Mix #5 Group 4 (Mixed Type Inducers present at very low levels)

C-SCA-05 — **1 x 1 mL**
10 µg/mL each in Isooctane — 10 comps.

3,4,4'-Trichlorobiphenyl (37)
3,4,4',5-Tetrachlorobiphenyl (81)
2,3,4,4',5-Pentachlorobiphenyl (114)
2,3',4,4',6-Pentachlorobiphenyl (119)
2',3,4,4',5-Pentachlorobiphenyl (123)
2,3,3',4,4',5'-Hexachlorobiphenyl (157)
2,3,3',4,4',6-Hexachlorobiphenyl (157)
2,3',4,4',5,5'-Hexachlorobiphenyl (167)
2,3',4,4',5',6-Hexachlorobiphenyl (168)
2,3,3',4,4',5,5'-Heptachlorobiphenyl (189)

Mix #6 (Food & Human Tissue analysis)

C-SCA-06 — **1 x 1 mL**
10 µg/mL each in Isooctane — 32 comps.

2,4'-Dichlorobiphenyl (8)
2,4,4'-Trichlorobiphenyl (28)
3,4,4'-Trichlorobiphenyl (37)
2,2',3,5'-Tetrachlorobiphenyl (44)
2,2',4,5'-Tetrachlorobiphenyl (49)
2,2',5,5'-Tetrachlorobiphenyl (52)
2,3,4,4'-Tetrachlorobiphenyl (60)
2,3',4,4'-Tetrachlorobiphenyl (66)
2,3',4',5-Tetrachlorobiphenyl (70)
2,4,4',5-Tetrachlorobiphenyl (74)
3,3',4,4'-Tetrachlorobiphenyl (77)
2,2',3,3',4-Pentachlorobiphenyl (82)
2,2',3,4,5'-Pentachlorobiphenyl (87)
2,2',4,4',5-Pentachlorobiphenyl (99)
2,2',4,5,5'-Pentachlorobiphenyl (101)
2,3,3',4,4'-Pentachlorobiphenyl (105)
2,3,4,4',5-Pentachlorobiphenyl (114)
2,3',4,4',5-Pentachlorobiphenyl (118)
3,3',4,4',5-Pentachlorobiphenyl (126)
2,2',3,3',4,4'-Hexachlorobiphenyl (128)
2,2',3,4,4',5'-Hexachlorobiphenyl (138)
2,2',4,4',5,5'-Hexachlorobiphenyl (153)
2,3,3',4,4',5-Hexachlorobiphenyl (156)
2,3,3',4,4',6-Hexachlorobiphenyl (158)
2,3,4,4',5,6-Hexachlorobiphenyl (166)
3,3',4,4',5,5'-Hexachlorobiphenyl (169)
2,2',3,3',4,4',5-Heptachlorobiphenyl (170)
2,2',3,3',5,6,6'-Heptachlorobiphenyl (179)
2,2',3,4,4',5,5'-Heptachlorobiphenyl (180)
2,2',3,4,4',5',6-Heptachlorobiphenyl (183)
2,2',3,4',5,5',6-Heptachlorobiphenyl (187)
2,3,3',4,4',5,5'-Heptachlorobiphenyl (189)

Non-Ortho Substituted PCBs

C-SCA-DIOXLIK — **1 x 1 mL**
10 µg/mL each in Isooctane — 4 comps.

3,3',4,4'-Tetrachlorobiphenyl (77)
3,3',4,4',5-Pentachlorobiphenyl (126)
3,3',4,4',5,5'-Hexachlorobiphenyl (169)
3,4,4',5-Tetrachlorobiphenyl (81)

Internal Standard

C-EU-IS-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 2 comps.

2,4,6-Trichlorobiphenyl
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl

Dutch Seven PCBs Standard

PCB-DUTCH7-SET — **7 x 1 mL**
100 µg/mL each in Isooctane

PCB-DUTCH7 — **1 x 1 mL**
10 µg/mL each in Isooctane — 7 comps.

2,4,4'-Trichlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl

Congener Specific PCB Analysis

PCB Congener Mix for West Coast Fish Studies

C-WCFS **1 x 1 mL**
25 µg/mL each in Isooctane 24 comps.

- 2,4',5-Trichlorobiphenyl
- 2',3,4-Trichlorobiphenyl
- 2,2',4,5'-Tetrachlorobiphenyl
- 2,3,3',4-Tetrachlorobiphenyl
- 2,3,4,4'-Tetrachlorobiphenyl
- 2,3',4',5-Tetrachlorobiphenyl
- 2,2',3,4,5'-Pentachlorobiphenyl
- 2,2',3,5',6-Pentachlorobiphenyl
- 2,2',3',4,5-Pentachlorobiphenyl
- 2,2',4,4',5-Pentachlorobiphenyl
- 2,3,3',4',6-Pentachlorobiphenyl
- 2,2',3,3',4,6'-Hexachlorobiphenyl
- 2,2',3,4,5,5'-Hexachlorobiphenyl
- 2,2',3,4',5,6-Hexachlorobiphenyl
- 2,2',3,5,5',6-Hexachlorobiphenyl
- 2,3,3',4,4',5-Hexachlorobiphenyl
- 2,3,3',4,4',6-Hexachlorobiphenyl
- 2,2',3,3',4,5,6'-Heptachlorobiphenyl
- 2,2',3,3',4',5,6-Heptachlorobiphenyl
- 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
- 2,2',3,3',4,5,5',6'-Octachlorobiphenyl
- 2,2',3,4,4',5,5',6-Octachlorobiphenyl
- 2,2',3,4,4',5',6-Heptachlorobiphenyl
- 2,4,4',5-Tetrachlorobiphenyl

WHO/NIST/NOAA Congener List

C-WNN **1 x 1 mL**
C-WNN-PAK ***SAVE*** **5 x 1 mL**
10 µg/mL each in Isooctane 28 comps.

- 2,4'-Dichlorobiphenyl
- 2,2',5-Trichlorobiphenyl
- 2,4,4'-Trichlorobiphenyl
- 2,2',3,5'-Tetrachlorobiphenyl
- 2,2',5,5'-Tetrachlorobiphenyl
- 2,3',4,4'-Tetrachlorobiphenyl
- 3,3',4,4'-Tetrachlorobiphenyl
- 3,4,4',5-Tetrachlorobiphenyl
- 2,2',4,5,5'-Pentachlorobiphenyl
- 2,3,3',4,4'-Pentachlorobiphenyl
- 2,3,4,4',5-Pentachlorobiphenyl
- 2,3',4,4',5-Pentachlorobiphenyl
- 2',3,4,4',5-Pentachlorobiphenyl
- 3,3',4,4',5-Pentachlorobiphenyl
- 2,2',3,3',4,4'-Hexachlorobiphenyl
- 2,2',3,4,4',5'-Hexachlorobiphenyl
- 2,2',4,4',5,5'-Hexachlorobiphenyl
- 2,3,3',4,4',5-Hexachlorobiphenyl
- 2,3,3',4,4',5'-Hexachlorobiphenyl
- 2,3',4,4',5,5'-Hexachlorobiphenyl
- 3,3',4,4',5,5'-Hexachlorobiphenyl
- 2,2',3,3',4,4',5-Heptachlorobiphenyl
- 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 2,2',3,4',5,5',6-Heptachlorobiphenyl
- 2,3,3',4,4',5,5'-Heptachlorobiphenyl
- 2,2',3,3',4,4',5,6-Octachlorobiphenyl
- 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
- Decachlorobiphenyl

World Health Organization Congener Mix

C-WHO-01 **1 x 1 mL**
2.0 µg/mL each in Isooctane 12 comps.

- 3,3',4,4'-Tetrachlorobiphenyl
- 3,4,4',5-Tetrachlorobiphenyl
- 2,3,3',4,4'-Pentachlorobiphenyl
- 2,3,4,4',5-Pentachlorobiphenyl
- 2,3',4,4',5-Pentachlorobiphenyl
- 2',3,4,4',5-Pentachlorobiphenyl
- 3,3',4,4',5-Pentachlorobiphenyl
- 2,3,3',4,4',5'-Hexachlorobiphenyl
- 2,3',4,4',5,5'-Hexachlorobiphenyl
- 3,3',4,4',5,5'-Hexachlorobiphenyl
- 2,3,3',4,4',5,5'-Heptachlorobiphenyl

DCMA-PCB Isomer Mixture

M-002 **1 x 1 mL**
M-002-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in Hexane 10 comps.

2-Chlorobiphenyl	(100 µg/mL)	2,2',3,3',6,6'-Hexachlorobiphenyl	(10 µg/mL)
3,3'-Dichlorobiphenyl	(100 µg/mL)	2,2',3,4,5,5',6-Heptachlorobiphenyl	(5 µg/mL)
2,4,5-Trichlorobiphenyl	(10 µg/mL)	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(5 µg/mL)
2,2',4,4'-Tetrachlorobiphenyl	(10 µg/mL)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(5 µg/mL)
2,3',4,5',6-Pentachlorobiphenyl	(10 µg/mL)	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(5 µg/mL)

Technical Note

The Dry Color Manufacturer's Association (DCMA) recommends that its members use this type of mixture to monitor their process streams for PCBs. The DCMA-PCB congener method is made from pure PCB congeners in Hexane

CEN's Workgroup #22 for PCBs in Waste Oil

PCB-W22 **1 x 1 mL**
10 µg/mL each in Isooctane 15 comps.
PCB-W22-PAK ***SAVE*** **5 x 1 mL**

PCB-W22-SET **15 x 1 mL**
100 µg/mL in Isooctane (Set of Individual Solutions)

Technical Note

The Comité Europeen de Normalisation (CEN) has assigned Workgroup Number 22 in Hamburg, Germany to develop a method for "PCBs" in waste oil.

No.		No.		No.	
(18)	2,2',5-Trichlorobiphenyl	(52)	2,2',5,5'-Tetrachlorobiphenyl	(149)	2,2',3,4',5',6-Hexachlorobiphenyl
(20)	2,3,3'-Trichlorobiphenyl	(101)	2,2',4,5,5'-Pentachlorobiphenyl	(153)	2,2',4,4',5,5'-Hexachlorobiphenyl
(28)	2,4,4'-Trichlorobiphenyl	(105)	2,3,3',4,4'-Pentachlorobiphenyl	(170)	2,2',3,3',4,4',5-Heptachlorobiphenyl
(31)	2,4',5-Trichlorobiphenyl	(118)	2,3',4,4',5-Pentachlorobiphenyl	(180)	2,2',3,4,4',5,5'-Heptachlorobiphenyl
(44)	2,2',3,5'-Tetrachlorobiphenyl	(138)	2,2',3,4,4',5'-Hexachlorobiphenyl	(194)	2,2',3,3',4,4',5,5'-Octachlorobiphenyl

Dioxin-Like Congeners

C-DIOXLIK	Level 1 -01 ng/mL	Level 2 -02 ng/mL	Level 3 -03 ng/mL	Level 4 -04 ng/mL	Level 5 -05 ng/mL	Level 6 -06 ng/mL	Level 7 -07 ng/mL	Level 8 -08 ng/mL	Level 9 -09 ng/mL	Level 10 -10 ng/mL	Level 11 -11 ng/mL	Level 12 -12 ng/mL
3,3',4,4'-Tetrachlorobiphenyl (77)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
3,4,4',5-Tetrachlorobiphenyl (81)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3,3',4,4'-Pentachlorobiphenyl (105)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3,4,4',5-Pentachlorobiphenyl (114)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3',4,4',5-Pentachlorobiphenyl (118)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2',3,4,4',5-Pentachlorobiphenyl (123)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
3,3',4,4',5-Pentachlorobiphenyl (126)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3,3',4,4',5-Hexachlorobiphenyl (156)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3,3',4,4',5'-Hexachlorobiphenyl (157)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3',4,4',5,5'-Hexachlorobiphenyl (167)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
3,3',4,4',5,5'-Hexachlorobiphenyl (169)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,2',3,3',4,4',5-Heptachlorobiphenyl (170)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,2',3,4,4',5,5'-Heptachlorobiphenyl (180)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
2,3,3',4,4',5,5'-Heptachlorobiphenyl (189)	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250

C-DIOXLIK1-SET **5 x 1 mL**
Set includes

- C-DIOXLIK-02
- C-DIOXLIK-04
- C-DIOXLIK-06
- C-DIOXLIK-08
- C-DIOXLIK-10

C-DIOXLIK2-SET **5 x 1 mL**
Set includes

- C-DIOXLIK-03
- C-DIOXLIK-05
- C-DIOXLIK-07
- C-DIOXLIK-09
- C-DIOXLIK-11

C-DIOXLIK3-SET **5 x 1 mL**
Set includes

- C-DIOXLIK-04
- C-DIOXLIK-06
- C-DIOXLIK-08
- C-DIOXLIK-10
- C-DIOXLIK-12

Individual Levels 4, 6, 8, 10 12

C-DIOXLIK3-04	**1 mL**
C-DIOXLIK3-06	**1 mL**
C-DIOXLIK3-08	**1 mL**
C-DIOXLIK3-10	**1 mL**
C-DIOXLIK3-12	**1 mL**

PCB Congener Calibration Mixtures

9 Mixtures provide All 209 Congeners
Present in Aroclors

PCB Congener Mix #1

C-CS-01 — **1 x 1 mL**
10 µg/mL each in Isooctane — 39 comps.

No.	
1	2-Chlorobiphenyl
2	3-Chlorobiphenyl †
3	4-Chlorobiphenyl
4	**2,2'-Dichlorobiphenyl**
6	**2,3'-Dichlorobiphenyl**
8	**2,4'-Dichlorobiphenyl**
9	2,5-Dichlorobiphenyl
16	**2,2',3-Trichlorobiphenyl**
18	**2,2',5-Trichlorobiphenyl**
19	2,2',6-Trichlorobiphenyl
22	**2,3,4'-Trichlorobiphenyl**
25	2,3',4-Trichlorobiphenyl
28	**2,4,4'-Trichlorobiphenyl**
44	**2,2'3,5'-Tetrachlorobiphenyl**
52	**2,2',5,5'-Tetrachlorobiphenyl**
56	**2,3,3',4'-Tetrachlorobiphenyl**
66	**2,3',4,4'-Tetrachlorobiphenyl**
67	2,3',4,5-Tetrachlorobiphenyl
71	2,3',4',6-Tetrachlorobiphenyl
74	**2,4,4',5-Tetrachlorobiphenyl**
82	**2,2',3,3',4-Pentachlorobiphenyl**
87	**2,2',3,4,5'-Pentachlorobiphenyl**
99	**2,2',4,4',5-Pentachlorobiphenyl**
110	**2,3,3',4',6-Pentachlorobiphenyl**
138	**2,2',3,4,4',5'-Hexachlorobiphenyl**
146	**2,2',3,4',5,5'-Hexachlorobiphenyl**
147	2,2',3,4',5,6-Hexachlorobiphenyl †
153	**2,2',4,4',5,5'-Hexachlorobiphenyl**
173	2,2',3,3',4,5,6-Heptachlorobiphenyl
174	**2,2',3,3',4,5,6'-Heptachlorobiphenyl**
177	**2,2',3,3',4',5,6-Heptachlorobiphenyl**
179	**2,2',3,3',5,6,6'-Heptachlorobiphenyl**
180	**2,2',3,4,4',5,5'-Heptachlorobiphenyl**
187	**2,2',3,4',5,5',6-Heptachlorobiphenyl**
194	**2,2',3,3',4,4',5,5'-Octachlorobiphenyl**
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl
199	**2,2',3,3',4,5,5',6'-Octachlorobiphenyl**
203	**2,2',3,4,4',5,5',6-Octachlorobiphenyl**
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl

PCB Congener Mix #4

C-CS-04 — **1 x 1 mL**
10 µg/mL each in Isooctane — 22 comps.

No.	
13	3,4'-Dichlorobiphenyl
14	3,5-Dichlorobiphenyl †
35	3,3',4-Trichlorobiphenyl
51	2,2',4,6'-Tetrachlorobiphenyl
53	2,2',5,6'-Tetrachlorobiphenyl
54	2,2',6,6'-Tetrachlorobiphenyl †
73	2,3',5',6-Tetrachlorobiphenyl †
75	2,4,4',6-Tetrachlorobiphenyl
81	3,4,4',5-Tetrachlorobiphenyl †
90	2,2',3,4',5-Pentachlorobiphenyl †
100	2,2',4,4',6-Pentachlorobiphenyl †
117	2,3,4',5,6-Pentachlorobiphenyl
122	2',3,3',4,5-Pentachlorobiphenyl
124	2',3,4,5,5'-Pentachlorobiphenyl
130	2,2',3,3',4,5'-Hexachlorobiphenyl
154	2,2',4,4',5,6'-Hexachlorobiphenyl †
163	**2,3,3',4',5,6-Hexachlorobiphenyl**
165	2,3,3',5,5',6-Hexachlorobiphenyl †
175	2,2',3,3',4,5',6-Heptachlorobiphenyl
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl

PCB Congener Mix #2

C-CS-02 — **1 x 1 mL**
10 µg/mL each in Isooctane — 36 comps.

No.	
5	2,3-Dichlorobiphenyl
7	2,4-Dichlorobiphenyl
10	2,6-Dichlorobiphenyl
17	**2,2',4-Trichlorobiphenyl**
24	2,3,6-Trichlorobiphenyl
26	**2,3',5-Trichlorobiphenyl**
31	**2,4',5-Trichlorobiphenyl**
32	**2,4',6-Trichlorobiphenyl**
37	**3,4,4'-Trichlorobiphenyl**
41	2,2',3,4-Tetrachlorobiphenyl
45	**2,2',3,6-Tetrachlorobiphenyl**
46	2,2',3,6'-Tetrachlorobiphenyl
48	**2,2',4,5-Tetrachlorobiphenyl**
60	**2,3,4,4'-Tetrachlorobiphenyl**
70	**2,3',4',5-Tetrachlorobiphenyl**
83	2,2',3,3',5-Pentachlorobiphenyl
84	**2,2',3,3',6-Pentachlorobiphenyl**
95	**2,2',3,5',6-Pentachlorobiphenyl**
103	2,2',4,5',6-Pentachlorobiphenyl †
107	2,3,3',4',5-Pentachlorobiphenyl
115	2,3,4,4',6-Pentachlorobiphenyl
131	2,2',3,3',4,6-Hexachlorobiphenyl
132	**2,2',3,3',4,6'-Hexachlorobiphenyl**
135	**2,2',3,3',5,6'-Hexachlorobiphenyl**
141	**2,2',3,4,5,5'-Hexachlorobiphenyl**
149	**2,2',3,4',5,6-Hexachlorobiphenyl**
164	2,3,3',4',5',6-Hexachlorobiphenyl
170	**2,2',3,3',4,4',5-Heptachlorobiphenyl**
171	**2,2',3,3',4,4',6-Heptachlorobiphenyl**
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl
178	2,2',3,3',5,5',6-Heptachlorobiphenyl
183	**2,2',3,4,4',5',6-Heptachlorobiphenyl**
193	2,3,3',4',5,5',6-Heptachlorobiphenyl
196	2,2',3,3',4,4',5,6-Octachlorobiphenyl
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl

PCB Congener Mix #5

C-CS-05 — **1 x 1 mL**
10 µg/mL each in Isooctane — 20 comps.

No.	
12	3,4-Dichlorobiphenyl
33	**2',3,4-Trichlorobiphenyl**
49	**2,2',4,5'-Tetrachlorobiphenyl**
59	2,3,3',6-Tetrachlorobiphenyl
63	2,3,4',5-Tetrachlorobiphenyl
64	**2,3,4',6-Tetrachlorobiphenyl**
77	3,3',4,4'-Tetrachlorobiphenyl
85	**2,2',3,4,4'-Pentachlorobiphenyl**
91	2,2',3,4',6-Pentachlorobiphenyl
97	**2,2',3',4,5-Pentachlorobiphenyl**
104	2,2',4,6,6'-Pentachlorobiphenyl †
114	2,3,4,4',5-Pentachlorobiphenyl
123	2',3,4,4',5-Pentachlorobiphenyl
129	2,2',3,3',4,5-Hexachlorobiphenyl
137	2,2',3,4,4',5-Hexachlorobiphenyl
156	**2,3,3',4,4',5-Hexachlorobiphenyl**
167	2,3',4,4',5,5'-Hexachlorobiphenyl
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl
185	2,2',3,4,5,5',6-Heptachlorobiphenyl
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl

PCB Congener Mix #3

C-CS-03 — **1 x 1 mL**
10 µg/mL each in Isooctane — 27 comps.

No.	
15	**4,4'-Dichlorobiphenyl**
20	2,3,3'-Trichlorobiphenyl
27	2,3',6-Trichlorobiphenyl
29	2,4,5-Trichlorobiphenyl
34	2',3,5-Trichlorobiphenyl
40	2,2',3,3'-Tetrachlorobiphenyl
42	**2,2',3,4'-Tetrachlorobiphenyl**
47	**2,2',4,4'-Tetrachlorobiphenyl**
69	2,3',4,6-Tetrachlorobiphenyl †
92	2,2',3,5,5'-Pentachlorobiphenyl
93	2,2',3,5,6-Pentachlorobiphenyl †
101	**2,2',4,5,5'-Pentachlorobiphenyl**
105	**2,3,3',4,4'-Pentachlorobiphenyl**
118	**2,3',4,4',5-Pentachlorobiphenyl**
119	2,3',4,4',6-Pentachlorobiphenyl
128	**2,2',3,3',4,4'-Hexachlorobiphenyl**
134	2,2',3,3',5,6-Hexachlorobiphenyl
136	**2,2',3,3',6,6'-Hexachlorobiphenyl**
144	2,2',3,4,5',6-Hexachlorobiphenyl
151	**2,2',3,5,5',6-Hexachlorobiphenyl**
157	2,3,3',4,4',5'-Hexachlorobiphenyl
158	2,3,3',4,4',6-Hexachlorobiphenyl
190	2,3,3',4,4',5,6-Heptachlorobiphenyl
191	**2,3,3',4,4',5',6-Heptachlorobiphenyl**
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl †
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl †

Reference Key

non-Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ < 1.0 Wt.%

Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ > 1.0 Wt.%

† = Congener not in any of the 3 Aroclors @ > 0.05 Wt.%

Bold congeners related to mixes #6, 7 & 8 marginally above 0.05 Wt.%, except #43 @ 0.24 Wt.% in Aroclor 1242.

Some "non-Aroclor" congeners assigned to Mixes 1-5 to reduce coelutions and number of mixes needed.

PCBs Congeners Calibration Mixtures NOT present in Aroclors

continued on next page

PCB Congener Calibration Mixtures

9 Mixtures provide All 209 Congeners
NOT Present in Aroclors

PCB Congener Mix #6

C-CS-06 **1 x 1 mL**
10 µg/mL each in Isooctane 18 comps.

No.	
11	3,3'-Dichlorobiphenyl †
21	2,3,4-Trichlorobiphenyl †
38	3,4,5-Trichlorobiphenyl †
50	2,2',4,6-Tetrachlorobiphenyl †
57	2,3,3',5-Tetrachlorobiphenyl †
61	2,3,4,5-Tetrachlorobiphenyl †
65	2,3,5,6-Tetrachlorobiphenyl †
86	2,2',3,4,5-Pentachlorobiphenyl †
102	2,2',4,5,6'-Pentachlorobiphenyl †
113	2,3,3',5',6-Pentachlorobiphenyl †
126	3,3',4,4',5-Pentachlorobiphenyl †
127	3,3',4,5,5'-Pentachlorobiphenyl †
133	2,2',3,3',5,5'-Hexachlorobiphenyl †
139	2,2',3,4,4',6-Hexachlorobiphenyl †
145	2,2',3,4,6,6'-Hexachlorobiphenyl †
161	2,3,3',4,5',6-Hexachlorobiphenyl †
169	3,3',4,4',5,5'-Hexachlorobiphenyl †
181	2,2',3,4,4',5,6-Heptachlorobiphenyl

PCB Congener Mix #7

C-CS-07 **1 x 1 mL**
10 µg/mL each in Isooctane 14 comps.

No.	
36	3,3',5-Trichlorobiphenyl †
72	2,3',5,5'-Tetrachlorobiphenyl †
78	3,3',4,5-Tetrachlorobiphenyl †
79	3,3',4,5'-Tetrachlorobiphenyl †
89	2,2',3,4,6'-Pentachlorobiphenyl †
96	2,2',3,6,6'-Pentachlorobiphenyl †
98	2,2',3',4,6-Pentachlorobiphenyl †
106	2,3,3',4,5-Pentachlorobiphenyl †
108	2,3,3',4,5'-Pentachlorobiphenyl †
152	2,2',3,5,6,6'-Hexachlorobiphenyl †
166	2,3,4,4',5,6-Hexachlorobiphenyl †
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl †
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl †
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl †

PCB Congener Mix #8

C-CS-08 **1 x 1 mL**
10 µg/mL each in Isooctane 12 comps.

No.	
30	2,4,6-Trichlorobiphenyl †
43	2,2',3,5-Tetrachlorobiphenyl †
55	2,3,3',4-Tetrachlorobiphenyl †
58	2,3,3',5'-Tetrachlorobiphenyl †
76	2',3,4,5-Tetrachlorobiphenyl †
109	2,3,3',4,6-Pentachlorobiphenyl †
112	2,3,3',5,6-Pentachlorobiphenyl †
120	2,3',4,5,5'-Pentachlorobiphenyl †
159	2,3,3',4,5,5'-Hexachlorobiphenyl †
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl †
192	2,3,3',4,5,5',6-Heptachlorobiphenyl †
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl †

Congener Calibration Solution Sets

Mixes containing all 209 PCB congeners.

C-CSQ-SET **9 x 1 mL†**
1 mL each of:

C-CS-01	**C-CS-04**	**C-CS-07**
C-CS-02	**C-CS-05**	**C-CS-08**
C-CS-03	**C-CS-06**	**C-CS-09**

Mixes for congeners found in Aroclor® 1242, 1254 and 1260

C-CSA-SET **5 x 1 mL**
1 mL each of:

C-CS-01	**C-CS-03**	**C-CS-05**
C-CS-02	**C-CS-04**	

Mixes for non-Aroclor congeners

C-CSN-SET **4 x 1 mL**
1 mL each of:

C-CS-06	**C-CS-08**
C-CS-07	**C-CS-09**

PCB Congener Mix #9

C-CS-09 **1 x 1 mL**
10 µg/mL each in Isooctane 21 comps.

No.	
23	2,3,5-Trichlorobiphenyl †
39	3,4',5-Trichlorobiphenyl †
62	2,3,4,6-Tetrachlorobiphenyl †
68	2,3',4,5'-Tetrachlorobiphenyl †
80	3,3',5,5'-Tetrachlorobiphenyl †
88	2,2',3,4,6-Pentachlorobiphenyl †
94	2,2',3,5,6'-Pentachlorobiphenyl †
111	2,3,3',5,5'-Pentachlorobiphenyl †
116	2,3,4,5,6-Pentachlorobiphenyl †
121	2,3',4,5',6-Pentachlorobiphenyl †
125	2',3,4,5,6'-Pentachlorobiphenyl †
140	2,2',3,4,4',6'-Hexachlorobiphenyl †
142	2,2',3,4,5,6-Hexachlorobiphenyl †
143	2,2',3,4,5,6'-Hexachlorobiphenyl †
148	2,2',3,4',5,6'-Hexachlorobiphenyl †
150	2,2',3,4',6,6'-Hexachlorobiphenyl †
155	2,2',4,4',6,6'-Hexachlorobiphenyl †
160	2,3,3',4,5,6-Hexachlorobiphenyl †
162	2,3,3',4',5,5'-Hexachlorobiphenyl †
168	2,3',4,4',5',6-Hexachlorobiphenyl †
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl †

Reference Key

non-Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ < 1.0 Wt.%

Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ > 1.0 Wt.%

† = Congener not in any of the 3 Aroclors @ > 0.05 Wt.%

Bold congeners related to mixes #6, 7 & 8 marginally above 0.05 Wt.%, except #43 @ 0.24 Wt.% in Aroclor 1242.

Some "non-Aroclor" congeners assigned to Mixes 1-5 to reduce coelutions and number of mixes needed.

PCB Congener Calibration Mixtures

Method 680 PCB Analytes

Internal Standards

M-680-IS **1 x 1 mL**
M-680-IS-PAK *SAVE* **5 x 1 mL**
75 µg/mL each in Hexane 2 comps.

M-680-IS-10X **1 x 1 mL**
M-680-IS-10X-PAK *SAVE* **5 x 1 mL**
750 µg/mL each in Hexane 2 comps.

Chrysene-d_{12} Phenanthrene-d_{10}

PCB Locator Mixture

M-PCBL **1 x 1 mL**
M-PCBL-PAK *SAVE* **5 x 1 mL**
At stated conc. in Isooctane 5 comps.

Aroclor 1242	(0.5 µg/mL)
Aroclor 1260	(0.5 µg/mL)
2-Chlorobiphenyl	(0.1 µg/mL)
3-Chlorobiphenyl	(0.1 µg/mL)
Decachlorobiphenyl	(0.1 µg/mL)

Retention Time Calibration Std.

M-680-RT **1 x 1 mL**
M-680-RT-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in Hexane 3 comps.

3,3',4,4'-Tetrachlorobiphenyl
2,2',4,6,6'-Pentachlorobiphenyl
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl

See EPA section Method 680 for complete analyte list.

PCB Isomer Calibration Mix

M-680A **1 x 1 mL**
At stated conc. in Hexane 9 comps.

1	2-Chlorobiphenyl	(50 µg/mL)
5	2,3-Dichlorobiphenyl	(50 µg/mL)
29	2,4,5-Trichlorobiphenyl	(50 µg/mL)
50	2,2',4,6-Tetrachlorobiphenyl	(100 µg/mL)
87	2,2',3,4,5'-Pentachlorobiphenyl	(100 µg/mL)
154	2,2',4,4',5,6'-Hexachlorobiphenyl	(100 µg/mL)
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	(150 µg/mL)
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	(150 µg/mL)
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(250 µg/mL)

Technical Note

The EPA has designated the isomers for use in quantifying PCB's by GC/MS. The PCBs are identified and measured as isomer groups (i.e., by level of chlorination). A concentration is measured for each PCB isomer group; total PCB concentration in each sample extract is obtained by summing isomer group concentrations.

Internal Standard

M-680B **1 x 1 mL**
250 µg/mL in Toluene

Chrysene-d_{12}

Tuning Standard

M-680-TS **1 x 1 mL**
M-680-TS-PAK *SAVE* **5 x 1 mL**
10 µg/mL in CH_2Cl_2

Decafluorotriphenylphosphine (DFTPP)

PCB Isomer Calibration Set

M-680-SET **2 x 1 mL**
Includes: M-680A (Mix) M-680B (Internal Standard)

Level of Chlorination	Isomer Selected	Congener Number	RF Value vs. Chrysene-d_{12}	Mean RF Value vs. Chrysene-d_{12}
1	2-mono	1	0.899	0.925
2	2,3-di	5	0.651	0.642
3	2,4,5-tri	29	0.411	0.411
4	2,2'4,6-tetra	50	0.305	0.431
5	2,2',3,4,5'-penta	87	0.299	0.287
6	2,2',4,4',5,6'-hexa	154	0.254	0.254
7	2,2',3,4',5,6,6'-hepta	188	0.164	0.160
8	2,2',3,3',4,5',6,6'-octa	201	0.207	0.191
9,10	2,2',3,3',4,4',5,5',6,6'-deca	209	0.144	0.150

Instrument Test Solutions

PCB Window Defining Mixture

C-WDM **1 x 1 mL**
C-WDM-PAK *SAVE* **5 x 1 mL**
2.5 µg/mL each in Isooctane 20 comps.

No.	
0	Biphenyl
1	2-Chlorobiphenyl
3	4-Chlorobiphenyl
10	2,6-Dichlorobiphenyl
15	4,4'-Dichlorobiphenyl
19	2,2',6-Trichlorobiphenyl
37	3,4,4'-Trichlorobiphenyl
54	2,2',6,6'-Tetrachlorobiphenyl
77	3,3',4,4'-Tetrachlorobiphenyl
104	2,2',4,6,6'-Pentachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl
155	2,2',4,4',6,6'-Hexachlorobiphenyl
169	3,3',4,4',5,5'-Hexachlorobiphenyl
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl
189	2,3,3'4,4',5,5'-Heptachlorobiphenyl
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl

PCB Calibration Check Solution

C-CCSEC **1 x 1 mL**
C-CCSEC-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in Acetone 20 comps.

C-CCSEC-R **1 x 1 mL**
C-CCSEC-R-PAK *SAVE* **5 x 1 mL**
C-CCSEC plus 2,2',3,3',4,5',6,6'-Octachlorobiphenyl
Special Blend 21 comps.

No.	
8	2,4'-Dichlorobiphenyl
18	2,2',5-Trichlorobiphenyl
28	2,4,4'-Trichlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
66	2,3',4,4'-Tetrachlorobiphenyl
77	3,3',4,4'-Tetrachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
105	2,3,3',4,4'-Pentachlorobiphenyl
118	2,3',4,4',5-Pentachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl
128	2,2',3,3',4,4'-Hexachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
170	2,2',3,3',4,4',5-Heptachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
187	2,2',3,4',5,5',6-Heptachlorobiphenyl
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl

PCB/Selective Ion Monitoring Solution

PCB-SIM **1 x 1 mL**
PCB-SIM-PAK *SAVE* **5 x 1 mL**
At stated conc. in Hexane 12 comps.

No.		
1	2-Chlorobiphenyl	(10 µg/mL)
5	2,3-Dichlorobiphenyl	(10 µg/mL)
29	2,4,5-Trichlorobiphenyl	(10 µg/mL)
104	2,2',4,6,6'-Pentachlorobiphenyl	(20 µg/mL)
87	2,2',3,4,5'-Pentachlorobiphenyl	(20 µg/mL)
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	(40 µg/mL)
50	2,2',4,6-Tetrachlorobiphenyl	(20 µg/mL)
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(50 µg/mL)
77	3,3',4,4'-Tetrachlorobiphenyl	(20 µg/mL)
200	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	(30 µg/mL)
186	2,2',3,4',5,6,6'-Heptachlorobiphenyl	(30 µg/mL)
154	2,2',4,4',5,6'-Hexachlorobiphenyl	(20 µg/mL)

Technical Note

For use with 5% phenyl methyl silicone type columns

Aroclors
(Industrial PCBs)

Aroclors

Aroclor Solutions in Isooctane and Methanol, 2 Concentrations (Individuals, PAKs, Sets)

Aroclor #	Isooctane 35 µg/mL 1 mL	SAVE PAK 5 x 1 mL	Isooctane 100 µg/mL 1 mL	Methanol 35 µg/mL 1 mL	SAVE PAK 5 x 1 mL	Methanol 100 µg/mL 1 mL
Aroclor 1016	C-216S	C-216S-PAK	C-216S-TP	C-216S-M	C-216S-M-PAK	C-216S-M-2.85X
Aroclor 1221	C-221S	C-221S-PAK	C-221S-TP	C-221S-M	C-221S-M-PAK	C-221S-M-2.85X
Aroclor 1232	C-232S	C-232S-PAK	C-232S-TP	C-232S-M	C-232S-M-PAK	C-232S-M-2.85X
Aroclor 1242	C-242S	C-242S-PAK	C-242S-TP	C-242S-M	C-242S-M-PAK	C-242S-M-2.85X
Aroclor 1248	C-248S	C-248S-PAK	C-248S-TP	C-248S-M	C-248S-M-PAK	C-248S-M-2.85X
Aroclor 1254	C-254S	C-254S-PAK	C-254S-TP	C-254S-M	C-254S-M-PAK	C-254S-M-2.85X
Aroclor 1260	C-260S	C-260S-PAK	C-260S-TP	C-260S-M	C-260S-M-PAK	C-260S-M-2.85X
Aroclor 1262	C-262S	C-262S-PAK	C-262S-TP	C-262S-M	C-262S-M-PAK	C-262S-M-2.85X
Aroclor 1268	C-268S	C-268S-PAK	C-268S-TP	C-268S-M	C-268S-M-PAK	C-268S-M-2.85X
Set of above	**Z-008S-SET**	**9 x 1 mL**		**Z-008S-M-SET**	**9 x 1 mL**	

Aroclor Solutions in Hexane, 2 Concentrations (Individuals, PAKs, Sets)

Aroclor #	Hexane 100 µg/mL 1 mL	Hexane 1000 µg/mL 1 mL	SAVE PAK 5 x 1 mL
Aroclor 1016	C-216S-H	C-216S-H-10X	C-216S-H-10X-PAK
Aroclor 1221	C-221S-H	C-221S-H-10X	C-221S-H-10X-PAK
Aroclor 1232	C-232S-H	C-232S-H-10X	C-232S-H-10X-PAK
Aroclor 1242	C-242S-H	C-242S-H-10X	C-242S-H-10X-PAK
Aroclor 1248	C-248S-H	C-248S-H-10X	C-248S-H-10X-PAK
Aroclor 1254	C-254S-H	C-254S-H-10X	C-254S-H-10X-PAK
Aroclor 1260	C-260S-H	C-260S-H-10X	C-260S-H-10X-PAK
Aroclor 1262	C-262S-H	C-262S-H-10X	C-262S-H-10X-PAK
Aroclor 1268	C-268S-H	C-268S-H-10X	C-268S-H-10X-PAK
Set of 9 above	**Z-008S-H-SET**	**Z-008S-H-10X-SET**	

Aroclor Neats (Individuals)

Aroclor #	Neat	Unit
Aroclor 1016	C-216N	100 mg
Aroclor 1221	C-221N-50MG	50 mg
Aroclor 1232	----------	----------
Aroclor 1242	C-242N-50MG	50 mg
Aroclor 1248	C-248N-50MG	50 mg
Aroclor 1254	C-254N-50MG	50 mg
Aroclor 1260	C-260N-50MG	50 mg
Aroclor 1262	C-262N-50MG	50 mg
Aroclor 1268	----------	----------

Solutions in PCB-Free Transformer Oil (Individuals, 2 Concentrations)

Aroclor # / CAS No.	Conc. ppm w/w	Individual Cat. No. 1 mL	PAK SAVE Cat. No. 5 x 1 mL
Aroclor 1016	50	C-216-ST-1	C-216-ST-1-PAK
12674-11-2	500	C-216-ST-2	C-216-ST-2-PAK
Aroclor 1221	50	C-221-ST-1	C-221-ST-1-PAK
11104-28-2	500	C-221-ST-2	C-221-ST-2-PAK
Aroclor 1232	50	C-232-ST-1	C-232-ST-1-PAK
11141-16-5	500	C-232-ST-2	C-232-ST-2-PAK
Aroclor 1242	50	C-242-ST-1	C-242-ST-1-PAK
53469-21-9	500	C-242-ST-2	C-242-ST-2-PAK
Aroclor 1248	50	C-248-ST-1	C-248-ST-1-PAK
12672-29-6	500	C-248-ST-2	C-248-ST-2-PAK
Aroclor 1254	50	C-254-ST-1	C-254-ST-1-PAK
11097-69-1	500	C-254-ST-2	C-254-ST-2-PAK
Aroclor 1260	50	C-260-ST-1	C-260-ST-1-PAK
11096-82-5	500	C-260-ST-2	C-260-ST-2-PAK
Aroclor 1262	50	C-262-ST-1	C-262-ST-1-PAK
37324-23-5	500	C-262-ST-2	C-262-ST-2-PAK
Aroclor 1268	50	C-268-ST-1	C-268-ST-1-PAK
11100-14-4	500	C-268-ST-2	C-268-ST-2-PAK

Aroclor-free Transformer Oil

T-W130 **1 x 1 mL**

Aroclors 1221 & 1254 Similar but Different

Reference Standards of Aroclor Mixtures (for GC analysis)

Technical mixtures of PCBs (Aroclors) were manufactured by Monsanto from the 1930s through 1977. In some instances there was an alteration in the manufacturing process which resulted in a more radical components change than the usual variations. This was the case for a particular batch of Aroclor 1254 (54% Chlorine by weight) that was chlorinated in two stages rather than the usual one. The product of the two stage manufacturing process was a material containing higher concentrations of the more toxic non-ortho substituted congeners. Consequently, the analyst may have to identify and quantify two distinct types of Aroclor 1254. For different reasons there also exist two distinct types of Aroclor 1221. To eliminate any confusion when encountering these Aroclors, AccuStandard offers (**as an exclusive**) all four variations.

C-221S-TYPE1* and **C-221S-TYPE2*** **C-221S-SET** 2 x 1 mL
C-254S-TYPE1* and **C-254S-TYPE2*** **C-254S-SET** 2 x 1 mL
Solutions in these sets are 35 µg/mL in Isooctane

All Standards cited in this monograph are bonafide and unadulterated Monsanto product.

Technical Note

Major Isomer Components of Aroclor 1254

Aroclor® 1254 was the most commonly used of the industrial PCB fluids. This list contains congeners which constitute the majority of the components in this material. They are offered in both neat form and solution. Solutions are in 35 µg/mL in isooctane.

For 1254 only the following congeners may be found at > 0.5% by weight by Congener Number:

#'s 44,49, 52, 56, 64, 66, 70, 74, 82, 84, 85, 87, 91, 92, 95, 97, 99, 101, 105, 110, 118, 128, 130, 132, 135, 136, 138, 141, 146, 149, 151, 153, 156, 158, 163, 170, 180.

- The coplanar polychlorinated biphenyl (PCB) congeners; 3,3',4,4'-Tetrachlorobiphenyl (# 77), 3,3',4,4',5-Pentachlorobiphenyl (# 126), and 3,3',4,4',5,5'-Hexachloro-biphenyl (# 169) are recognized as the most toxic components of Aroclors.
- The major problem in isolation of these PCB congeners is the separation of 2,3,3',4',6-Pentachlorobiphenyl (# 110) from 3,3',4,4'-Tetrachlorobiphenyl (# 77).
- A simple cleanup procedure using alumina is proposed for the fractionation of the Aroclors on alumina which allows the isolation and analysis of the coplanar PCB congeners (1).
- The proposed internal standard 3,3',4,4'-Tetrabromobiphenyl (B-077S) enhances the accuracy of the procedure.

3,3',4,4'-Tetrabromobiphenyl is used as an Internal Standard to identify and quantify the coplanar components of Aroclors [1].

(1) Analysis of coplanar PCB congeners in Aroclors using alumina column cleanup. Jerry W. Anderson, ManTech Environmental Technology, Inc., R.S. Kerr Environmental Research Laboratory, U.S. Environmental Protection Agency, P.O. Box 1198, Ada, OK 74820 - Pittsburgh Conference, March 1992, New Orleans

B-077S **1 x 1 mL**
35 µg/mL in Isooctane
3,3',4,4'-Tetrabromobiphenyl

Hydroxy-Chlorobiphenyls

Hydroxy-Chlorobiphenyls

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Isooctane Cat. No. 1 mL
2-Hydroxy-5-chlorobiphenyl	607-12-5	HPCB-1001N	5 mg	HPCB-1001S
4-Hydroxy-2-chlorobiphenyl	23719-22-4	HPCB-1002N	5 mg	HPCB-1002S
4-Hydroxy-3-chlorobiphenyl	92-04-6	HPCB-1003N	5 mg	HPCB-1003S
4-Hydroxy-4'-chlorobiphenyl	28034-99-3	HPCB-1004N	10 mg	HPCB-1004S
2-Hydroxy-2',5'-dichlorobiphenyl	53905-30-9	HPCB-2001N	10 mg	HPCB-2001S
3-Hydroxy-2',5'-dichlorobiphenyl	53905-29-6	HPCB-2002N	10 mg	HPCB-2002S
4-Hydroxy-2',5'-dichlorobiphenyl	53905-28-5	HPCB-2003N	10 mg	HPCB-2003S
4-Hydroxy-3,5-dichlorobiphenyl	1137-59-3	HPCB-2004N	10 mg	HPCB-2004S
2-Hydroxy-2',3'-dichlorobiphenyl		HPCB-2005N	10 mg	HPCB-2005S
2-Hydroxy-3',4'-dichlorobiphenyl		HPCB-2006N	10 mg	HPCB-2006S
2-Hydroxy-2',4',6'-trichlorobiphenyl		HPCB-3001N	10 mg	HPCB-3001S
2-Hydroxy-2',5,5'-trichlorobiphenyl		HPCB-3002N	10 mg	HPCB-3002S
3-Hydroxy-2',4',6'-trichlorobiphenyl		HPCB-3003N	10 mg	HPCB-3003S
4-Hydroxy-2,2',5'-trichlorobiphenyl	53905-33-2	HPCB-3004N	5 mg	HPCB-3004S
4-Hydroxy-2',3,5'-trichlorobiphenyl		HPCB-3005N	5 mg	HPCB-3005S
4-Hydroxy-2',4',6'-trichlorobiphenyl	14962-28-8	HPCB-3006N	10 mg	HPCB-3006S
2-Hydroxy-2',3',4',5'-tetrachlorobiphenyl		HPCB-4001N	10 mg	HPCB-4001S
2-Hydroxy-2',3',5',6'-tetrachlorobiphenyl		HPCB-4002N	10 mg	HPCB-4002S
2-Hydroxy-2',4',5,6'-tetrachlorobiphenyl		HPCB-4003N	10 mg	HPCB-4003S
3-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	67651-37-0	HPCB-4004N	10 mg	HPCB-4004S
3-Hydroxy-2',3',5',6'-tetrachlorobiphenyl		HPCB-4005N	10 mg	HPCB-4005S
4-Hydroxy-2,2',4',6'-tetrachlorobiphenyl	150304-08-8	HPCB-4006N	5 mg	HPCB-4006S
4-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	67651-34-7	HPCB-4007N	10 mg	HPCB-4007S
4-Hydroxy-2',3,4',6'-tetrachlorobiphenyl		HPCB-4008N	5 mg	HPCB-4008S
4-Hydroxy-2',3,5,5'-tetrachlorobiphenyl		HPCB-4009N	10 mg	HPCB-4009S
4-Hydroxy-2',3',5',6'-tetrachlorobiphenyl	14962-32-4	HPCB-4010N	10 mg	HPCB-4010S
4'-Hydroxy-3,3',4,5'-tetrachlorobiphenyl **NEW**		----------	----------	HPCB-4011S
3-Hydroxy-2,2',6,6'-tetrachlorobiphenyl		----------	----------	HPCB-4012S
2-Hydroxy-2',3,5,6'-tetrachlorobiphenyl **NEW**		----------	----------	HPCB-4013S
5-Hydroxy-2,2',4,6'-tetrachlorobiphenyl		----------	----------	HPCB-4014S
4,4'-Dihydroxy-2,2',6,6'-tetrachlorobiphenyl		----------	----------	HPCB-4015S
4,6'-Dihydroxy-2,2',4',6-tetrachlorobiphenyl **NEW**		----------	----------	HPCB-4016S
2-Hydroxy-2',3',4',5,5'-pentachlorobiphenyl	67651-36-9	HPCB-5001N	10 mg	HPCB-5001S
2-Hydroxy-2',3',5,5',6'-pentachlorobiphenyl		HPCB-5002N	10 mg	HPCB-5002S
4-Hydroxy-2,2',3',4',5'-pentachlorobiphenyl		HPCB-5003N	5 mg	HPCB-5003S
4-Hydroxy-2,2',3',5',6'-pentachlorobiphenyl		HPCB-5004N	5 mg	HPCB-5004S
4-Hydroxy-2',3,3',4',5'-pentachlorobiphenyl	67651-35-8	HPCB-5005N	5 mg	HPCB-5005S
4-Hydroxy-2',3,3',5',6'-pentachlorobiphenyl		HPCB-5006N	5 mg	HPCB-5006S
4-Hydroxy-2',3,4',5,6'-pentachlorobiphenyl		HPCB-5007N	10 mg	HPCB-5007S
3-Hydroxy-2,2',4',5,5'-pentachlorobiphenyl	69278-58-6	----------	----------	HPCB-5008S
4-Hydroxy-2,2',4',5,5'-pentachlorobiphenyl		----------	----------	HPCB-5009S
2-Hydroxy-2',3,4',5',6-pentachlorobiphenyl		----------	----------	HPCB-5010S
4-Hydroxy-2',3,3',4',5,5'-hexachlorobiphenyl	158076-63-2	HPCB-6001N	10 mg	HPCB-6001S
4-Hydroxy-2',3,3',5,5',6'-hexachlorobiphenyl		HPCB-6002N	10 mg	HPCB-6002S
5-Hydroxy-2,2',3,4,4',5'-hexachlorobiphenyl **NEW**		----------	----------	HPCB-6003S
4'-Hydroxy-2,2',3,3',4,5,5'-heptachlorobiphenyl		----------	----------	HPCB-7001S
3'-Hydroxy-2,2',3,4,4',5,6'-heptachlorobiphenyl **NEW**		----------	----------	HPCB-7002S
3'-Hydroxy-2,2',3,4,4',5,5'-heptachlorobiphenyl		----------	----------	HPCB-7003S
5-Hydroxy-2,2',3,4,4',5',6-heptachlorobiphenyl		----------	----------	HPCB-7004S

Methoxy PCBs

Compound	100 µg/mL in Isooctane Cat. No. 1 mL
2-Methoxy-5-chlorobiphenyl	MOPCB-1001S
4-Methoxy-2-chlorobiphenyl	MOPCB-1002S
4-Methoxy-3-chlorobiphenyl	MOPCB-1003S
4-Methoxy-4'-chlorobiphenyl	MOPCB-1004S
2-Methoxy-2'-5-dichlorobiphenyl **NEW**	MOPCB-2001S
3-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2002S
4-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2003S
4-Methoxy-3,5-dichlorobiphenyl	MOPCB-2004S
2-Methoxy-2',3'-dichlorobiphenyl	MOPCB-2005S
2-Methoxy-3',4'-dichlorobiphenyl	MOPCB-2006S
2-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3001S
2-Methoxy-2',5,5'-trichlorobiphenyl	MOPCB-3002S
3-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3003S
4-Methoxy-2,2',5'-trichlorobiphenyl	MOPCB-3004S
4-Methoxy-2',3,5'-trichlorobiphenyl	MOPCB-3005S
4-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3006S

Compound	100 µg/mL in Isooctane Cat. No. 1 mL
2-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4001S
2-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4002S
2-Methoxy-2',4',5,6'-tetrachlorobiphenyl	MOPCB-4003S
3-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4004S
3-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4005S
4-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4007S
4-Methoxy-2',3,4',6'-tetrachlorobiphenyl	MOPCB-4008S
4-Methoxy-2',3,5,5'-tetrachlorobiphenyl	MOPCB-4009S
4'-Methoxy-3,3',4,5'-tetrachlorobiphenyl **NEW**	MOPCB-4011S
3-Methoxy-2,2',6,6'-tetrachlorobiphenyl **NEW**	MOPCB-4012S-0.5X *
2-Methoxy-2',3',4',5,5'-pentachlorobiphenyl	MOPCB-5001S
2-Methoxy-2',3',5,5',6'-pentachlorobiphenyl	MOPCB-5002S
4-Methoxy-2,2',3',4',5'-pentachlorobiphenyl	MOPCB-5003S
4-Methoxy-2,2',3',5',6'-pentachlorobiphenyl	MOPCB-5004S
4-Methoxy-2,2',4',5,5'-pentachlorobiphenyl	MOPCB-5009S
2-Methoxy-2',3,4',5',6-pentachlorobiphenyl	MOPCB-5010S
4-Methoxy-2',3,3',4',5,5'-hexachlorobiphenyl	MOPCB-6001S
5-Methoxy-2,2',3,4,4',5'-hexachlorobiphenyl **NEW**	MOPCB-6003S
4'-Methoxy-2,2',3,3',4,5,5'-heptachlorobiphenyl	MOPCB-7001S-0.5X *
5-Methoxy-2,2',3,4,4',5',6-heptachlorobiphenyl **NEW**	MOPCB-7004S-0.5X *

* in 50 µg/mL

PCB Metabolites

Methylsulfonyl PCB Congeners

Compound	CAS No.	50 µg/mL in Isooctane Cat. No.	1 mL
3-Methylsulfonyl-2,2',4',5-tetrachlorobiphenyl	116807-52-4	MSCB-3049	
3-Methylsulfonyl-2,2',5,5'-tetrachlorobiphenyl	60640-54-2	MSCB-3052	
3-Methylsulfonyl-2,3',4',5-tetrachlorobiphenyl	116807-53-5	MSCB-3070	
3-Methylsulfonyl-2,2',3',4',5-pentachlorobiphenyl	66640-58-2	MSCB-3087	
3-Methylsulfonyl-2,2',4',5,6-pentachlorobiphenyl	149949-86-0	MSCB-3091	
3-Methylsulfonyl-2,2',3',5,6'-pentachlorobiphenyl		MSCB-3095	
3-Methylsulfonyl-2,2',4',5,5'-pentachlorobiphenyl	66640-60-6	MSCB-3101	
3-Methylsulfonyl-2,3',4',5,6-pentachlorobiphenyl	116807-23-9	MSCB-3110	
3-Methylsulfonyl-2,2',3',4',5,6-hexachlorobiphenyl	149949-90-6	MSCB-3132	
3-Methylsulfonyl-2,2',3',4',5,5'-hexachlorobiphenyl	104086-18-2	MSCB-3141	
3-Methylsulfonyl-2,2',4',5,5',6-hexachlorobiphenyl	149949-88-2	MSCB-3149	
3-Methylsulfonyl-2,2',3',4',5,5',6-heptachlorobiphenyl		MSCB-3174	
4-Methylsulfonyl-2,2',4',5-tetrachlorobiphenyl	69797-52-0	MSCB-4049	
4-Methylsulfonyl-2,2',5,5'-tetrachlorobiphenyl	60640-55-3	MSCB-4052	
4-Methylsulfonyl-2,3,4',6-tetrachlorobiphenyl	108736-08-9	MSCB-4064	
4-Methylsulfonyl-2,3',4',5-tetrachlorobiphenyl	69797-51-9	MSCB-4070	
4-Methylsulfonyl-2,2',3',4',5-pentachlorobiphenyl	66640-59-3	MSCB-4087	
4-Methylsulfonyl-2,2',4',5,6-pentachlorobiphenyl	149949-87-1	MSCB-4091	
4-Methylsulfonyl-2,2',3',5,6'-pentachlorobiphenyl		MSCB-4095	
4-Methylsulfonyl-2,2',4',5,5'-pentachlorobiphenyl	66640-61-7	MSCB-4101	
4-Methylsulfonyl-2,2',4',5,6'-pentachlorobiphenyl		MSCB-4103	
4-Methylsulfonyl-2,3,3',4',6-pentachlorobiphenyl	149949-89-3	MSCB-4110	
4-Methylsulfonyl-2,2',3,3',4',6-hexachlorobiphenyl	104086-16-0	MSCB-4132	
4-Methylsulfonyl-2,2',3',4',5,5'-hexachlorobiphenyl	104086-19-3	MSCB-4141	
4-Methylsulfonyl-2,2',3,4',5,6-hexachlorobiphenyl	116806-76-9	MSCB-4149	
4-Methylsulfonyl-2,2',3',4',5,5',6-heptachlorobiphenyl	153310-30-6	MSCB-4174	
3-Methylsulfonyl-4-methyl-2',3',4',5,5'-pentachlorobiphenyl (ISTD)		MSCB-IS	

Technical Note

An important group of persistent PCB metabolites, the methylsulfonyl PCBs ($MeSO_2$-PCBs) have been added. Only the 3- and 4-$MeSO_2$-PCBs with chlorine atoms in the 2,5- or 2,3,6-position have been found in environmental samples, and therefore only those are offered by AccuStandard.

Hydroxy-Biphenyls

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in MeOH Cat. No.	1 mL
2-Hydroxy-biphenyl	90-43-7	HBP-001N	100 mg	HBP-001S	
3-Hydroxy-biphenyl	580-51-8	HBP-002N	100 mg	HBP-002S	
4-Hydroxy-biphenyl	92-69-3	HBP-003N	100 mg	HBP-003S	
2,2'-Dihydroxy-biphenyl	1806-29-7	HBP-004N	100 mg	HBP-004S	
4,4'-Dihydroxy-biphenyl	92-88-6	HBP-006N	100 mg	HBP-006S	
2,5-Dihydroxy-biphenyl	1079-21-6	HBP-009N	100 mg	HBP-009S	

Purchasing Neat Standards

There are two ways to purchase neat standards: Nominal weight and exact weight. With exact weight, the standards will come with the exact weight contained in the vial indicated on the label. The catalog number will have an X-WT to indicate that this is an exact weight. Rinse the sample out of the vial and cap with solvent and dilute to achieve the desired concentration. Unless specified, neat samples are provided with nominal weights. Typically, the vials contain up to 10 to 20% more product, however it is not known when you receive your standard what the exact amount is in the vial. Below is a standard procedure for removing all the neat material from the vial and determining the exact weight of the material in the vial.

Small amounts (5-10 mg) of powder often are spread over the surface of the vial and cap. If the chemical is a liquid it may coat the walls as a thin layer invisible to the eye. To recover all of the contents contained in a vial of neat material please use the procedure described below:

1. Wipe the outside of the vial (containing the Standard) clean and dry (including the cap).
2. Weigh the entire unit on an analytical balance. Record the weight to the nearest 0.1 mg.
3. Carefully transfer the contents to a volumetric flask using a suitable solvent. Rinse the cap and vial several times to assure a complete transfer.
4. Dry inside and outside of the vial and cap with mild heat or inert gas.
5. Weigh the empty dry vial on the same analytical balance to the nearest 0.1 mg and calculate by difference the amount of material transferred.

Halogenated Aromatics (other than PCBs)

Perchlorinated Terphenyls

Compound	CAS No.	NEAT Cat. No.	Unit	35 µg/mL in Toluene Cat. No.	1 mL
o-Terphenyl	84-15-1	T-001N	100 mg	------	--
m-Terphenyl	92-06-8	T-002N	100 mg	------	--
p-Terphenyl	92-94-4	T-003N	100 mg	------	--
Tetradecachloro-o-terphenyl		------	----------	T-004S	
Tetradecachloro-m-terphenyl	42429-88-9	------	----------	T-005S	
Tetradecachloro-p-terphenyl		------	----------	T-006S	
Aroclor 5432	63496-31-1	------	----------	T-432S	
Aroclor 5442	12642-23-8	------	----------	T-442S	
Aroclor 5460	11126-42-4	------	----------	T-460S	
Aroclor 6050		------	----------	T-6050S	

Perchlorinated Aromatics

Compound	CAS No.	NEAT Cat. No.	Unit	35 µg/mL in Toluene Cat. No.	1 mL
Decachlorobiphenyl	2051-24-3	C-209N	10 mg	------	--
Hexachlorobenzene	118-74-1	A-012	100 mg	------	--
Octachlorodibenzofuran	39001-02-0	F-801N	50 mg	F-801S **	
Octachlorodibenzo-p-dioxin	3268-87-9	D-801N	50 mg	D-801S **	
Octachloronaphthalene	2234-13-1	------	----------	N-003S *	
Octachlorostyrene	29082-74-4	------	----------	PC-001S	
Perchlorinated p,p'-DDE		------	----------	PC-002S	
Tetradecachloro-*o*-terphenyl		------	----------	T-004S	
Tetradecachloro-*m*-terphenyl	42429-88-9	------	----------	T-005S	
Tetradecachloro-*p*-terphenyl		------	----------	T-006S	

* 100 µg/mL in MeOH
** 50 µg/mL in **Toluene**

Polychlorinated Naphthalenes

Halowaxes (Kopper's PCNs)

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in MeOH Cat. No.	1 mL
Halowax 1013 (56 %Cl)	1321-64-8	-------	--------	N-1013S	
Halowax 1014 (62 %Cl)	1335-87-1	-------	--------	N-1014S	
Halowax 1051 (70 %Cl)	2234-13-1	-------	--------	N-1051S	
Halowax 1099 (52 %Cl)	39450-05-0	-------	--------	N-1099S	

Polychlorinated Naphthalene Congeners

Compound	CAS No.	NEAT Cat. No.	Unit
Naphthalene	91-20-3	H-152N	100 mg
1-Chloronaphthalene	90-13-1	N-001N	100 mg
2-Chloronaphthalene	91-58-7	N-002N	100 mg
1,4-Dichloronaphthalene	1825-31-6	N-004N	10 mg
Octachloronaphthalene	2234-13-1	N-003S *	1 mL
1,2,3,4-Tetrachloronaphthalene	20020-02-4	N-005N	10 mg

* 100 µg/mL in MeOH

Halogenated Aromatics (other than PCBs)

Halogenated Aromatics (other than PCBs)

Compound	CAS No.	Conc	Matrix	Cat. No.	1 mL
Decafluorobiphenyl	434-90-2	10 µg/mL	Acetone	M-551.1-SS	
		0.1 mg/mL	AcCN	M-8310-SS	
		0.2 mg/mL	CH_2Cl_2	M-625-04	
		1 mg/mL	Acetone	M-551.1-SS-100X	
		2 mg/mL	CH_2Cl_2	M-625-04-10X	
4,4'-Dibromobiphenyl	92-86-4	0.1 mg/mL	Ethyl acetate	M-508.1-SS	
		0.2 mg/mL	CH_2Cl_2	M-625-05	
		1 mg/mL	Acetone	M-8111-IS-20X	
		2 mg/mL	CH_2Cl_2	M-625-05-10X	
4,4'-Dibromooctafluorobiphenyl	10386-84-2	0.2 mg/mL	CH_2Cl_2	M-625-06	
		2 mg/mL	CH_2Cl_2	M-625-06-10X	
2,2'-Difluorobiphenyl	388-82-9	0.2 mg/mL	CH_2Cl_2	M-625-07	
		1 mg/mL	MeOH	M-1653-IIS	
		2 mg/mL	CH_2Cl_2	M-625-07-10X	
		5 mg/mL	Acetone	M-1653-IIS-R	
2-Fluorobiphenyl	321-60-8	0.2 mg/mL	CH_2Cl_2	M-625-09	
		2 mg/mL	CH_2Cl_2	M-625-09-10X	
Halowax 1013	1321-64-8	0.1 mg/mL	MeOH	N-1013S	
Halowax 1014	1335-87-1	0.1 mg/mL	MeOH	N-1014S	
Halowax 1051		0.1 mg/mL	MeOH	N-1051S	
Halowax 1099	39450-05-0	0.1 mg/mL	MeOH	N-1099S	
		5 mg/mL	MeOH	AS-E0470	
1,2,3,4,5,6,7,8-Octachloronaphthalene	2234-13-1	100 µg/mL	MeOH	N-003S	
Tetradecachloro-*o*-terphenyl		35 µg/mL	Toluene	T-004S	
Tetradecachloro-*m*-terphenyl		35 µg/mL	Toluene	T-005S	
Tetradecachloro-*p*-terphenyl	31710-32-4	35 µg/mL	Toluene	T-006S	

Chlorodiphenyl Ether

Compound	CAS No.	Conc	Matrix	Cat. No.	1 mL
4-Chlorophenyl phenyl ether	7005-72-3	10 mg	NEAT	CDE-003N	
		50 µgmL	Isooctane	CDE-003S	
2,4-Dichorodiphenyl ether		10 mg	NEAT	CDE-007N	
		50 µgmL	Isooctane	CDE-007S	
4,4'-Dichlorodiphenyl ether	2444-89-5	10 mg	NEAT	CDE-015N	
		50 µgmL	Isooctane	CDE-015S	
3,3',4,4'-Tetrachlorodiphenyl ether		50 µgmL	Isooctane	CDE-077S	
2,3,3',4,4'-Pentachlorodiphenyl ether		50 µgmL	Isooctane	CDE-105S	
2,3',4,4',5-Pentachlorodiphenyl ether	60123-65-1	10 mg	NEAT	CDE-118N	
		50 µgmL	Isooctane	CDE-118S	
Decachlorodiphenyl ether	31710-30-2	10 mg	NEAT	CDE-209N	
		50 µgmL	Isooctane	CDE-209S	

Dibenzo-p-dioxin Congeners

The Environmental Protection Agency published its final rule regulating dioxin-containing waste in the Federal Register - Volume 5, 1978-1979, January 14, 1985.

Minimum purity 98%

Dibenzo-p-dioxin Congeners

Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTION Cat. No.	Conc.	Solvent	1 mL
1-Chlorodibenzo-p-dioxin	39227-53-7	D-101N	25 mg	D-101S	50 µg/mL	Isooctane	
2-Chlorodibenzo-p-dioxin	39227-54-8	D-102N	50 mg	D-102S	50 µg/mL	Isooctane	
Dibenzo-p-dioxin	262-12-4	D-100N	10 mg	D-100S	50 µg/mL	Isooctane	
1,2-Dichlorodibenzo-p-dioxin		------	----------	D-207S	50 µg/mL	Isooctane	
1,3-Dichlorodibenzo-p-dioxin		D-205N	10 mg	D-205S	50 µg/mL	Isooctane	
1,4-Dichlorodibenzo-p-dioxin		D-206N	10 mg	D-206S	50 µg/mL	Isooctane	
1,6-Dichlorodibenzo-p-dioxin	38178-38-0	D-201N	5 mg	D-201S	50 µg/mL	Isooctane	
2,3-Dichlorodibenzo-p-dioxin	29446-15-9	D-202N	5 mg	D-202S	50 µg/mL	Isooctane	
2,7-Dichlorodibenzo-p-dioxin	33857-26-0	D-203N	25 mg	D-203S	50 µg/mL	Isooctane	
2,8-Dichlorodibenzo-p-dioxin		------	----------	D-204S	50 µg/mL	Isooctane	
1,2,3-Trichlorodibenzo-p-dioxin	54536-17-3	D-301N	5 mg	D-301S	50 µg/mL	Isooctane	
1,2,4-Trichlorodibenzo-p-dioxin	39227-58-2	D-302N	10 mg	D-302S	50 µg/mL	Isooctane	
1,7,8-Trichlorodibenzo-p-dioxin	82306-65-8	D-303N	5 mg	D-303S	50 µg/mL	Isooctane	
2,3,7-Trichlorodibenzo-p-dioxin	33857-28-2	D-304N	5 mg	D-304S	50 µg/mL	Isooctane	
1,2,3,4-Tetrachlorodibenzo-p-dioxin	30746-58-8	D-401N	50 mg	D-401S	50 µg/mL	Toluene	
1,2,7,8-Tetrachlorodibenzo-p-dioxin	34816-53-0	D-402N	5 mg	D-402S	50 µg/mL	Toluene	
1,3,7,8-Tetrachlorodibenzo-p-dioxin	50585-46-1	D-403N	5 mg	D-403S	50 µg/mL	Toluene	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	D-404N	1 mg	APP-9-167	5 µg/mL	Toluene	
		------	----------	M-613	10 µg/mL	Toluene	
		------	----------	D-404S	50 µg/mL	Toluene	
1,3,6,8-Tetrachlorodibenzo-p-dioxin	33423-92-6	D-405N	5 mg	D-405S	50 µg/mL	Toluene	
1,2,8,9-Tetrachlorodibenzo-p-dioxin	116889-69-1	D-406N	5 mg	D-406S	50 µg/mL	Toluene	
1,3,7,9-Tetrachlorodibenzo-p-dioxin	116889-70-4	D-407N	5 mg	D-407S	50 µg/mL	Toluene	
1,2,6,8-Tetrachlorodibenzo-p-dioxin	67323-56-2	D-408N	1 mg	D-408S	50 µg/mL	Toluene	
1,2,6,7-Tetrachlorodibenzo-p-dioxin	41903-57-5	D-409N	5 mg	D-409S	50 µg/mL	Toluene	
1,2,3,4,7-Pentachlorodibenzo-p-dioxin	39227-61-7	D-503N	1 mg	D-503S	50 µg/mL	Toluene	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4	D-501N	5 mg	APP-9-168	5 µg/mL	Toluene	
		------	----------	D-501S	50 µg/mL	Toluene	
1,2,3,8,9-Pentachlorodibenzo-p-dioxin	71925-18-3	D-504N	1 mg	D-504S	50 µg/mL	Toluene	
1,2,4,7,8-Pentachlorodibenzo-p-dioxin	58802-08-7	D-502N	5 mg	D-502S	50 µg/mL	Toluene	
1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-p-dioxin	71998-76-0/ 82291-37-0	D-505N	1 mg	D-505S	50 µg/mL	Toluene	
1,2,3,4,6,7-Hexachlorodibenzo-p-dioxin	58200-66-1	D-603N	1 mg	D-603S	50 µg/mL	Toluene	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6	D-601N	5 mg	APP-9-169	5 µg/mL	Toluene	
		------	----------	D-601S	50 µg/mL	Toluene	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7	D-602N	1 mg	D-602S	50 µg/mL	Toluene	
1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-p-dioxin	39227-62-8/ 58802-09-8	D-604N	1 mg	D-604S	50 µg/mL	Toluene	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3	D-605N	1 mg	D-605S	50 µg/mL	Toluene	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9	D-701N	1 mg	D-701S	50 µg/mL	Toluene	
1,2,3,4,6,7,9-Heptachlorodibenzo-p-dioxin	58200-70-7	D-702N	5 mg	D-702S	50 µg/mL	Toluene	
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9	D-801N	50 mg	D-801S	50 µg/mL	Toluene	

Brominated Dibenzo-p-Dioxins

Compound	Cat. No.	Conc.	Matrix	1 mL
1,3,7-Tribromodibenzo-p-dioxin	BDD-301S	10 µg/mL	Toluene	
	BDD-301S-2.5X	25 µg/mL	Toluene	
1,3,8-Tribromodibenzo-p-dioxin	BDD-302S	10 µg/mL	Toluene	
	BDD-302S-2.5X	25 µg/mL	Toluene	
1,2,3,7-Tetrabromodibenzo-p-dioxin	BDD-401S	10 µg/mL	Toluene	
	BDD-401S-2.5X	25 µg/mL	Toluene	
1,2,3,8-Tretrabromodibenzo-p-dioxin	BDD-402S	10 µg/mL	Toluene	
	BDD-402S-2.5X	25 µg/mL	Toluene	
Tetrabromodibenzo-p-dioxin-Mixed Isomers 1,2,4,7-Tretrabromodibenzo-p-dioxin / 1,2,4,8-Tretrabromodibenzo-p-dioxin	BDD-403S	10 µg/mL	Toluene	
	BDD-403S-2.5X	25 µg/mL	Toluene	
2,3,7,8-Tetrabromodibenzo-p-dioxin	X-001	1 mg	NEAT	

Chlorodibenzo-p-dioxin Congeners
Canadian Method, Method 1613, 8280

Canadian Dioxin Mixtures

Custom Window Defining Mixture

D-WD	20,000 ng/mL in Toluene	**1 x 1 mL**
D-WD-2.5X	50,000 ng/mL in Toluene	**1 x 1 mL**
		7 comps.

1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin (Isomer pair)
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin
1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-*p*-dioxin (Isomer pair)
1,2,3,4,6,7-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

High Concentration
Low Cost

Custom Calibration Mixture

D-CAL	20,000 ng/mL in Toluene	**1 x 1 mL**
D-CAL-2.5X	50,000 ng/mL in Toluene	**1 x 1 mL**
		6 comps.

1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

Standards of Interest

For more Canadian Methods see International Regional Section

Method 8280A Dioxins & Furans by HRGC/LRMS

Dioxin Mixture

M-8280A		**1 x 1 mL**
M-8280A-PAK	*SAVE*	**5 x 1 mL**
5 µg/mL each in Toluene		5 comps.

2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

Furan Mixture

M-8280B		**1 x 1 mL**
M-8280B-PAK	*SAVE*	**5 x 1 mL**
5 µg/mL each in Toluene		5 comps.

2,3,7,8-Tetrachlorodibenzofuran
1,2,3,7,8-Pentachlorodibenzofuran
1,2,3,4,7,8-Hexachlorodibenzofuran
1,2,3,4,6,7,8-Heptachlorodibenzofuran
Octachlorodibenzofuran

Column Performance Check

M-8280-CPC		**1 x 1 mL**
M-8280-CPC-PAK	*SAVE*	**5 x 1 mL**
5 µg/mL each in Toluene		7 comps.

1,2,3,4-Tetrachlorodibenzo-*p*-dioxin
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
1,2,3,4,7-Pentachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin
2,3,7,8-Tetrachlorodibenzofuran

Method 1613 Dioxins & Furans by HRGC/HRMS

Method 1613 Precision and Recovery Standard

M-1613-PAR Bold (-04)		**1 x 1 mL**
M-1613-PAR-PAK	*SAVE*	**5 x 1 mL**
All units in ng/mL in Nonane		17 comps.

Calibration Set

M-1613-CAL-SET (-01,-02,-03,-04,-05) **5 x 1 mL**

M-1613-CAL	-01	-02	-03	-04	-05
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.5	2	10	**40**	200
2,3,7,8-Tetrachlorodibenzofuran	0.5	2	10	**40**	200
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,7,8-Pentachlorodibenzofuran	2.5	10	50	**200**	1000
2,3,4,7,8-Pentachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,4,7,8-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,6,7,8-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,7,8,9-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
2,3,4,6,7,8-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	5	20	100	**400**	2000
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	5	20	100	**400**	2000

2,3,7,8 Isomers only Mix

This solution is for those labs only determining the concentration of the two most toxic isomers.

M-1613-DF	**1 x 1 mL**
40 ng/mL each in Nonane	2 comps.

2,3,7,8-Tetrachlorodibenzo-p-dioxin
2,3,7,8-Tetrachlorodibenzofuran

Technical Note

These native solutions of the USEPA Method 1613 analytes can also be used for USEPA Method 23, 8280, 8290, EU Method EN-1948 and Japanese Methods JIS-K0311 and K0312.

Chlorinated Dibenzofuran Congeners

Minimum purity 98%

Chlorinated Dibenzofuran Congeners

Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTION Cat. No.	Conc.	Solvent	1 mL
Dibenzofuran	132-64-9	F-100N	50 mg	F-100S	50 µg/mL	Isooctane	
		--------	----------	APP-9-059	100 µg/mL	MeOH	
		--------	----------	APP-9-059-2X	200 µg/mL	MeOH	
		--------	----------	AS-E0261	5 mg/mL	MeOH	
2-Chlorodibenzofuran	51230-49-0	--------	----------	F-102S	50 µg/mL	Isooctane	
4-Chlorodibenzofuran	74992-96-4	--------	----------	F-104S	50 µg/mL	Isooctane	
2,8-Dichlorodibenzofuran	5409-83-6	F-201N	10 mg	F-201S	50 µg/mL	Isooctane	
2,4,8-Trichlorodibenzofuran	54589-71-8	--------	----------	F-301S	50 µg/mL	Isooctane	
1,2,3,4-Tetrachlorodibenzofuran	24478-72-6	--------	----------	F-401S	50 µg/mL	Toluene	
1,3,6,8-Tetrachlorodibenzofuran	30402-14-3	--------	----------	F-403S	50 µg/mL	Toluene	
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	F-402N	1 mg	APP-9-170	5 µg/mL	Toluene	
				F-402S	50 µg/mL	Toluene	
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	--------	----------	APP-9-171	5 µg/mL	Toluene	
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	--------	----------	F-502S-0.1X	5 µg/mL	Toluene	
1,2,3,4,7,8-Hexachlorodibenzofuran	55684-94-1	--------	----------	APP-9-172	5 µg/mL	Toluene	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	38998-75-3	--------	----------	F-701S-0.1X	5 µg/mL	Toluene	
		--------	----------	F-701S	50 µg/mL	Toluene	
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0	F-801N	50 mg	F-801S	50 µg/mL	Toluene	
3-Nitrodibenzofuran	5410-97-9	R-009N	5 mg	R-009S	100 µg/mL	Toluene	

Custom Synthesized Rare Chemicals

Neat Compounds, except as noted	CAS No.	Cat. No.	Unit
2-Amino-7,8-dibromo-dibenzo-p-dioxin	Solution 0.1 mg/mL in Toluene	X-011	1 mL
4-Chlorophenyl methyl sulfoxide	934-73-6	X-004	10 mg
4,6-Dinitro-*o*-toluidine	7477-94-3	X-002	10 mg
1,4-Dioxino(2,3-b:5,6-b')dipyridine (Dipyridine analog of dibenzo-*p*-dioxin)	262-16-8	X-005	5 mg
n,n'-bis(4-Isopropylphenyl)urea	113260-74-5	X-012	10 mg
9-Methylacridine	611-64-3	X-008	10 mg
2,3,7,8-Tetrabromodibenzo-*p*-dioxin	50585-41-6	X-001	1 mg
3,3',4,4'-Tetrachloroazobenzene	14047-09-7	X-009	10 mg
3,3',4,4'-Tetrachloroazoxybenzene	21232-47-3	X-010	10 mg
N,N'-bis(2,4,6-Trichlorophenyl)urea	20632-35-3	X-003	10 mg

Custom Services

Custom Synthesis

The AccuStandard Synthesis Department employs several PhD. Organic Chemists with many years of pertinent academic and industrial experience. The experienced staff has developed hundreds of pure chemical compounds for companies and governmental agencies around the world. The very well-equipped synthetic laboratory with significant analytical support has made many notable synthesis projects possible. We specialize in synthesizing chemicals of high purity to be used as reference standards, and also offer custom synthesis capability on milligram to kilogram scales.

Analytical Capabilities

- GC-MS, GC-FID, GC-ECD, GC-NPD
- HPLC, LC-MS
- ICP, ICP-MS
- access to more anlytical instrumentation if necessary

Synthesis and Purification

- Milligram to Kilogram Glassware
- Inert Conditions Equipment
- High Performance Flash Chromatography
- Distillation Equipment - High Vacuum, Molecular (Kugelrohr), and Spinning Band Columns Preparative TLC
- Parr Pressure and Hydrogenation Reactor

Custom Synthesized Products

- PCBs (all 209 congeners), & hydroxy, methoxy, and methylsulfonyl metabolites
- Halo-Dibenzodioxins and Furans
- PBDEs (all 209 congeners) & hydroxy, methoxy, chloro metabolites
- Fluorinated PBDEs
- Other Brominated Flame Retardants
- PBBs
- PAHs, Nitro-PAHs, Methyl-PAHs
- Pesticides and metabolites
- Explosives and metabolites
- Nonyl- and Octylphenol Ethoxylates
- Mono- and Diester Phthalates
- Organophosphates
- Other Rare Chemicals

AccuStandard is renowned for its quick response to the needs for new compounds. The company's especially strong Synthesis Department allows the synthesis of important and unique products. Featured in its history of firsts are all of the 209 congeners of polychlorinated biphenyls (PCBs), 209 congeners of polybrominated diphenyl ethers (PBDEs) as well as many halogenated dioxins and dibenzofurans, PAHs, pesticides and fluorinated surrogates substituting the expensive isotopically labelled compounds.

Among the more recent introductions are the hydroxy and methoxy PBDE congeners, mixed bromo/chloro hydroxy and methoxy diphenyl ethers, organophosphate flame retardants, biofuels, plastic additives (AccuStandard authored the Handbook for the Chemical Analysis of Plastic and Polymer Additives published by CRC Press), EPA Method 535 pesticide derivatives and previously unavailable explosive standards.

Custom Formulations

With over 30,000+ custom and 10,000+ listed standards, there is a good chance that AccuStandard will have a standard to meet your needs. However, if your laboratory requires something specific, our Chemists will manufacture a Custom Standard to meet your unique requirements. Custom Standards are an economical and time saving way to have a Standard prepared for your individual needs.

Custom QC options

1. Gravimetric/Volumetric Certification: Each purity is measured gravimetrically and QC verified instrumentally (where available). Every component in the Standard is guaranteed to be within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis. The solutions are diluted to volume using Class A glassware. A Certificate of Analysis accompanies each Standard and documents the gravimetric values used.
2. Full Quantitative Certification: This QA/QC method includes extended GC analysis using both internal calibration standards plus statistical analysis. A data package containing analytical and gravimetric data can be provided if requested during the quotation phase (Organic Customs only).

Custom Packaging and Bulk Quantity Requirements

AccuStandard has the resources and equipment to meet your custom packaging requirements.

- Automated ampule filling & sealing 0.2 mL up to 20 mL and ampule sizes from 1 mL to 20 mL
- Quantities from 500 to over 500,000 ampules
- Homogeneity testing
- Amber ampules for added product stability
- Private labeling and packaging (OEM)

We can reduce your costs using the Cozzoli Auto Filling/Sealing Machine to package just the right size product for your application. OEM Standards - Privately labeled standards manufactured and tested to your specifications. Cold and under Nitrogen sealing available.

Flame Retardant Standards

Table of Contents

Brominated Flame Retardants (BFRs), such as polybrominated diphenyl ethers (PBDEs), have become global environmental contaminants because of their widespread use in numerous household and commercial products. They have been detected in sediments, biota, house dust, sewage sludge, air, water samples, and human and wildlife tissues. In the past years, an impressive amount of information has been gained on the persistence, bioaccumulative and toxic properties of PBDEs.

Some PBDEs break down further in the environment and in biota to other congeners or analogues. AccuStandard has synthesized all of the 209 possible congeners and over 80 of their hydroxy and methoxy metabolites. AccuStandard offers a wide variety of PBDE mixtures and calibration sets which are designed for US EPA and International PBDE monitoring.

The industrial production of the technical penta-BDE mixtures is to be eliminated under the Stockholm Convention of 2001 because of their toxicity and persistence. Technical octa-BDE mixtures have been banned by the EU since 2004. In the USA the ban of this group of BDEs has been implemented since 2007.

There are many other brominated compounds in use as alternatives to the PBDE flame retardants. Selected substances of these industrial BFRs are monitored by the international community for their environmental impact. AccuStandard offers a number of these compounds to assist these monitoring efforts. Degradation products and metabolites of these “emerging” BFRs are of increasing interest. AccuStandard has been synthesizing these compounds upon request and continues to add them to the product line. Examples are 2,3,4,5-tetrabromobenzoic acid, a degradation product of di(2-ethylhexyl)tetrabromophthalate, and dimethyl- and diglycidyl ethers of both tetrabromobisphenol A and tetrabromobisphenol S. Accustandard offers some flame retardants like Hexabromocyclododecane (HBCD) and Dechlorane Plus as technical mixtures and their major isomers in pure form.

As with the BFRs, the widespread use of organophosphate flame retardants (OP-FRs) has raised concerns about their impact on the environment, human and animal health. Analysis of indoor air and dust has shown that the concentration of OP-FRs appear to be higher than that of PBDEs. To aid in the on-going toxicological and environmental studies of these compounds AccuStandard is providing a number of the most widely used OP-FRs for use as reference standards.

Upon special request compounds can be offered in various concentrations and mixes or as neat materials. Custom standards are an economical and time saving way to have a standard prepared for your individual needs. To make an online Custom Quotes Request, go to AccuStandard.com.

Polybrominated Diphenyl Ether (PBDE)
Congeners

Polybrominated Diphenyl Ethers (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
2-Bromodiphenyl ether	7025-06-1	50 µg/mL	Isooctane	BDE-001S	
3-Bromodiphenyl ether	6876-00-2	50 µg/mL	Isooctane	BDE-002S	
4-Bromodiphenyl ether	101-55-3	50 µg/mL	Isooctane	BDE-003S	
2,2'-Dibromodiphenyl ether	51452-87-0	50 µg/mL	Isooctane	BDE-004S	
2,3-Dibromodiphenyl ether	446254-14-4	50 µg/mL	Isooctane	BDE-005S	
2,3'-Dibromodiphenyl ether	147217-72-9	50 µg/mL	Isooctane	BDE-006S	
2,4-Dibromodiphenyl ether	171977-44-9	50 µg/mL	Isooctane	BDE-007S	
2,4'-Dibromodiphenyl ether	147217-71-8	50 µg/mL	Isooctane	BDE-008S	
2,5-Dibromodiphenyl ether	33513-66-3	50 µg/mL	Isooctane	BDE-009S	
2,6-Dibromodiphenyl ether	51930-04-2	50 µg/mL	Isooctane	BDE-010S	
3,3'-Dibromodiphenyl ether	6903-63-5	50 µg/mL	Isooctane	BDE-011S	
3,4-Dibromodiphenyl ether	189084-59-1	50 µg/mL	Isooctane	BDE-012S	
3,4'-Dibromodiphenyl ether	83694-71-7	50 µg/mL	Isooctane	BDE-013S	
3,5-Dibromodiphenyl ether	46438-88-4	50 µg/mL	Isooctane	BDE-014S	
4,4'-Dibromodiphenyl ether	2050-47-7	50 µg/mL	Isooctane	BDE-015S	
2,2',3-Tribromodiphenyl ether	147217-74-1	50 µg/mL	Isooctane	BDE-016S	
2,2',4-Tribromodiphenyl ether	147217-75-2	50 µg/mL	Isooctane	BDE-017S	
2,2',5-Tribromodiphenyl ether	407606-55-7	50 µg/mL	Isooctane	BDE-018S	
2,2',6-Tribromodiphenyl ether	147217-73-0	50 µg/mL	Isooctane	BDE-019S	
2,3,3'-Tribromodiphenyl ether	147217-76-3	50 µg/mL	Isooctane	BDE-020S	
2,3,4-Tribromodiphenyl ether	337513-67-4	50 µg/mL	Isooctane	BDE-021S	
2,3,4'-Tribromodiphenyl ether	446254-15-5	50 µg/mL	Isooctane	BDE-022S	
2,3,5-Tribromodiphenyl ether	446254-16-6	50 µg/mL	Isooctane	BDE-023S	
2,3,6-Tribromodiphenyl ether		50 µg/mL	Isooctane	BDE-024S	
2,3',4-Tribromodiphenyl ether	147217-77-4	50 µg/mL	Isooctane	BDE-025S	
2,3',5-Tribromodiphenyl ether	337513-75-4	50 µg/mL	Isooctane	BDE-026S	
2,3',6-Tribromodiphenyl ether	337513-53-8	50 µg/mL	Isooctane	BDE-027S	
2,4,4'-Tribromodiphenyl ether	41318-75-6	50 µg/mL	Isooctane	BDE-028S	
2,4,5-Tribromodiphenyl ether	337513-56-1	50 µg/mL	Isooctane	BDE-029S	
2,4,6-Tribromodiphenyl ether	155999-95-4	50 µg/mL	Isooctane	BDE-030S	
2,4',5-Tribromodiphenyl ether	65075-08-3	50 µg/mL	Isooctane	BDE-031S	
2,4',6-Tribromodiphenyl ether	189084-60-4	50 µg/mL	Isooctane	BDE-032S	
2',3,4-Tribromodiphenyl ether	147217-78-5	50 µg/mL	Isooctane	BDE-033S	
2',3,5-Tribromodiphenyl ether	446254-17-7	50 µg/mL	Isooctane	BDE-034S	
3,3',4-Tribromodiphenyl ether	147217-80-9	50 µg/mL	Isooctane	BDE-035S	
3,3',5-Tribromodiphenyl ether	147217-79-6	50 µg/mL	Isooctane	BDE-036S	
3,4,4'-Tribromodiphenyl ether	147217-81-0	50 µg/mL	Isooctane	BDE-037S	
3,4,5-Tribromodiphenyl ether	337513-54-9	50 µg/mL	Isooctane	BDE-038S	
3,4',5-Tribromodiphenyl ether		50 µg/mL	Isooctane	BDE-039S	
2,2',3,3'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-040S	
2,2',3,4-Tetrabromodiphenyl ether	337513-68-5	50 µg/mL	Isooctane	BDE-041S	
2,2',3,4'-Tetrabromodiphenyl ether	446254-18-8	50 µg/mL	Isooctane	BDE-042S	
2,2',3,5-Tetrabromodiphenyl ether	446254-19-9	50 µg/mL	Isooctane	BDE-043S	
2,2',3,5'-Tetrabromodiphenyl ether	446254-20-2	50 µg/mL	Isooctane	BDE-044S	
2,2',3,6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-045S	
2,2',3,6'-Tetrabromodiphenyl ether	446254-22-4	50 µg/mL	Isooctane	BDE-046S	
2,2',4,4'-Tetrabromodiphenyl ether	5436-43-1	50 µg/mL	Isooctane	BDE-047S	
2,2',4,5-Tetrabromodiphenyl ether	337513-55-0	50 µg/mL	Isooctane	BDE-048S	
2,2',4,5'-Tetrabromodiphenyl ether	243982-82-3	50 µg/mL	Isooctane	BDE-049S	
2,2',4,6-Tetrabromodiphenyl ether	446254-23-5	50 µg/mL	Isooctane	BDE-050S	
2,2',4,6'-Tetrabromodiphenyl ether	189084-57-9	50 µg/mL	Isooctane	BDE-051S	
2,2',5,5'-Tetrabromodiphenyl ether	446254-24-6	50 µg/mL	Isooctane	BDE-052S	
2,2',5,6'-Tetrabromodiphenyl ether	446254-25-7	50 µg/mL	Isooctane	BDE-053S	
2,2',6,6'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-054S	
2,3,3',4-Tetrabromodiphenyl ether	40088-47-9	50 µg/mL	Isooctane	BDE-055S	
2,3,3',4'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-056S	
2,3,3',5-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-057S	
2,3,3',5'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-058S	
2,3,3',6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-059S	
2,3,4,4'-Tetrabromodiphenyl ether	446254-31-5	50 µg/mL	Isooctane	BDE-060S	
2,3,4,5-Tetrabromodiphenyl ether	446254-32-6	50 µg/mL	Isooctane	BDE-061S	
2,3,4,6-Tetrabromodiphenyl ether	446254-33-7	50 µg/mL	Isooctane	BDE-062S	
2,3,4',5-Tetrabromodiphenyl ether	446254-34-8	50 µg/mL	Isooctane	BDE-063S	
2,3,4',6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-064S	
2,3,5,6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-065S	
2,3',4,4'-Tetrabromodiphenyl ether	189084-61-5	50 µg/mL	Isooctane	BDE-066S	
2,3',4,5-Tetrabromodiphenyl ether	446254-37-1	50 µg/mL	Isooctane	BDE-067S	
2,3',4,5'-Tetrabromodiphenyl ether	446254-38-2	50 µg/mL	Isooctane	BDE-068S	
2,3',4,6-Tetrabromodiphenyl ether	327185-09-1	50 µg/mL	Isooctane	BDE-069S	
2,3',4',5-Tetrabromodiphenyl ether	446254-39-3	50 µg/mL	Isooctane	BDE-070S	
2,3',4',6-Tetrabromodiphenyl ether	189084-62-6	50 µg/mL	Isooctane	BDE-071S	
2,3',5,5'-Tetrabromodiphenyl ether	446254-40-6	50 µg/mL	Isooctane	BDE-072S	
2,3',5',6-Tetrabromodiphenyl ether	446254-41-7	50 µg/mL	Isooctane	BDE-073S	
2,4,4',5-Tetrabromodiphenyl ether	446254-42-8	50 µg/mL	Isooctane	BDE-074S	
2,4,4',6-Tetrabromodiphenyl ether	189084-63-7	50 µg/mL	Isooctane	BDE-075S	

Technical Note

For specific applications (e.g. toxicological studies) that require absolute dioxin and furan free PBDEs, contact Technical Service.

Polybrominated Diphenyl Ethers (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
2',3,4,5-Tetrabromodiphenyl ether	446254-43-9	50 µg/mL	Isooctane	BDE-076S	
3,3',4,4'-Tetrabromodiphenyl ether	93703-48-1	50 µg/mL	Isooctane	BDE-077S	
3,3',4,5-Tetrabromodiphenyl ether	446254-45-1	50 µg/mL	Isooctane	BDE-078S	
3,3',4,5'-Tetrabromodiphenyl ether	446254-48-4	50 µg/mL	Isooctane	BDE-079S	
3,3',5,5'-Tetrabromodiphenyl ether	103173-66-6	50 µg/mL	Isooctane	BDE-080S	
3,4,4',5-Tetrabromodiphenyl ether	446254-50-8	50 µg/mL	Isooctane	BDE-081S	
2,2',3,3',4-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-082S	
2,2',3,3',5-Pentabromodiphenyl ether	446254-51-9	50 µg/mL	Isooctane	BDE-083S	
2,2',3,3',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-084S	
2,2',3,4,4'-Pentabromodiphenyl ether	182346-21-0	50 µg/mL	Isooctane	BDE-085S	
2,2',3,4,5-Pentabromodiphenyl ether	446254-53-1	50 µg/mL	Isooctane	BDE-086S	
2,2',3,4,5'-Pentabromodiphenyl ether	446254-54-2	50 µg/mL	Isooctane	BDE-087S	
2,2',3,4,6-Pentabromodiphenyl ether	446254-55-3	50 µg/mL	Isooctane	BDE-088S	
2,2',3,4,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-089S	
2,2',3,4',5-Pentabromodiphenyl ether	446254-57-5	50 µg/mL	Isooctane	BDE-090S	
2,2',3,4',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-091S	
2,2',3,5,5'-Pentabromodiphenyl ether	446254-59-7	50 µg/mL	Isooctane	BDE-092S	
2,2',3,5,6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-093S	
2,2',3,5,6'-Pentabromodiphenyl ether	446254-61-1	50 µg/mL	Isooctane	BDE-094S	
2,2',3,5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-095S	
2,2',3,6,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-096S	
2,2',3',4,5-Pentabromodiphenyl ether	446254-64-4	50 µg/mL	Isooctane	BDE-097S	
2,2',3',4,6-Pentabromodiphenyl ether	38463-82-0	50 µg/mL	Isooctane	BDE-098S	
2,2',4,4',5-Pentabromodiphenyl ether	60348-60-9	50 µg/mL	Isooctane	BDE-099S	
2,2',4,4',6-Pentabromodiphenyl ether	189084-64-8	50 µg/mL	Isooctane	BDE-100S	
2,2',4,5,5'-Pentabromodiphenyl ether	446254-65-5	50 µg/mL	Isooctane	BDE-101S	
2,2',4,5,6'-Pentabromodiphenyl ether	446254-66-6	50 µg/mL	Isooctane	BDE-102S	
2,2',4,5',6-Pentabromodiphenyl ether	446254-67-7	50 µg/mL	Isooctane	BDE-103S	
2,2',4,6,6'-Pentabromodiphenyl ether	446254-68-8	50 µg/mL	Isooctane	BDE-104S	
2,3,3',4,4'-Pentabromodiphenyl ether	373594-78-6	50 µg/mL	Isooctane	BDE-105S	
2,3,3',4,5-Pentabromodiphenyl ether	446254-69-9	50 µg/mL	Isooctane	BDE-106S	
2,3,3',4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-107S	
2,3,3',4,5'-Pentabromodiphenyl ether	446254-71-3	50 µg/mL	Isooctane	BDE-108S	
2,3,3',4,6-Pentabromodiphenyl ether	446254-72-4	50 µg/mL	Isooctane	BDE-109S	
2,3,3',4',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-110S	
2,3,3',5,5'-Pentabromodiphenyl ether	446254-74-6	50 µg/mL	Isooctane	BDE-111S	
2,3,3',5,6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-112S	
2,3,3',5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-113S	
2,3,4,4',5-Pentabromodiphenyl ether	446254-77-9	50 µg/mL	Isooctane	BDE-114S	
2,3,4,4',6-Pentabromodiphenyl ether	446254-78-0	50 µg/mL	Isooctane	BDE-115S	
2,3,4,5,6-Pentabromodiphenyl ether	189084-65-9	50 µg/mL	Isooctane	BDE-116S	
2,3,4',5,6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-117S	
2,3',4,4',5-Pentabromodiphenyl ether	446254-80-4	50 µg/mL	Isooctane	BDE-118S	
2,3',4,4',6-Pentabromodiphenyl ether	189084-66-0	50 µg/mL	Isooctane	BDE-119S	
2,3',4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-120S	
2,3',4,5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-121S	
2',3,3',4,5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-122S	
2',3,4,4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-123S	
2',3,4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-124S	
2',3,4,5,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-125S	
3,3',4,4',5-Pentabromodiphenyl ether	366791-32-4	50 µg/mL	Isooctane	BDE-126S	
3,3',4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-127S	
2,2',3,3',4,4'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-128S	
2,2',3,3',4,5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-129S	
2,2',3,3',4,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-130S	
2,2',3,3',4,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-131S	
2,2',3,3',4,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-132S	
2,2',3,3',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-133S	
2,2',3,3',5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-134S	
2,2',3,3',5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-135S	
2,2',3,3',6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-136S	
2,2',3,4,4',5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-137S	
2,2',3,4,4',5'-Hexabromodiphenyl ether	182677-30-1	50 µg/mL	Isooctane	BDE-138S	
2,2',3,4,4',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-139S	
2,2',3,4,4',6'-Hexabromodiphenyl ether	243982-83-4	50 µg/mL	Isooctane	BDE-140S	
2,2',3,4,5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-141S	
2,2',3,4,5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-142S	
2,2',3,4,5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-143S	
2,2',3,4,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-144S	
2,2',3,4,6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-145S	
2,2',3,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-146S	
2,2',3,4',5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-147S	
2,2',3,4',5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-148S	
2,2',3,4',5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-149S	
2,2',3,4',6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-150S	

PBDE Congeners continued on next page

Polybrominated Diphenyl Ether (PBDE)
Congeners

Polybrominated Diphenyl Ethers (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
2,2',3,5,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-151S	
2,2',3,5,6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-152S	
2,2',4,4',5,5'-Hexabromodiphenyl ether	68631-49-2	50 µg/mL	Isooctane	BDE-153S	
2,2',4,4',5,6'-Hexabromodiphenyl ether	207122-15-4	50 µg/mL	Isooctane	BDE-154S	
2,2',4,4',6,6'-Hexabromodiphenyl ether	35854-94-5	50 µg/mL	Isooctane	BDE-155S	
2,3,3',4,4',5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-156S	
2,3,3',4,4',5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-157S	
2,3,3',4,4',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-158S	
2,3,3',4,5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-159S	
2,3,3',4,5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-160S	
2,3,3',4,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-161S	
2,3,3',4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-162S	
2,3,3',4',5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-163S	
2,3,3',4',5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-164S	
2,3,3',5,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-165S	
2,3,4,4',5,6-Hexabromodiphenyl ether	189084-58-0	50 µg/mL	Isooctane	BDE-166S	
2,3',4,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-167S	
2,3',4,4',5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-168S	
3,3',4,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-169S	
2,2',3,3',4,4',5-Heptabromodiphenyl ether	327185-13-7	50 µg/mL	Isooctane	BDE-170S	
2,2',3,3',4,4',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-171S	
2,2',3,3',4,5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-172S	
2,2',3,3',4,5,6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-173S	
2,2',3,3',4,5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-174S	
2,2',3,3',4,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-175S	
2,2',3,3',4',6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-176S	
2,2',3,3',4',5,6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-177S	
2,2',3,3',5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-178S	
2,2',3,3',5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-179S	
2,2',3,4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-180S	
2,2',3,4,4',5,6-Heptabromodiphenyl ether	189084-67-1	50 µg/mL	Isooctane	BDE-181S	
2,2',3,4,4',5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-182S	
2,2',3,4,4',5',6-Heptabromodiphenyl ether	207122-16-5	50 µg/mL	Isooctane	BDE-183S	
2,2',3,4,4',6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-184S	
2,2',3,4,5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-185S	
2,2',3,4,5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-186S	
2,2',3,4',5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-187S	
2,2',3,4',5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-188S	
2,3,3',4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-189S	
2,3,3',4,4',5,6-Heptabromodiphenyl ether	189084-68-2	50 µg/mL	Isooctane	BDE-190S	
2,3,3',4,4',5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-191S	
2,3,3',4,5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-192S	
2,3,3',4',5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-193S	
2,2',3,3',4,4',5,5'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-194S	
2,2',3,3',4,4',5,6-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-195S	
2,2',3,3',4,4',5,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-196S	
2,2',3,3',4,4',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-197S	
2,2',3,3',4,5,5',6-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-198S	
2,2',3,3',4,5,5',6'-Octabromodiphenyl ether		25 µg/mL	Isooctane	BDE-199S-0.5X	
2,2',3,3',4,5,6,6'-Octabromodiphenyl ether		25 µg/mL	Isooctane	BDE-200S-0.5X	
2,2',3,3',4,5',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-201S	
2,2',3,3',5,5',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-202S	
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	337513-72-1	50 µg/mL	Isooctane	BDE-203S	
2,2',3,4,4',5,6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-204S	
2,3,3',4,4',5,5',6-Octabromodiphenyl ether	446255-56-7	50 µg/mL	Isooctane	BDE-205S	
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	63387-28-0	50 µg/mL	Isooctane	BDE-206S	
2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether	437701-79-6	50 µg/mL	Isooctane	BDE-207S-R1	
2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether		50 µg/mL	Isooctane	BDE-208S	
Decabromodiphenyl ether	1163-19-5	50 µg/mL	Isooctane: Toluene (90:10)	BDE-209S	
Internal Standard **Short Form** (4'-CL-BDE-208)					
4'-Chloro-2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether **NEW**		10 µg/mL	Isooctane	CBDE-001S-0.2X	
		50 µg/mL	Isooctane	CBDE-001S	

Polybrominated Diphenyl Ether (PBDE)

Tech Grade PBDEs, Specific Mixes & Calibration Curve

Technical Grade PBDEs

PBDE Technical Grade

50 µg/mL in Isooctane	Cat. No.	1 mL
Bromkal™ DE-70-5 (Pentas)	BDE-705	
Bromkal DE-71 (Pentas)	BDE-710	
Bromkal DE-73-6 (Hexas)	BDE-736	
Bromkal DE-79-8 (Octas)	BDE-798	
FR-300BA (Deca)	FRS-009N	/ 10 mg
100 µg/mL in Toluene	FRS-009S	

Bromkal™ is a registered Trade Mark of Chemische Fabrik Kalk

PBDE Congeners common to Technical Mixtures (Bromkal™)

BDE-BROMKAL **1 x 1 mL**

10 µg/mL each in Isooctane 6 comps.

2,4,4'-Tribromodiphenyl ether (#28)
2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

DE-71 (Pentas) Great Lakes

BDE-710-GL **1 x 1 mL**

50 µg/mL each in Isooctane

Bromkal DE-71

DE-79 (Octas) Great Lakes

BDE-798-GL **1 x 1 mL**

50 µg/mL each in Isooctane

DE-79 (Great Lakes)

Specific Mixtures

PBDEs Common in the Environment

BDE-USE **1 x 1 mL**

10 µg/mL each in Isooctane 5 comps.

2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

PBDEs - Columbia River Study

BDE-CR **1 x 1 mL**

10 µg/mL each in Isooctane 12 comps.

4,4'-Dibromodiphenyl ether (#15)
2,4,4'-Tribromodiphenyl ether (#28)
2',3,4-Tribromodiphenyl ether (#33)
2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,2',4,5'-Tetrabromodiphenyl ether (#49)
2,3',4,4'-Tetrabromodiphenyl ether (#66)
2,4,4',6-Tetrabromodiphenyl ether (#75)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)

PBDEs Common to California Environment

BDE-CAE-1 **1 x 1 mL**

10 µg/mL each in Isooctane 7 comps.

2,4,4'-Tribromodiphenyl ether (#28)
2',3,4-Tribromodiphenyl ether (#33)
2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

PBDEs - Lake Michigan Study

BDE-LMS **1 x 1 mL**

10 µg/mL each in /sooctane 9 comps.

2,4,4'-Tribromodiphenyl ether (#28)
2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,3',4,4'-Tetrabromodiphenyl ether (#66)
2,2',3,4,4'-Pentabromodiphenyl ether (#85)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

California Method 750-M Standard

BDE-CALEWS **1 x 1 mL**

10 µg/mL each in Isooctane 13 comps.

2,2',4-Tribromodiphenyl ether (#17)
2,4,4'-Tribromodiphenyl ether (#28)
2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,3',4,4'-Tetrabromodiphenyl ether (#66)
2,3',4',6-Tetrabromodiphenyl ether (#71)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (#209)
2,2',6,6'-Tetrabromobisphenol A

Method 527 - PBDE Standard

M-527-BDE **1 x 1 mL**

50 µg/mL each in Isooctane:Ethyl Acetate (80:20) 5 comps.

2,2',4,4'-Tetrabromodiphenyl ether
2,2',4,4',6-Pentabromodiphenyl ether
2,2',4,4',5-Pentabromodiphenyl ether
2,2',4,4',5,5'-Hexabromodiphenyl ether
2,2',4,4',5,5'-Hexabromobiphenyl

Calibration Curve

ISO/DIS 22032 Calibration Curve Set

ISO/DIS-22032-SET **7 x 1 mL**

At stated conc. (ng/mL) in Isooctane 8 comps. each

ISO/DIS-22032	01	02	03	04	05	06	07
2,2',4,4'-Tetrabromodiphenyl ether (#47)	5	12.5	25	50	100	150	250
2,2',4,4',5-Pentabromodiphenyl ether (#99)	5	12.5	25	50	100	150	250
2,2',4,4',6-Pentabromodiphenyl ether (#100)	5	12.5	25	50	100	150	250
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	5	12.5	25	50	100	150	250
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	5	12.5	25	50	100	150	250
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	5	12.5	25	50	100	150	250
2,3,3',4,4',5,5',6-Octabromodiphenyl ether (#205)	5	12.5	25	50	100	150	250
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (#209)	25	50	100	200	500	700	1000

ISO/DIS 22032 Internal Standard for BDE-47, 99 & 100

ISO22032-IS-1-5ML **1 x 5 mL**
ISO22032-IS-1-10ML **1 x 10 mL**

100 ng/mL each in Isooctane

3,3',4,4'-Tetrabromodiphenyl ether

ISO/DIS 22032 Internal Standard for BDE-153, 154 & 183

ISO22032-IS-2-5ML **1 x 5 mL**
ISO22032-IS-2-10ML **1 x 10 mL**

100 ng/mL each in Isooctane

2,2',3,4,4',5,6-Heptabromodiphenyl ether

EPA Method 1614

Mixtures of PBDEs Standard Solution for Accuracy & Precision

BDE-AAP-A	1 x 1 mL
At stated conc. in Isooctane	39 comps. ng/mL
2-Bromodiphenyl ether (#1)	100
3-Bromodiphenyl ether (#2)	100
4-Bromodiphenyl ether (#3)	100
2,4-Dibromodiphenyl ether (#7)	100
2,4'-Dibromodiphenyl ether (#8)	100
2,6-Dibromodiphenyl ether (#10)	100
3,3'-Dibromodiphenyl ether (#11)	100
3,4-Dibromodiphenyl ether (#12)	100
3,4'-Dibromodiphenyl ether (#13)	100
4,4'-Dibromodiphenyl ether (#15)	100
2,2',4,-Tribromodiphenyl ether (#17)	100
2,3',4-Tribromodiphenyl ether (#25)	100
2,4,4'-Tribromodiphenyl ether (#28)	100
2,4,6-Tribromodiphenyl ether (#30)	100
2,4',6-Tribromodiphenyl ether (#32)	100
2',3,4-Tribromodiphenyl ether (#33)	100
3,3',4-Tribromodiphenyl ether (#35)	100
3,4,4'-Tribromodiphenyl ether (#37)	100
2,2',4,4'-Tetrabromodiphenyl ether (#47)	100
2,2',4,5'-Tetrabromodiphenyl ether (#49)	100
2,3',4,4'-Tetrabromodiphenyl ether (#66)	100
2,3',4',6-Tetrabromodiphenyl ether (#71)	100
2,4,4',6-Tetrabromodiphenyl ether (#75)	100
3,3',4,4'-Tetrabromodiphenyl ether (#77)	100
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	150
2,2',4,4',5-Pentabromodiphenyl ether (#99)	150
2,2',4,4',6-Pentabromodiphenyl ether (#100)	150
2,3,4,5,6-Pentabromodiphenyl ether (#116)	150
2,3',4,4',5-Pentabromodiphenyl ether (#118)	150
2,3',4,4',6-Pentabromodiphenyl ether (#119)	150
3,3',4,4',5-Pentabromodiphenyl ether (#126)	150
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	200
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	200
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	200
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	200
2,3,4,4',5,6-Hexabromodiphenyl ether (#166)	200
2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	250
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	250
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	250

BDE-AAP-A-15X	1 x 1 mL
At stated conc. in Isooctane	39 comps. µg/mL
2-Bromodiphenyl ether (#1)	1.5
3-Bromodiphenyl ether (#2)	1.5
4-Bromodiphenyl ether (#3)	1.5
2,4-Dibromodiphenyl ether (#7)	1.5
2,4'-Dibromodiphenyl ether (#8)	1.5
2,6-Dibromodiphenyl ether (#10)	1.5
3,3'-Dibromodiphenyl ether (#11)	1.5
3,4-Dibromodiphenyl ether (#12)	1.5
3,4'-Dibromodiphenyl ether (#13)	1.5
4,4'-Dibromodiphenyl ether (#15)	1.5
2,2',4-Tribromodiphenyl ether (#17)	1.5
2,3',4-Tribromodiphenyl ether (#25)	1.5
2,4,4'-Tribromodiphenyl ether (#28)	1.5
2,4,6-Tribromodiphenyl ether (#30)	1.5
2,4',6-Tribromodiphenyl ether (#32)	1.5
2',3,4-Tribromodiphenyl ether (#33)	1.5
3,3',4-Tribromodiphenyl ether (#35)	1.5
3,4,4'-Tribromodiphenyl ether (#37)	1.5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	1.5
2,2',4,5'-Tetrabromodiphenyl ether (#49)	1.5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	1.5
2,3',4',6-Tetrabromodiphenyl ether (#71)	1.5
2,4,4',6-Tetrabromodiphenyl ether (#75)	1.5
3,3',4,4'-Tetrabromodiphenyl ether (#77)	1.5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	2.25
2,2',4,4',5-Pentabromodiphenyl ether (#99)	2.25
2,2',4,4',6-Pentabromodiphenyl ether (#100)	2.25
2,3,4,5,6-Pentabromodiphenyl ether (#116)	2.25
2,3',4,4',5-Pentabromodiphenyl ether (#118)	2.25
2,3',4,4',6-Pentabromodiphenyl ether (#119)	2.25
3,3',4,4',5-Pentabromodiphenyl ether (#126)	2.25
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	3.0
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	3.0
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	3.0
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	3.0
2,3,4,4',5,6-Hexabromodiphenyl ether (#166)	3.0
2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	3.75
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	3.75
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	3.75

Technical Note

Responding to the need for an analytical method for polybrominated diphenyl ether (PBDE) congeners, the EPA has developed Method 1614. Method 1614 is recommended for analysis of aqueous, solid, tissue, and multi-phase environmental samples.

Mixture of Commonly Occurring PBDE Congeners for Precision and Recovery

BDE-COC	1 x 1 mL
At stated conc. in Isooctane	14 comps. µg/mL
2,2',4,-Tribromodiphenyl ether (#17)	5
2,4,4'-Tribromodiphenyl ether (#28)	5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	5
2,3',4',6-Tetrabromodiphenyl ether (#71)	5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	5
2,2',4,4',5-Pentabromodiphenyl ether (#99)	5
2,2',4,4',6-Pentabromodiphenyl ether (#100)	5
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	5
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	5
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	5
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	5
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	5
Decabromodiphenyl ether (#209)	25

PBDE Congeners of Primary Interest

BDE-CSM	1 x 1 mL
At stated conc. in Isooctane	8 comps. µg/mL
2,4,4'-Tribromodiphenyl ether (#28)	20
2,2',4,4'-Tetrabromodiphenyl ether (#47)	20
2,2',4,4',5-Pentabromodiphenyl ether (#99)	20
2,2',4,4',6-Pentabromodiphenyl ether (#100)	20
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	20
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	20
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	20
Decabromodiphenyl ether (#209)	200

PBDE Congeners of Primary Interest

Calibration Mix

BDE-CM	1 x 1 mL
At stated conc. in Isooctane	8 comps. µg/mL
2,4,4'-Tribromodiphenyl ether (#28)	2.5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	2.5
2,2',4,4',5-Pentabromodiphenyl ether (#99)	2.5
2,2',4,4',6-Pentabromodiphenyl ether (#100)	2.5
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	2.5
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	2.5
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	2.5
Decabromodiphenyl ether (#209)	25

Matrix Spiking Solution

BDE-MS	1 x 1 mL
At stated conc. in Isooctane	8 comps. ng/mL
2,4,4'-Tribromodiphenyl ether (#28)	1
2,2',4,4'-Tetrabromodiphenyl ether (#47)	1
2,2',4,4',5-Pentabromodiphenyl ether (#99)	1
2,2',4,4',6-Pentabromodiphenyl ether (#100)	1
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	1
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	1
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	1
Decabromodiphenyl ether (#209)	10

PBDEs in Method 1614

BDE-EPA-SET	8 x 1 mL
50 µg/mL each in Isooctane	8 comps.
2,4,4'-Tribromodiphenyl ether (#28)	
2,2',4,4'-Tetrabromodiphenyl ether (#47)	
2,2',4,4',5-Pentabromodiphenyl ether (#99)	
2,2',4,4',6-Pentabromodiphenyl ether (#100)	
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	
Decabromodiphenyl ether (#209)	

Hydroxy and Methoxy Polybromodiphenyl Ether Congeners

Hydroxylated and methoxylated PBDEs may be formed as metabolites of the PBDE flame retardants. Hydroxylated PBDEs (OH-PBDEs) have been detected in human blood, mice, rats, fish and birds. They have been studied for their potential to disrupt the endocrine (hormone) system in mammals. One important aspect of these studies is the structural similarity of some of the OH-PBDEs with the **thyroid hormones** which affect every cell in the body. At Accustandard we have synthesized a variety of hydroxylated and methoxylated PBDEs. HBDE-3007 (**T2-like**), HBDE-4010 (**T3-like**), and HBDE-5010 (**T4-like**) display the closest similarity to the halogen substitution pattern of those thyroid hormones.

AccuStandard recognizes the significance of this on-going research and is supporting it by providing the necessary reference standards. Please check the website for the latest update of synthesized OH- and MeO-PBDEs, or request specific congeners to be synthesized.

Short Form	Compound	Conc.	Solvent	Cat. No.	1 mL
Hydroxy					
2'-OH-BDE-003	2'-Hydroxy-4-monobromodiphenyl ether	50 µg/mL	AcCN	HBDE-1001S-CN	
3'-OH-BDE-007	3'-Hydroxy-2,4-dibromodiphenyl ether	50 µg/mL	AcCN	HBDE-2001S-CN	
2'-OH-BDE-007	2'-Hydroxy-2,4-dibromodiphenyl ether	10 µg/mL	AcCN	HBDE-2002S-CN-0.2X	
2'-OH-BDE-009	2'-Hydroxy-2,5-dibromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-2003S-CN	
4'-OH-BDE-017	4'-Hydroxy-2,2',4-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3001S-CN	
3'-OH-BDE-028	3'-Hydroxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3002S-CN	
2'-OH-BDE-028	2'-Hydroxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3003S-CN	
5'-OH-BDE-025	5'-Hydroxy-2,3',4-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3004S-CN	
3'-OH-BDE-029	3'-Hydroxy-2,4,5-tribromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-3005S-CN	
3'-OH-BDE-030	3'-Hydroxy-2,4,6-tribromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-3006S-CN	
4'-OH-BDE-030	4'-Hydroxy-2,4,6-tribromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-3007S-CN	
4-OH-BDE-042	4-Hydroxy-2,2',3,4'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4001S-CN-0.2X	
4'-OH-BDE-049	4'-Hydroxy-2,2',4,5'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4002S-CN-0.2X	
3-OH-BDE-047	3-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4003S-CN	
5-OH-BDE-047	5-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4004S-CN	
6-OH-BDE-047	6-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4005S-CN-0.2X	
		10 µg/mL	Toluene	HBDE-4005S-T-0.2X	
2'-OH-BDE-068	2'-Hydroxy-2,3',4,5'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4006S-CN-0.2X	
		10 µg/mL	Toluene	HBDE-4006S-T-0.2X	
		50 µg/mL	AcCN	HBDE-4006S-CN	
		50 µg/mL	Toluene	HBDE-4006S-T	
6'-OH-BDE-066	6'-Hydroxy-2,3',4,4'-tetrabromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-4008S-CN	
5'-OH-BDE-069	5'-Hydroxy-2,3',4,6-tetrabromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-4009S-CN	
4'-OH-BDE-069	4'-Hydroxy-2,3',4,6-tetrabromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-4010S-CN	
4'-OH-BDE-048	4'-Hydroxy-2,2',4,5-tetrabromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-4011S-CN	
4-OH-BDE-090	4-Hydroxy-2,2',3,4',5-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5001S-CN-0.2X	
6-OH-BDE-085	6-Hydroxy-2,2',3,4,4'-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5002S-CN-0.2X	
6-OH-BDE-087	6-Hydroxy-2,2',3,4,5'-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5003S-CN-0.2X	
5'-OH-BDE-100	5'-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether **NEW**	10 µg/mL	AcCN	HBDE-5004S-CN-0.2X	
6-OH-BDE-082	6-Hydroxy-2,2',3,3',4-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5005S-CN-0.2X	
6'-OH-BDE-099	6'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5006S-CN-0.2X	
5'-OH-BDE-099	5'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5007S-CN-0.2X	
3-OH-BDE-100	3-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether	50 µg/mL	AcCN	HBDE-5008S-CN	
4'-OH-BDE-101	4'-Hydroxy-2,2',4,5,5'-pentabromodiphenyl ether	50 µg/mL	AcCN	HBDE-5009S-CN	
4'-OH-BDE-121	4'-Hydroxy-2,3',4,5',6-pentabromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-5010S-CN	
6-OH-BDE-123	6-Hydroxy-2',3,4,4',5-pentabromodiphenyl ether **NEW**	50 µg/mL	AcCN	HBDE-5011S-CN	
6-OH-BDE-157	6-Hydroxy-2,3,3',4,4',5'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6001S-CN-0.2X	
6-OH-BDE-140	6-Hydroxy-2,2',3,4,4',6'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6002S-CN-0.2X	
3'-OH-BDE-154	3'-Hydroxy-2,2',4,4',5,6'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6003S-CN-0.2X	
6-OH-BDE-137	6-Hydroxy-2,2',3,4,4',5-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6004S-CN-0.2X	
3-OH-BDE-155	3-Hydroxy-2,2'-4,4',6,6'-hexabromodiphenyl ether **NEW**	10 µg/mL	AcCN	HBDE-6005S-CN-0.2X	
		50 µg/mL	AcCN	HBDE-6005S-CN	
4-OH-BDE-146	4-Hydroxy-2,2',3,4',5,5'-hexabromodiphenyl ether **NEW**	10 µg/mL	AcCN	HBDE-6006S-CN-0.2X	
		50 µg/mL	Isooctane	HBDE-6006S	
4-OH-BDE-187	4-Hydroxy-2,2',3,4',5,5',6-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7001S-CN	
6-OH-BDE-180	6-Hydroxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7002S-CN	
4-OH-BDE-188	4-Hydroxy-2,2',3,4',5,6,6'-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7003S-CN	
6-OH-BDE-182	6-Hydroxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7004S-CN-0.2X	
4'-OH-BDE-201	4'-Hydroxy-2,2',3,3',4,5',6,6'-octabromodiphenyl ether	50 µg/mL	AcCN	HBDE-8001S-CN	

Methoxy PBDE Congeners on next page

Methoxy Polybromodiphenyl Ether Congeners

Short Form	Compound	Conc.	Solvent	Cat. No.	1 mL
Methoxy					
2'-MeO-BDE-003	2'-Methoxy-4-monobromodiphenyl ether	50 µg/mL	MeOH	MOBDE-1001S	
3'-MeO-BDE-007	3'-Methoxy-2,4-dibromodiphenyl ether	50 µg/mL	MeOH	MOBDE-2001S	
2'-MeO-BDE-007	2'-Methoxy-2,4-dibromodiphenyl ether	10 µg/mL	MeOH	MOBDE-2002S-0.2X	
2'-MeO-BDE-009	2'-Methoxy-2,5-dibromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-2003S	
4'-MeO-BDE-017	4'-Methoxy-2,2',4-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3001S	
3'-MeO-BDE-028	3'-Methoxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3002S	
2'-MeO-BDE-028	2'-Methoxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3003S	
5'-MeO-BDE-025	5'-Methoxy-2,3',4-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3004S	
3'-MeO-BDE-029	3'-Methoxy-2,4,5-tribromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-3005S	
3'-MeO-BDE-030	3'-Methoxy-2,4,6-tribromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-3006S	
4'-MeO-BDE-030	4'-Methoxy-2,4,6-tribromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-3007S	
4-MeO-BDE-042	4-Methoxy-2,2',3,4'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4001S-0.2X	
4'-MeO-BDE-049	4'-Methoxy-2,2',4,5'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4002S-0.2X	
3-MeO-BDE-047	3-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4003S	
5-MeO-BDE-047	5-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4004S	
6-MeO-BDE-047	6-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4005S-0.2X	
2'-MeO-BDE-068	2'-Methoxy-2,3',4,5'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4006S-0.2X	
2'-MeO-BDE-075	2'-Methoxy-2,4,4',6-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4007S	
6'-MeO-BDE-066	6'-Methoxy-2,3',4,4'-tetrabromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-4008S	
5'-MeO-BDE-069	5'-Methoxy-2,3',4,6-tetrabromodiphenyl ether **NEW**	10 µg/mL	MeOH	MOBDE-4009S-0.2X	
		50 µg/mL	MeOH	MOBDE-4009S	
4'-MeO-BDE-069	4'-Methoxy-2,3',4,6-tetrabromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-4010S	
4'-MeO-BDE-048	4'-Methoxy-2,2',4,5-tetrabromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-4011S	
4-MeO-BDE-090	4-Methoxy-2,2',3,4',5-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5001S-0.2X	
6-MeO-BDE-085	6-Methoxy-2,2',3,4,4'-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5002S-0.2X	
6-MeO-BDE-087	6-Methoxy-2,2',3,4,5'-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5003S-0.2X	
5'-MeO-BDE-100	5'-Methoxy-2,2',4,4',6-pentabromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-5004S	
6-MeO-BDE-082	6-Methoxy-2,2',3,3',4-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5005S-0.2X	
6'-MeO-BDE-099	6'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5006S-0.2X	
5'-MeO-BDE-099	5'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5007S-0.2X	
3-MeO-BDE-100	3-Methoxy-2,2',4,4',6-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5008S	
4'-MeO-BDE-101	4'-Methoxy-2,2',4,5,5'-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5009S	
4'-MeO-BDE-121	4'-Methoxy-2,3',4,5',6-pentabromodiphenyl ether **NEW**	50 µg/mL	MeOH	MOBDE-5010S	
6-MeO-BDE-123	6-Methoxy-2',3,4,4',5-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5011S	
6-MeO-BDE-157	6-Methoxy-2,3,3',4,4',5'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6001S-0.2X	
6-MeO-BDE-140	6-Methoxy-2,2',3,4,4',6'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6002S-0.2X	
3'-MeO-BDE-154	3'-Methoxy-2,2',4,4',5,6'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6003S-0.2X	
6-MeO-BDE-137	6-Methoxy-2,2',3,4,4',5-hexabromodiphenyl ether **NEW**	10 µg/mL	MeOH	MOBDE-6004S-0.2X	
3-MeO-BDE-155	3-Methoxy-2,2',4,4',6,6'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6005S-0.2X	
		50 µg/mL	MeOH	MOBDE-6005S	
4-MeO-BDE-146	4-Methoxy-2,2',3,4',5,5'-hexabromodiphenyl ether **NEW**	10 µg/mL	MeOH	MOBDE-6006S-0.2X	
4-MeO-BDE-187	4-Methoxy-2,2',3,4',5,5',6-heptabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-7001S	
6-MeO-BDE-180	6-Methoxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-7002S	
4-MeO-BDE-188	4-Methoxy-2,2',3,4',5,6,6'-heptabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-7003S	
6-MeO-BDE-182	6-Methoxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-7004S-0.2X	
4'-MeO-BDE-201	4'-Methoxy-2,2',3,3',4,5',6,6'-octabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-8001S	

Mixed Bromo/Chloro Hydroxylated Diphenyl Ethers NEW

The abundance of PBDEs in the environment led to the increased detection of hydroxylated PBDEs (OH-PBDEs) as well as their chlorinated derivatives (OH-PBCDEs) especially in aquatic environments. Several pathways of their formation have been described in the literature.

In saltwater systems, some of the OH-PBDEs are being produced naturally; while in freshwater systems, atmospheric and wastewater treatment oxidation seems to be the major source of these compounds. Furthermore, disinfection of wastewater with chlorine may lead to the chlorination of OH-PBDEs. These mixed bromo/chloro hydroxy diphenyl ethers (OH-PBCDEs) can then undergo photochemical cyclization in the presence of sunlight to form the potentially even more harmful brominated/chlorinated dibenzo-p-dioxins (Br/Cl-DDs). There is growing concern that both naturally and anthropogenically produced PBDDs and Br/Cl-DDs are an emerging environmental problem.

At AccuStandard, following the lead of environmental chemists, we recognize the emerging problem of the presence of OH-PBCDEs. We have synthesized three OH-PBCDEs and their methylated counterparts to provide reference standards for this new group of compounds. All three chlorinated OH-PBDEs are based on the structure of BDE-47, the most common BDE congener found in environmental samples.

AccuStandard will synthesize more derivatives as demand for these compounds develops.

Compound (Short Form)	Conc.	Solvent	Cat. No.	1 mL
Hydroxy				
3-Chloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (3-Cl-6-OH-BDE-047)	25 µg/mL	Acetonitrile	HCBDE-4001S-0.5X	
	50 µg/mL	Acetonitrile	HCBDE-4001S	
3,5-Dichloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (3,5-Cl2-6-OH-BDE-047)	25 µg/mL	Acetonitrile	HCBDE-4002S-0.5X	
	50 µg/mL	Acetonitrile	HCBDE-4002S	
5-Chloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (5-Cl-6-OH-BDE-047)	25 µg/mL	Acetonitrile	HCBDE-4003S-0.5X	
	50 µg/mL	Acetonitrile	HCBDE-4003S	
Methoxy				
3-Chloro-6-methoxy-2,2',4,4'-tetrabromodiphenyl ether (3-Cl-6-MeO-BDE-047)	25 µg/mL	Methanol	MOCBDE-4001S-0.5X	
	50 µg/mL	Methanol	MOCBDE-4001S	
3,5-Dichloro-6-methoxy-2,2',4,4'-tetrabromodiphenyl ether (3,5-Cl2-6-MeO-BDE-047)	25 µg/mL	Methanol	MOCBDE-4002S-0.5X	
	50 µg/mL	Methanol	MOCBDE-4002S	
5-Chloro-6-methoxy-2,2',4,4'-tetrabromodiphenyl ether (5-Cl-6-MeO-BDE-047)	25 µg/mL	Methanol	MOCBDE-4003S-0.5X	
	50 µg/mL	Methanol	MOCBDE-4003S	

Fluorinated PBDE Congeners

Internal Standards for PBDE Analysis

As with PCBs, the separation and identification of PBDE congeners and related metabolites present a significant analytical challenge due to the co-elution of compounds and nearly identical mass spectra. The traditional approach of using ^{13}C labeled compounds has been successfully utilized for both internal standard quantification, and as an internal standard for calculating relative retention indices. However, this approach is expensive and cannot be used with electron capture detector methods. AccuStandard has synthesized a selection of mono and di-fluorinated analogs of the native BDEs that can be used as a replacement.

Short Form	Compound	Conc.	Solvent	Cat. No.	1 mL
F-BDE-003	4'-Fluoro-4-bromodiphenyl ether	25 µg/mL	Isooctane	FBDE-1001S-0.5X	
		50 µg/mL	Isooctane	FBDE-1001S	
F-BDE-007	3'-Fluoro-2,4-dibromodiphenyl ether	25 µg/mL	Isooctane	FBDE-2001S-0.5X	
		50 µg/mL	Isooctane	FBDE-2001S	
F-BDE-012	3'-Fluoro-3,4-dibromodiphenyl ether	25 µg/mL	Isooctane	FBDE-2002S-0.5X	
		50 µg/mL	Isooctane	FBDE-2002S	
F-BDE-015	2-Fluoro-4,4'-dibromodiphenyl ether	25 µg/mL	Isooctane	FBDE-2003S-0.5X	
		50 µg/mL	Isooctane	FBDE-2003S	
F-BDE-025	4'-Fluoro-2,3',4-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3001S-0.5X	
		50 µg/mL	Isooctane	FBDE-3001S	
F-BDE-027	4'-Fluoro-2,3',6-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3002S-0.5X	
		50 µg/mL	Isooctane	FBDE-3002S	
F-BDE-028	2'-Fluoro-2,4,4'-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3003S-0.5X	
		50 µg/mL	Isooctane	FBDE-3003S	
F-BDE-028	3'-Fluoro-2,4,4'-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3004S-0.5X	
		50 µg/mL	Isooctane	FBDE-3004S	
F-BDE-069	4'-Fluoro-2,3',4,6-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4001S-0.5X	
		50 µg/mL	Isooctane	FBDE-4001S	
F-BDE-067	4'-Fluoro-2,3',4,5-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4002S-0.5X	
		50 µg/mL	Isooctane	FBDE-4002S	
F-BDE-047	6-Fluoro-2,2',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4003S-0.5X	
		50 µg/mL	Isooctane	FBDE-4003S	
F-BDE-066	6-Fluoro-2,3',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4004S-0.5X	
		50 µg/mL	Isooctane	FBDE-4004S	
2F-BDE-047	5,5'-Difluoro-2,2',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4005S-0.5X	
		50 µg/mL	Isooctane	FBDE-4005S	
F-BDE-070	3-Fluoro-2,3',4',5-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4006S-0.5X	
		50 µg/mL	Isooctane	FBDE-4006S	
F-BDE-077	5-Fluoro-3,3',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4007S-0.5X	
		50 µg/mL	Isooctane	FBDE-4007S	
F-BDE-099	6'-Fluoro-2,2',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5001S-0.5X	
		50 µg/mL	Isooctane	FBDE-5001S	
F-BDE-100	3-Fluoro-2,2',4,4',6-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5002S-0.5X	
		50 µg/mL	Isooctane	FBDE-5002S	
2F-BDE-099	3,6-Difluoro-2,2',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5003S-0.5X	
		50 µg/mL	Isooctane	FBDE-5003S	
2F-BDE-085	5,6-Difluoro-2,2',3,4,4'-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5004S-0.5X	
		50 µg/mL	Isooctane	FBDE-5004S	
2F-BDE-119	3,5-Difluoro-2,3',4,4',6-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5005S-0.5X	
		50 µg/mL	Isooctane	FBDE-5005S	
F-BDE-124	3'-Fluoro-2',3,4,5,5'-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5006S-0.5X	
		50 µg/mL	Isooctane	FBDE-5006S	
F-BDE-118	5'-Fluoro-2,3',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5007S-0.5X	
		50 µg/mL	Isooctane	FBDE-5007S	
F-BDE-126	5'-Fluoro-3,3',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5008S-0.5X	
		50 µg/mL	Isooctane	FBDE-5008S	
F-BDE-160	4'-Fluoro-2,3,3',4,5,6-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6001S-0.5X	
		50 µg/mL	Isooctane	FBDE-6001S	
F-BDE-139	5-Fluoro-2,2',3,4,4',6-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6002S-0.5X	
		50 µg/mL	Isooctane	FBDE-6002S	
F-BDE-153	3-Fluoro-2,2',4,4',5,5'-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6003S-0.5X	
		50 µg/mL	Isooctane	FBDE-6003S	
F-BDE-154	3'-Fluoro-2,2',4,4',5,6'-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6004S-0.5X	
		50 µg/mL	Isooctane	FBDE-6004S	
F-BDE-183	5-Fluoro-2,2',3,4,4',5',6-heptabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-7001S-0.5X	
		50 µg/mL	Isooctane	FBDE-7001S	
2F-BDE-199	4',6-Difluoro-2,2',3,3',4,5,5',6'-octabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-8001S-0.5X	
		50 µg/mL	Isooctane	FBDE-8001S	
F-BDE-208	4'-Fluoro-2,2',3,3',4,5,5',6,6'-nonabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-9001S-0.5X	
		50 µg/mL	Isooctane	FBDE-9001S	

HBCD Isomers, Dechlorane Plus Isomers, Bromobiphenyls

Hexabromocyclododecane Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
α-Hexabromocyclododecane		100 µg/mL	Toluene	HXBCD-01	
β-Hexabromocyclododecane		100 µg/mL	Toluene	HXBCD-02	
γ-Hexabromocyclododecane		100 µg/mL	Toluene	HXBCD-03	
HBCD SP-75C (Great Lakes)	3194-55-6-GL	10 mg	NEAT	FRS-028N	
		100 µg/mL	Toluene	FRS-028S	

Dechlorane Plus Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Dechlorane Plus "Anti"	135821-74-8	50 µg/mL	Toluene	FRS-061S-0.5X	
Dechlorane Plus "Syn"	135821-03-3	50 µg/mL	Toluene	FRS-062S-0.5X	
Dechlorane Plus (Mixed isomers)	13560-89-9	10 mg	NEAT	FRS-033N	
		100 µg/mL	Toluene	FRS-033S	

Bromobiphenyl Congeners

Compound	CAS No.	Conc.	Matrix	Neats as stated Cat. No.	1 mL
2-Bromobiphenyl	2052-07-5	50 mg	NEAT	B-001N	
		35 µg/mL	Isooctane	B-001S	
		1 mg/mL	Acetone	M-8081-SS-X	
3-Bromobiphenyl	2113-57-7	50 mg	NEAT	B-002N	
		35 µg/mL	Isooctane	B-002S	
4-Bromobiphenyl	92-66-0	50 mg	NEAT	B-003N	
		35 µg/mL	Isooctane	B-003S	
2,2'-Dibromobiphenyl	13029-09-9	10 mg	NEAT	B-004N	
		35 µg/mL	Isooctane	B-004S	
2,4-Dibromobiphenyl	53592-10-2	10 mg	NEAT	B-007N-10MG	
		35 µg/mL	Isooctane	B-007S	
2,5-Dibromobiphenyl	57422-77-2	25 mg	NEAT	B-009N	
		35 µg/mL	Isooctane	B-009S	
2,6-Dibromobiphenyl	59080-32-9	5 mg	NEAT	B-010N-5MG	
		35 µg/mL	Isooctane	B-010S	
4,4'-Dibromobiphenyl	92-86-4	10 mg	NEAT	B-015N	
		35 µg/mL	Isooctane	B-015S	
2,2',5-Tribromobiphenyl	59080-34-1	10 mg	NEAT	B-018N	
		35 µg/mL	Isooctane	B-018S	
2,3',5-Tribromobiphenyl	59080-35-2	10 mg	NEAT	B-026N	
		35 µg/mL	Isooctane	B-026S	
2,4,5-Tribromobiphenyl	115245-07-3	35 µg/mL	Isooctane	B-029S	
2,4,6-Tribromobiphenyl	59080-33-0	25 mg	NEAT	B-030N	
		35 µg/mL	Isooctane	B-030S	
2,4',5-Tribromobiphenyl	59080-35-3	10 mg	NEAT	B-031N	
		35 µg/mL	Isooctane	B-031S	
2,2',4,5'-Tetrabromobiphenyl	60044-24-8	5 mg	NEAT	B-049N-5MG	
		35 µg/mL	Isooctane	B-049S	
2,2',5,5'-Tetrabromobiphenyl	59080-37-4	10 mg	NEAT	B-052N	
		35 µg/mL	Isooctane	B-052S	
2,2',5,6'-Tetrabromobiphenyl	60044-25-9	5 mg	NEAT	B-053N-5MG	
		35 µg/mL	Isooctane	B-053S	
3,3',4,4'-Tetrabromobiphenyl	77102-82-0	35 µg/mL	Isooctane	B-077S	
3,3',5,5'-Tetrabromobiphenyl	16400-50-3	35 µg/mL	Isooctane	B-080S	
2,3,4,4',5-Pentabromobiphenyl	96551-70-1	35 µg/mL	Isooctane	B-114S	
2,2',4,5,5'-Pentabromobiphenyl	67888-96-4	5 mg	NEAT	B-101N	
		35 µg/mL	Isooctane	B-101S	
2,2',4,5',6-Pentabromobiphenyl	59080-39-6	5 mg	NEAT	B-103N	
		35 µg/mL	Isooctane	B-103S	
2,2',3,4,4',5-Hexabromobiphenyl	81381-52-4	35 µg/mL	Isooctane	B-137S	
2,2',3,4,5,5'-Hexabromobiphenyl	120991-47-1	35 µg/mL	Isooctane	B-141S	
2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	5 mg	NEAT	B-153N-5MG	
		35 µg/mL	Isooctane	B-153S	
2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	5 mg	NEAT	B-155N	
		35 µg/mL	Isooctane	B-155S	
2,3,3',4,4',5-Hexabromobiphenyl	77607-09-1	35 µg/mL	Isooctane	B-156S	
2,3,3',4,5,5'-Hexabromobiphenyl		35 µg/mL	Isooctane	B-159S	
3,3',4,4',5,5'-Hexabromobiphenyl	60044-26-0	35 µg/mL	Isooctane	B-169S	
2,2',3,4,4',5,5'-Heptabromobiphenyl	67733-52-2	35 µg/mL	Isooctane	B-180S	
2,3,3',4,4',5,5'-Heptabromobiphenyl		35 µg/mL	Isooctane	B-189S	
2,2',3,3',4,4',5,5'-Octabromobiphenyl		35 µg/mL	Isooctane	B-194S	
2,2',3,3',4,5',6,6'-Octabromobiphenyl	119264-60-7	35 µg/mL	Isooctane	B-200S	
Decabromobiphenyl	13654-09-6	25 mg	NEAT	B-209N	
		35 µg/mL	Isooctane : Acetone (98:2)	B-209S	

Bromophenols and their Methyl ethers

Bromophenols

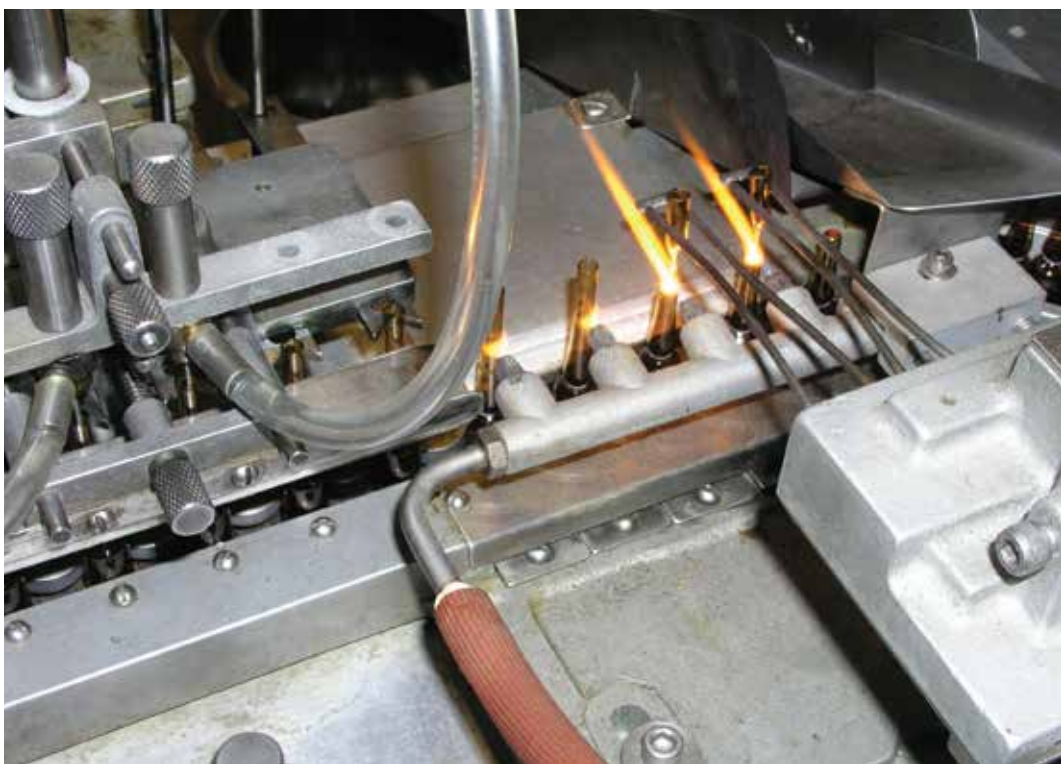
Each at 100 µg/mL in Toluene

Compound	CAS No.	Cat. No.	1 mL
2-Bromophenol **NEW**	95-56-7	BP-002S	
3-Bromophenol	591-20-8	BP-003S	
4-Bromophenol	106-41-2	BP-004S	
2,3-Dibromophenol	57383-80-9	BP-023S	
2,4-Dibromophenol	615-58-7	BP-024S	
2,5-Dibromophenol	28165-52-8	BP-025S	
2,6-Dibromophenol	608-33-3	BP-026S	
3,4-Dibromophenol **NEW**	615-56-5	BP-034S	
3,5-Dibromophenol	626-41-5	BP-035S	
2,3,4-Tribromophenol	138507-65-0	BP-234S	
2,3,5-Tribromophenol **NEW**		BP-235S	
2,3,6-Tribromophenol **NEW**		BP-236S	
2,4,5-Tribromophenol	14401-61-7	BP-245S	
2,4,6-Tribromophenol	118-79-6	BP-246S	
3,4,5-Tribromophenol		BP-345S	
2,3,4,5-Tetrabromophenol		BP-2345S	
2,3,4,6-Tetrabromophenol	14400-94-3	BP-2346S	
2,3,5,6-Tetrabromophenol		BP-2356S	
Pentabromophenol	608-71-9	BP-23456S	

Bromoanisoles (Bromophenyl methyl ether)

Each at 50 µg/mL in Methanol

Compound	CAS No.	Cat. No.	1 mL
2-Bromoanisole	578-57-4	BAN-01	
3-Bromoanisole	2398-37-0	BAN-02	
4-Bromoanisole	104-92-7	BAN-03	
2,3-Dibromoanisole		BAN-04	
2,4-Dibromoanisole	21702-84-1	BAN-05	
2,5-Dibromoanisole	95970-08-4	BAN-06	
2,6-Dibromoanisole	38603-09-7	BAN-07	
3,5-Dibromoanisole	74137-36-3	BAN-08	
2,4,5-Tribromoanisole		BAN-09	
2,4,6-Tribromoanisole	607-99-8	BAN-10	



Bromine Containing Industrial Flame Retardants (BFRs) PURE

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane (TBECH)	3322-93-8	10 mg	NEAT	FRS-038N	
		100 mg/mL	MeOH	FRS-038S	
Dibromoneopentyl glycol	3296-90-0	10 mg	NEAT	FRS-011N	
		100 µg/mL	Toluene	FRS-011S	
tris(2,3-Dibromopropyl) isocyanurate	52434-90-9	10 mg	NEAT	FRS-042N	
		100 µg/mL	Toluene	FRS-042S	
bis(2,3-Dibromopropyl)phthalate NEW	7415-86-3	10 mg	NEAT	FRS-067N	
		100 µg/mL	Toluene	FRS-067S	
tris(2,3-Dibromopropyl)phosphate NEW	126-72-7	10 mg	NEAT	FRS-057N	
		100 µg/mL	Toluene	FRS-057S	
(2,3-Dibromopropyl)(2,4,6-tribromophenyl) ether (DPTE)	35109-60-5	10 mg	NEAT	FRS-044N	
		100 µg/mL	Toluene	FRS-044S	
Di(2-ethylhexyl)tetrabromophthalate	26040-51-7	10 mg	NEAT	FRS-040N	
		100 µg/mL	Toluene	FRS-040S	
2-Ethylhexyl 2,3,4,5-tetrabromobenzoate	183658-27-7	10 mg	NEAT	FRS-041N	
		100 µg/mL	Toluene	FRS-041S	
Hexachlorocyclopentadienyl-dibromocyclooctane	51936-55-1	10 mg	NEAT	FRS-039N	
		100 µg/mL	Toluene	FRS-039S	
Pentabromobenzene NEW	608-90-2	10 mg	NEAT	FRS-064N	
		50 µg/mL	Toluene	FRS-064S-0.5X	
Pentabromobenzylacrylate	59447-55-1	10 mg	NEAT	FRS-035N	
		100 µg/mL	Toluene	FRS-035S	
Pentabromobenzylbromide	38521-51-6	10 mg	NEAT	FRS-030N	
		100 µg/mL	Toluene	FRS-030S	
Pentabromoethylbenzene	85-22-3	100 µg/mL	Toluene	FRS-048S	
1,4-bis(Pentabromophenoxy)tetrabromobenzene	58965-66-5	10 mg	NEAT	FRS-052N	
		100 µg/mL	Toluene	FRS-052S	
Tetrabromobisphenol A	79-94-7	10 mg	NEAT	FRS-074N	
		100 µg/mL	Toluene	FRS-074S	
Tetrabromobisphenol A bis(2,3-dibromopropyl ether) NEW	21850-44-2	10 mg	NEAT	FRS-034N	
		100 µg/mL	Toluene	FRS-034S	
Tetrabromobisphenol A bis(hydroxyethyl ether)	4162-45-2	50 mg	NEAT	FRS-032N	
		100 µg/mL	Toluene	FRS-032S	
Tetrabromobisphenol A bismethyl ether NEW	37853-61-5	10 mg	NEAT	FRS-069N	
		100 µg/mL	Toluene	FRS-069S	
Tetrabromobisphenol A diallyl ether	25327-89-3	10 mg	NEAT	FRS-045N	
		100 µg/mL	Toluene	FRS-045S	
Tetrabromobisphenol S NEW	39635-79-5	10 mg	NEAT	FRS-070N	
		100 µg/mL	Toluene	FRS-070S	
Tetrabromobisphenol S bis(2,3-dibromopropyl ether) NEW	42757-55-1	10 mg	NEAT	FRS-075N	
		100 µg/mL	Toluene	FRS-075S	
1,2,5,6-Tetrabromocyclooctane NEW	3194-57-8	10 mg	NEAT	FRS-068N	
		100 µg/mL	Toluene	FRS-068S	
Tetrabromophthalic acid NEW	13810-83-8	10 mg	NEAT	FRS-065N	
		100 µg/mL	Toluene	FRS-065S	
Tribromoneopentyl alcohol	1522-92-5 / 36483-57-5	10 mg	NEAT	FRS-046N	
		100 µg/mL	Toluene	FRS-046S	
tris(Tribromoneopentyl) phosphate	19186-97-1	10 mg	NEAT	FRS-047N	
		100 µg/mL	Toluene	FRS-047S	
1,2-bis(2,4,6-Tribromophenoxy)ethane	37853-59-1	10 mg	NEAT	FRS-037N	
		100 µg/mL	Toluene	FRS-037S	
2,4,6-tris(2,4,6-Tribromophenoxy)-1,3,5-triazine	25713-60-4	100 µg/mL	Toluene	FRS-049S	
2,4,6-Tribromophenyl allyl ether	3278-89-5	10 mg	NEAT	FRS-043N	
		100 µg/mL	Toluene	FRS-043S	

Compounds are available in different solvents.
Please contact our Technical Service Department.

Bromine Containing Industrial Flame Retardants (BFRs) Commercial Grade

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.	1 mL
Bromkal™ DE-70-5		Penta BDEs	50 µg/mL	Isooctane	BDE-705	
Bromkal™ DE-71		Penta BDEs	50 µg/mL	Isooctane	BDE-710	
Bromkal™ DE-73-6		Hexa BDEs	50 µg/mL	Isooctane	BDE-736	
Bromkal™ DE-79-8		Octa BDEs	50 µg/mL	Isooctane	BDE-798	
Dow FR-250	27858-07-7	Mix of Octa and Nonabromobiphenyl	35 µg/mL	Isooctane	B-250S-0.35X	
			100 µg/mL	Isooctane	B-250S	
Firemaster™ BP4A	79-94-7	Tetrabromobisphenol A	100 µg/mL	Toluene	FRS-006S	
Firemaster™ BP-6	59536-65-1	Hexabromobiphenyl	35 µg/mL	Isooctane	B-600S-0.35X	
			100 µg/mL	Isooctane	B-600S	
Firemaster™ PHT4	632-79-1	Tetrabromophthalic anhydride	10 mg	NEAT	FRS-007N	
			100 µg/mL	Toluene	FRS-007S	
Firemaster™ T23P (Michigan Chemical)	126-72-7	Tris(2,3-dibromopropyl)phosphate	10 mg	NEAT	FRS-008N	
			100 µg/mL	Toluene	FRS-008S	
Firemaster™ 680 (Great Lakes)	37853-59-1	1,2-Bis(2,4,6-tribromophenoxyl)ethane	50 mg	NEAT	FRS-037N	
			100 µg/mL	Toluene	FRS-037S	
Firemaster™ 2100 (Great Lakes)	84852-53-9	Decabromodiphenylethane	50 mg	NEAT	FRS-036N	
			100 µg/mL	Toluene	FRS-036S	
FR-300BA	1163-19-5	Decabromodiphenyl ether 85.5%	10 mg	NEAT	FRS-009N	
			100 µg/mL	Toluene	FRS-009S	
FR-651A (Dow)	87-84-3	Pentabromochlorocyclohexane	10 mg	NEAT	FRS-010N	
			100 µg/mL	Toluene	FRS-010S	
FR-1138 (Dow)	3296-90-0	Dibromoneopentyl glycol 85.0%	10 mg	NEAT	FRS-011N	
			100 µg/mL	Toluene	FRS-011S	
HBCD SP-75C (Great Lakes)	3194-55-6-GL	1,2,5,6,9,10-Hexabromocyclododecane	10 mg	NEAT	FRS-028N	
			100 µg/mL	Toluene	FRS-028S	
Hexabromobenzene (Michigan Chemical)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-012N	
			100 µg/mL	Toluene	FRS-012S	
Hexabromobenzene (White Chemical)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-013N	
			100 µg/mL	Toluene	FRS-013S	
Hexabromobenzene (Hummel)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-014N	
			100 µg/mL	Toluene	FRS-014S	
Pentabromotoluene (White Chemical)	87-83-2	Pentabromotoluene	10 mg	NEAT	FRS-018N	
			100 µg/mL	Toluene	FRS-018S	
Saytex BT-93	32588-76-4	Ethylene bis(tetrabromophthalimide)	50 µg/mL	Toluene	FRS-053S-0.5X	
Saytex RB-79	77058-07-8	2-(2'-Hydroxyethoxyl) ethyl, 2-hydroxylpropyl-tetrabromophthalate	10 mg	NEAT	FRS-054N	
			100 µg/mL	Toluene	FRS-054S	
Tetrabromo-o-chlorotoluene (White Chemical)		Tetrabromo-o-chlorotoluene (98%)	10 mg	NEAT	FRS-021N	
			100 µg/mL	Toluene	FRS-021S	
TP-69 (Great Lakes)	126-72-7	Tris(2,3-dibromopropyl)phosphate	10 mg	NEAT	FRS-023N	
			100 µg/mL	Toluene	FRS-023S	

Registered Trademarks

Chlorafin	Hercules Powder Company Corp.	Firemaster	Great Lakes Chemical Corp.	Phosgard	Solutia Inc.
Chlorowax	Dover Chemical Corp.	Paroil	Dover Chemical Corp	Unichlor	Neville Chemical Co.

Other BFR Related Chemicals

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Bromoallyl-2,4,6-tribromophenyl ether NEW	99717-56-3	10 mg	NEAT	FRS-063N	
		100 µg/mL	Toluene	FRS-063S	
3-Bromostyrene	2039-86-3	10 mg	NEAT	FRS-050N	
		100 µg/mL	Toluene	FRS-050S	
4-Bromostyrene	2039-82-9	10 mg	NEAT	FRS-051N	
		100 µg/mL	Toluene	FRS-051S	
2,3,4,5-Tetrabromobenzoic acid (Metabolite) NEW	27581-13-1	100 µg/mL	Toluene: THF (85:15)	FRS-066S	
Tetrabromobisphenol A bisglycidyl ether NEW	3072-84-2	10 mg	NEAT	FRS-073N	
		100 µg/mL	Toluene	FRS-073S	
Tetrabromobisphenol S bisglycidyl ether NEW		10 mg	NEAT	FRS-072N	
		100 µg/mL	Toluene	FRS-072S	
Tetrabromobisphenol S bismethyl ether NEW	70156-79-5	10 mg	NEAT	FRS-071N	
		100 µg/mL	Toluene	FRS-071S	
2,4,6-Tribromophenol (Metabolite)	118-79-6	100 µg/mL	Toluene	BP-246S	

Industrial Flame Retardants
Phosphate Flame Retardants (PFRs) and Chlorine Containing Flame Retardants (CFRs)

Organophosphate Flame Retardants (PFRs)

Organophosphate compounds (OPs) are high production volume chemicals that have a high potential of acute toxicity to insects, wildlife and humans. They are utilized as flame retardants and plasticizers, antifoaming agents and additives not only in plastics, but in paints, lubricants and hydraulic fluids as well. The chlorinated organophosphate compounds like tris(2-chloroethyl) phosphate and tris(1,3-dichloro-2-propyl) phosphate are flame retardants used in both flexible and rigid polyurethane foam (e.g. furniture foam, thermal insulation), rubber, textile coatings, and home electronics. Organophosphates have been detected in indoor air and house dust, surface, ground, and even drinking water. Toxicology studies have shown these compounds to inhibit acetylcholinesterase which is essential to nerve functions in insects and humans.

NEW

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Trimethyl phosphate (TMP)	512-56-1	100 µg/mL	Toluene	PFRS-016S	
Dimethyl phosphate	813-78-5	100 µg/mL	Toluene	PFRS-006S	
Triethyl phosphate (TEP)	78-40-0	100 µg/mL	Toluene	PFRS-012S	
Diethyl phosphate (mono & di-)	598-02-7	100 µg/mL	Toluene	PFRS-005S	
Tripropyl phosphate (TPrP)	513-08-6	100 µg/mL	Toluene	PFRS-021S	
Triisopropyl phosphate (TiPP, TiPrP)	513-02-0	100 µg/mL	Toluene	PFRS-013S	
Tributyl phosphate	126-73-8	100 µg/mL	Toluene	PFRS-009S	
Tripentyl phosphate (TPeP)	2528-38-3	100 µg/mL	Hexane	PFRS-019S-H	
tris(2-ethylhexyl) phosphate	78-42-2	100 µg/mL	Toluene	PFRS-028S	
Triphenyl phosphate (TPP, TPhP)	115-86-8	100 µg/mL	Toluene	PFRS-020S	
2-Ethylhexyl diphenyl phosphate (EDP, DPEHP)	1241-94-7	100 µg/mL	Toluene	PFRS-007S	
Tri(2-isopropylphenyl) phosphate	64532-95-2	100 µg/mL	Toluene	PFRS-014S	
Isodecyl diphenyl phosphate	29761-21-5	100 µg/mL	Toluene	PFRS-008S	
Cresyl diphenyl phosphate (CDP)	26444-49-5	100 µg/mL	Toluene	PFRS-004S	
Tri-o-cresyl phosphate (o-TCP, TOCP, TOTP)	78-30-8	100 µg/mL	Toluene	PFRS-017S	
Tri-p-cresyl phosphate (p-TCP, TPCP, TPTP)	78-32-0	100 µg/mL	Toluene	PFRS-018S	
Tricresyl phosphate (mixture of isomers) (TCP, TCrP, TToP)	1330-78-5	100 µg/mL	Toluene	PFRS-011S	
Tri-m-cresyl phosphate (m-TCP, TMTP)	563-04-2	100 µg/mL	Toluene	PFRS-015S	
tris(2-butoxyethyl) phosphate (TBEP)	78-51-3	100 µg/mL	Toluene	PFRS-022S	
tris(2-chloroethyl) phosphate (TCEP)	115-96-8	100 µg/mL	Toluene	PFRS-024S	
tris(1-chloro-2-propyl) phosphate (TCPP, TCiPP)	13674-84-5	100 µg/mL	Toluene	PFRS-025S	
tris(2-chloropropyl)phosphate	6145-73-9	100 µg/mL	Toluene	PFRS-023S	
Tri(3-chloropropyl) phosphate (TCPP)	26248-87-3	100 µg/mL	Toluene	PFRS-010S	
tris(1,3-dichloro-2-propyl) phosphate (TDCPP, TDCP)	13674-87-8	100 µg/mL	Toluene	PFRS-027S	
tris(2,3-dibromopropyl) phosphate	126-72-7	100 µg/mL	Toluene	PFRS-026S	
bis(2,3-dibromopropyl) phoshate	5412-25-9	100 µg/mL	Toluene	PFRS-002S	
tris(tribromoneopentyl) phosphate (TTBNP)	19186-97-1	100 µg/mL	Toluene	PFRS-029S	
Tetrakis(2-chloroethyl)dichloroisopentyldiphosphate (V6)	38051-10-4	100 µg/mL	Toluene	PFRS-003S	
Resorcinol bis(diphenyl phosphate) (RDP)	57583-54-7	100 µg/mL	Toluene	PFRS-030S	
Bisphenol A bis(diphenyl phosphate) (BADP, BAPP, BPADP, BDP)	5945-33-5	100 µg/mL	Toluene	PFRS-001S	

Chlorine Containing Industrial Flame Retardants (CFRs)

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.	1 mL
Chlorafin™ 40	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-002N	
			100 µg/mL	Toluene	FRS-002S	
Chlorendic anhydride	115-27-5	Chlorendic anhydride	10 mg	NEAT	FRS-001N	
			100 µg/mL	Toluene	FRS-001S	
bis(2-Chloroethyl)ether	111-44-4	bis(2-Chloroethyl)ether	100 µg/mL	MeOH	APP-9-027	
			5 mg/mL	MeOH	AS-E0016	
4-Chlorophenyl phenyl ether	7005-72-3	4-Chlorophenyl phenyl ether	100 µg/mL	MeOH	APP-9-047	
			5 mg/mL	MeOH	AS-E0038	
Chlorowax™ 500C	63449-39-8	Chlorinated Hydrocarbons 59.0%	10 mg	NEAT	FRS-004N	
			100 µg/mL	Toluene	FRS-004S	
Chlorowax™ 70	63449-39-8	Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-003N	
			100 µg/mL	Toluene	FRS-003S	
Diablo 700X	63449-39-8	Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-005N	
			100 µg/mL	Toluene	FRS-005S	
Dechlorane Plus (Mixed isomers)	13560-89-9	Dechlorane Plus	10 mg	NEAT	FRS-033N	
			100 µg/mL	Toluene	FRS-033S	
Hexachlorobutadiene	87-68-3	Hexachlorobutadiene	100 µg/mL	Toluene	FRS-017S	
Paroil™ 179-HV	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-015N	
			100 µg/mL	Toluene	FRS-015S	
Paroil™ 170-8	63449-39-8	Chlorinated Paraffin	100 µg/mL	Toluene	FRS-016S	
Phosgard™ C 22-R	4351-70-6	Halogenated organic phosphate ester	10 mg	NEAT	FRS-019N	
			100 µg/mL	Toluene	FRS-019S	
Phosgard™ 2XC-20, V6	38051-10-4	Halogenated organic phosphate ester	100 µg/mL	Toluene	FRS-020S	
Tetrachlorobisphenol A	79-95-8	Tetrachlorobisphenol A	10 mg	NEAT	FRS-022N	
			100 µg/mL	Toluene	FRS-022S	
Unichlor™ 40-90	63449-39-8	Chlorinated Hydrocarbons 38.5%	10 mg	NEAT	FRS-024N	
			100 µg/mL	Toluene	FRS-024S	
Unichlor™ 502-50	63449-39-8	Chlorinated Hydrocarbons 52.0%	10 mg	NEAT	FRS-025N	
			100 µg/mL	Toluene	FRS-025S	
Unichlor™ 70AX	63449-39-8	Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-026N	
			100 µg/mL	Toluene	FRS-026S	

Polynuclear Aromatic Hydrocarbons

Polyaromatic Hydrocarbons (PAHs) are hydrocarbon compounds with multiple benzene rings. PAHs are typical components of asphalts, fuels, oils, and greases. They are also called Polycyclic Aromatic Hydrocarbons and have been linked to cancer and hormone disruption.

PAHs

Purity 98+%, except where indicated

PAHs in Bulk Quanitites Available

Polynuclear Aromatic Hydrocarbons (PAHs)

Compound	Synonym	CAS No.	NEAT Cat. No.	Unit	50 µg/mL in Toluene SOLUTION Cat. No.	1 mL
Acenaphthene		83-32-9	H-108N	100 mg	H-108S	
Acenaphthylene		208-96-8	H-125N	100 mg	H-125S	
Acridine		260-94-6	H-187N	100 mg	H-187S	
Anthanthrene		191-26-4	H-109N	10 mg	H-109S	
Anthracene		120-12-7	H-110N	100 mg	H-110S	
Azulene		275-51-4	H-127N	10 mg	H-127S	
1,2-Benzanthracene	*Tetraphene*	56-55-3	H-100N	10 mg	H-100S	
2,3-Benzanthracene		92-24-0	H-159N	10 mg	H-159S	
Benz[a]anthracene-7,12-dione	*Benzanthraquinone*	2498-66-0	H-111N	10 mg	H-111S	
Benzo[b]chrysene		214-17-5	H-183N	5 mg	H-183S	
Benzo[b]fluoranthene	*Benz[e]acephenanthrylene*	205-99-2	H-128N	10 mg	H-128S	
Benzo[j]fluoranthene		205-82-3	H-171N	10 mg	H-171S	
Benzo[k]fluoranthene		207-08-9	H-129N	10 mg	H-129S	
1,2-Benzofluorene		238-84-6	----------	----------	H-130S	
2,3-Benzofluorene		243-17-4	H-180N	10 mg	H-180S	
Benzo[g,h,i]perylene	*1,12-Benzoperylene*	191-24-2	H-103N	10 mg	H-103S	
Benzo[c]phenanthrene		195-19-7	H-244N	10 mg	H-244S	
Benzo[a]pyrene (ACS grade)	*3,4-Benzopyrene*	50-32-8	H-169N-ACS	10 mg	----------	---
Benzo[a]pyrene (Ames grade)			H-169N	10 mg	H-169S	
Benzo[e]pyrene		192-97-2	H-112N	10 mg	H-112S	
2,3-Benzofuran		271-89-6	H-237N	10 mg	H-237S	
5,6-Benzoquinoline	*Benzo[f]quinoline*	85-02-9	H-113N-10MG	10 mg	H-113S	
7,8-Benzoquinoline		230-27-3	H-245N	100 mg	H-245S	
2,2'-Binaphthyl		612-78-2	H-239N	50 mg	H-239S	
Biphenyl		92-52-4	H-133N	500 mg	H-133S	
Carbazole		86-74-8	H-114N	100 mg	H-114S	
Chrysene	*Benzo[a]phenanthrene*	218-01-9	H-115N	100 mg	H-115S	
Coronene		191-07-1	H-116N	5 mg	H-116S	
Cyclopenta[c,d]pyrene		27208-37-3	----------	----------	H-242S	
Dibenz[a,h]acridine		226-36-8	H-172N	10 mg	H-172S	
Dibenz[a,j]acridine		224-42-0	H-173N	10 mg	H-173S	
1,2:3,4-Dibenzanthracene	*Dibenz[a,c]anthracene*	215-58-7	H-134N	10 mg	H-134S	
1,2:5,6-Dibenzanthracene	*Dibenz[a,h]anthracene*	53-70-3	H-135N	10 mg	H-135S	
7H-Dibenzo[c,g]carbazole		194-59-2	----------	----------	H-176S	
Dibenzo-*p*-dioxin		262-12-4	D-100N	10 mg	D-100S *	
Dibenzo[a,e]fluoranthene		5385-75-1	----------	----------	H-247S	
Dibenzofuran		132-64-9	F-100N	50 mg	----------	--
1,2,4,5-Dibenzopyrene	*Dibenzo[a,e]pyrene*	192-65-4	----------	----------	H-138S	
Dibenzo[a,h]pyrene		189-64-0	H-177N	10 mg	H-177S	
Dibenzo[a,i]pyrene		189-55-9	H-178N	5 mg	H-178S	
Dibenzo[a,l]pyrene		191-30-0	----------	----------	H-179S	
Diphenylenesulfide	*Dibenzothiophene*	132-65-0	H-117N	100 mg	H-117S	
1,2:8,9-Dibenzpentacene		227-09-8	H-139N **	5 mg	H-139S	
9,10-Dihydroanthracene		613-31-0	H-140N	100 mg	H-140S	
12,12A-Dihydro-3,9-dimethylbenz[a]anthracene			----------	----------	H-188S	
Diindeno[1,2,3-cd-1',2',3'-lm]perylene	*Periflanthene*	188-94-3	----------	----------	H-141S	
2,3-Dimethylanthracene		613-06-9	H-189N	10 mg	H-189S	
9,10-Dimethylanthracene		781-43-1	H-190N	10 mg	H-190S	
3,9-Dimethylbenz[a]anthracene		316-51-8	----------	----------	H-191S	
6,8-Dimethylbenz[a]anthracene		317-64-6	----------	----------	H-192S	
7,12-Dimethylbenz[a]anthracene		57-97-6	H-174N	10 mg	H-174S	
1,12-Dimethylbenzo[c]phenanthrene		4076-43-1	----------	----------	H-193S	
5,8-Dimethylbenzo[c]phenanthrene		54886-63-9	----------	----------	H-194S	
7,10-Dimethylbenzo[a]pyrene		63104-33-6	----------	----------	H-195S	
1,2-Dimethylnaphthalene		573-98-8	H-197N	10 mg	H-197S	
1,3-Dimethylnaphthalene (96%)		575-41-7	H-198N	10 mg	H-198S	
1,4-Dimethylnaphthalene (95%)		571-53-4	H-199N	10 mg	H-199S	
1,5-Dimethylnaphthalene		571-61-9	H-200N	10 mg	H-200S	
1,6-Dimethylnaphthalene		575-43-9	H-201N	10 mg	H-201S	
1,8-Dimethylnaphthalene (95%)		569-41-5	H-202N	10 mg	H-202S	
2,6-Dimethylnaphthalene		581-42-0	H-161N	10 mg	H-161S	
2,7-Dimethylnaphthalene		582-16-1	H-203N	10 mg	H-203S	

* in Isooctane

** Call for price.

Polynuclear Aromatic Hydrocarbons (PAHs)

Purity 98+%, except where indicated

Compound	Synonym	CAS No.	NEAT Cat. No.	Unit	50 µg/mL in Toluene SOLUTION Cat. No.	1 mL
3,6-Dimethylphenanthrene		1576-67-6	H-142N-5MG	5 mg	H-142S	
9,10-Diphenylanthracene		1499-10-1	H-185N	100 mg	H-185S	
Dodecahydrotriphenylene		1610-39-5	H-144N	100 mg	H-144S	
6-Ethylchrysene		2732-58-3	H-264N	10 mg		
Fluoranthene		206-44-0	H-118N	100 mg	H-118S	
Fluorene		86-73-7	H-146N	100 mg	H-146S	
Indan		496-11-7	H-231N	100 mg	H-231S	
Indene		95-13-6	H-230N	100 mg	H-230S	
Indeno[1,2,3-cd]pyrene	*o-Phenylene pyrene*	193-39-5	H-157N	10 mg	H-157S	
Indole		120-72-9	H-236N	100 mg	H-236S	
Isoquinoline		119-65-3	H-232N	100 mg	H-232S	
1-Methylanthracene		610-48-0	H-222N	10 mg	H-222S	
2-Methylanthracene		613-12-7	H-148N	10 mg	H-148S	
9-Methylanthracene		779-02-2	H-149N	10 mg	H-149S	
1-Methylbenz[a]anthracene		2498-77-3	----------	----------	H-213S	
2-Methylbenz[a]anthracene		2498-76-2	----------	----------	H-214S	
3-Methylbenz[a]anthracene		2498-75-1	----------	----------	H-215S	
4-Methylbenz[a]anthracene		316-49-4	----------	----------	H-216S	
5-Methylbenz[a]anthracene		2319-96-2	----------	----------	H-217S	
6-Methylbenz[a]anthracene		316-14-3	----------	----------	H-218S	
7-Methylbenz[a]anthracene		2541-69-7	----------	----------	H-219S	
9-Methylbenz[a]anthracene		2381-16-0	----------	----------	H-220S	
10-Methylbenz[a]anthracene		2381-15-9	----------	----------	H-221S	
1-Methylbenzo[c]phenanthrene		4076-39-5	----------	----------	H-208S	
2-Methylbenzo[c]phenanthrene		2606-85-1	----------	----------	H-209S	
3-Methylbenzo[c]phenanthrene		2381-19-3	----------	----------	H-210S	
4-Methylbenzo[c]phenanthrene		4076-40-8	----------	----------	H-211S	
5-Methylbenzo[c]phenanthrene		652-04-0	----------	----------	H-212S	
7-Methylbenzo[a]pyrene		63041-77-0	H-223N	10 mg	H-223S	
8-Methylbenzo[a]pyrene		63041-76-9	----------	----------	H-205S	
9-Methylbenzo[a]pyrene		70644-19-8	----------	----------	H-206S	
10-Methylbenzo[a]pyrene		63104-32-5	----------	----------	H-207S	
3-Methylcholanthrene	*20-Methylcholanthrene*	56-49-5	H-170N	10 mg	H-170S	
4-Methylchrysene		3351-30-2	----------	----------	H-228S	
5-Methylchrysene		3697-24-3	----------	----------	H-243S	
6-Methylchrysene		1705-85-7	H-175N	10 mg	H-175S	
2-Methylfluoranthene		33543-31-6	H-182N-5MG	5 mg	H-182S	
1-Methylnaphthalene		90-12-0	H-001N	100 mg	H-001S	
2-Methylnaphthalene		91-57-6	H-002N	100 mg	H-002S	
9-Methyl-9-phenylfluorene		56849-83-3	H-204N	10 mg	H-204S	
1-Methylphenanthrene		832-69-9	----------	----------	H-162S	
2-Methylphenanthrene		2531-84-2	----------	----------	H-003S	
3-Methylphenanthro[3,4-c]phenanthrene		83844-21-7	----------	----------	H-224S	
1-Methylpyrene		2381-71-7	----------	----------	H-233S	
4,5-Methylenephenanthrene		203-64-5	----------	----------	H-119S	
Naphthalene		91-20-3	H-152N	100 mg	H-152S	
Perylene		198-55-0	H-121N	10 mg	H-121S	
Phenanthrene		85-01-8	H-122N	100 mg	H-122S	
9-Phenylanthracene		602-55-1	H-156N	100 mg	H-156S	
o-Phenylene pyrene	see Indeno[1,2,3-cd]pyrene					
1-Phenylnaphthalene		605-02-7	H-246N	100 mg	H-246S	
2-Phenylnaphthalene		612-94-2	H-158N	5 mg	H-158S	
Picene		213-46-7	----------	----------	H-184S	
Pyrene		129-00-0	H-123N	100 mg	H-123S	
Pyrrole		109-97-7	H-229N	100 mg	H-229S	
Quinoline		91-22-5	H-186N	100 mg	H-186S	
2,3:6,7-Tetraethylbiphenylene			H-225N	10 mg	H-225S	
1,2:3,4-Tetrahydrofluoranthene		42429-92-5	H-165N	10 mg	H-165S	
Tetraphene	see 1,2-Benzanthracene					
Thianaphthene		95-15-8	H-238N	100 mg	H-238S	
Thianthrene		92-85-3	H-241N	100 mg	----------	--
4,6,8-Trimethylazulene		941-81-1	H-226N	10 mg	H-226S	
8,9,11-Trimethylbenz[a]anthracene		74845-58-2	----------	----------	H-227S	
Triphenylene		217-59-4	H-235N	10 mg	H-235S	
Truxene (95%)		548-35-6	H-124N	100 mg	H-124S	

PAH Sets and Solutions

AccuStandard has assembled these Polycyclic Aromatic Hydrocarbon Kits for use as reference standards for the predominant species found in ambient air samples. This library of standards was compiled as a working list used by the EPA, based on their research and literature surveys. One kit is offered as individual neat compounds, and the other as individual solutions. The Solution Kit also contains all the compounds in one solution.

PAH Neat Sets

Z-001-SET — **Kit of 20 x 5 mg**

- Acenaphthene (01)
- Anthanthrene (02)
- Anthracene (03)
- 1,2-Benzanthracene (04)
- Benz[a]anthracene-7,12-dione (95%) (05)
- Benzo[g,h,i]perylene (06)
- Benzo[a]pyrene (07)
- Benzo[e]pyrene (08)
- 5,6-Benzoquinoline (09)
- Carbazole (10)
- Chrysene (11)
- Coronene (12)
- Dibenzothiophene (13)
- Fluoranthene (14)
- 4,5-Methylenephenanthrene (15)
- Naphthalene (16)
- Perylene (17)
- Phenanthrene (18)
- Pyrene (19)
- Truxene (95%) (20)

Z-013N-SET — **16 x 10 mg**

(set includes, 16 individual neat analytes)

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

PAH Solutions

Compound	All Solutions at 0.2 mg/mL in 1 mL Solvent	Cat. No.
Acenaphthene	MeOH	Z-013-01
Acenaphthylene	MeOH	Z-013-02
Anthracene	MeOH	Z-013-03
Benz[a]anthracene	CH_2Cl_2	Z-013-04
Benzo[a]pyrene	CH_2Cl_2	Z-013-05
Benzo[b]fluoranthene	MeOH	Z-013-06
Benzo[g,h,i]perylene	CH_2Cl_2	Z-013-07
Benzo[k]fluoranthene	CH_2Cl_2	Z-013-08
Chrysene	CH_2Cl_2	Z-013-09
Dibenz[a,h]anthracene	CH_2Cl_2	Z-013-10
Fluoranthene	CH_2Cl_2	Z-013-11
Fluorene	MeOH	Z-013-12
Indeno[1,2,3-cd]pyrene	MeOH	Z-013-13
Naphthalene	MeOH	Z-013-14
Phenanthrene (98%)	CH_2Cl_2	Z-013-15
Pyrene	CH_2Cl_2	Z-013-16
Mixture of the above 16 analytes, at *0.2 mg/mL in MeOH:CH_2Cl_2 (50:50)*		Z-013-17 (16 comps.)

Set of the above 16 individual solutions, plus a mixture **Z-013-17** (set of 17 x 1 mL) — **Z-013-SET**

PAH Standard (Quebec Ministry of Environmental PAH Mix)

H-QME-01 — **1 x 1 mL**

500 µg/mL each in CH_2Cl_2:Benzene (50:50) — 24 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[j]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[c]phenanthrene
- Benzo[a]pyrene
- Benzo[e]pyrene
- Chrysene
- Dibenz[a,h]anthracene
- Dibenzo[a,h]pyrene
- Dibenzo[a,i]pyrene
- Dibenzo[a,l]pyrene
- 7,12-Dimethylbenz[a]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- 3-Methylcholanthrene
- Naphthalene
- Phenanthrene
- Pyrene

Nitro-Polynuclear Aromatic Hydrocarbons

The atmosphere of most of the industrialized areas of the world contains Polynuclear Aromatic Hydrocarbons (PAHs) and Nitrogen Oxides (NOxs)[1]. Wherever these compounds exist together, they react and form Nitro-PAHs, which are highly mutagenic.

Scientists have found Nitro-PAHs in diesel particulates[2], carbon black[3,4] and ambient air particulates[5]. These compounds are the major contributors to the mutagenicity of the pollutants, since the most common Nitro-PAH found is 1-Nitropyrene, a potent mutagen.

AccuStandard has compiled an extensive inventory of Nitro substituted compounds including mono, di and tri Nitro-PAHs, Amino and Hydroxy substituted PAHs, Nitrotoluenes, Nitroanilines and Nitrophenols. Most compounds are offered in both neat form and in solution.

References:
(1) Nitrated PAHs. Edited by C.M. White, Published by Huethig 1985.
(2) Analysis of Nitrated Polycyclic Aromatic Hydrocarbons in Diesel Particulates, D. Schuetzle et al., Anal. Chem., Vol. 54, pp. 265-71 (1982).
(3) Mutagenic Activity in Photocopies, G. Lofroth et al., Science, Vol. 209, pp. 1037-9 (1980).
(4) Nitropyrenes: Isolation, Identification and Reduction of Mutagenic Impurities in Carbon Black and Toners, H.S. Rosenkranz et al., Science, Vol. 290, pp. 1039-43 (1980).
(5) Atmospheric Reactions of Polycyclic Aromatic Hydrocarbons: Facile Formation of Mutagenic Nitro Derivatives, J.N. Pitts, Jr. et al., Science, Vol. 202, pp. 515-8 (1978).

Nitro-PAHs

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION Cat. No.	1 mL
1-Amino-4-nitronaphthalene	776-34-1	R-001N	100 mg	R-001S	
2-Nitroanthracene	3586-69-4	R-105N	5 mg	R-105S	
9-Nitroanthracene	602-60-8	R-003N	5 mg	R-003S	
7-Nitrobenz[a]anthracene	20268-51-3	R-097N	5 mg	R-097S	
6-Nitrobenz[a]pyrene	63041-90-7	----------	----------	R-004S	
2-Nitrobiphenyl	86-00-0	R-005N	100 mg	R-005S	
3-Nitrobiphenyl	2113-58-8	R-006N	100 mg	R-006S	
4-Nitrobiphenyl	92-93-3	R-007N	100 mg	R-007S	
6-Nitrochrysene	7496-02-8	R-008N	5 mg	R-008S	
3-Nitrodibenzofuran	5410-97-9	R-009N	5 mg	R-009S	
2-Nitrodibenzothiophene	6639-36-7	R-010N	5 mg	R-010S	
3-Nitrofluoranthene	892-21-7	R-013N	5 mg	R-013S	
2-Nitrofluorene	607-57-8	R-098N	100 mg	R-098S	
5-Nitroacenaphthene	602-87-9	R-115N	5 mg	R-115S	
1-Nitronaphthalene	86-57-7	R-016N	100 mg	R-016S	
2-Nitronaphthalene	581-89-5	R-085N-10MG	10 mg	R-085S	
3-Nitrophenanthrene	17024-19-0	R-045N	5 mg	R-045S	
9-Nitrophenanthrene	954-46-1	R-020N	5 mg	R-020S	
1-Nitropyrene	5522-43-0	R-022N	5 mg	R-022S	

Di- and Tri- Nitro-PAHs

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION Cat. No.	1 mL
9,10-Dinitroanthracene	33685-60-8	R-024N	5 mg	R-024S	
2,2'-Dinitrobiphenyl	2436-96-6	R-025N	100 mg	R-025S	
2,8-Dinitrodibenzothiophene	109041-38-5	R-026N	5 mg	R-026S	
2,7-Dinitrofluorene	5405-53-8	R-027N	100 mg	R-027S	
2,7-Dinitro-9-fluorenone	31551-45-8	R-028N	100 mg	R-028S	
1,3-Dinitronaphthalene	606-37-1	R-029N	100 mg	R-029S	
1,5-Dinitronaphthalene	605-71-0	R-030N	100 mg	R-030S	
1,8-Dinitronaphthalene	602-38-0	R-031N	100 mg	R-031S	
1,3-Dinitropyrene	75321-20-9	R-094N	5 mg	R-094S	
1,6-Dinitropyrene	42397-64-8	R-032N	5 mg	R-032S	
1,8-Dinitropyrene	42397-65-9	R-099N	5 mg	R-099S	
2,4,7-Trinitro-9-fluorenone	129-79-3	----------	----------	R-033S	

Nitro-Aromatics

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION Cat. No.	1 mL
Nitrobenzene	98-95-3	R-047N	100 mg	R-047S	
2-Nitrotoluene	88-72-2	R-048N	100 mg	R-048S	
2,4-Dinitrotoluene	121-14-2	R-049N	100 mg	R-049S	
2,6-Dinitrotoluene	606-20-2	R-050N	100 mg	R-050S	
2-Nitrophenol	51-28-5	R-051N	100 mg	R-051S	
4-Nitrophenol	100-02-7	R-052N	100 mg	R-052S	
2,4-Dinitrophenol	51-28-5	----------	----------	R-053S	
2-Nitroaniline	88-74-4	R-054N	100 mg	R-054S	
3-Nitroaniline	99-09-2	R-055N	100 mg	R-055S	
4-Nitroaniline	100-01-6	R-056N	100 mg	R-056S	
4,6-Dinitro-*o*-cresol *(2-Methyl-4,6-dinitrophenol)*	534-52-1	R-057N	100 mg	R-057S	

PAHs Derivatives continued on next page

Amino-PAHs

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION Cat. No.	1 mL
2-Acetamidofluorene	53-96-3	R-058N	10 mg	R-058S	
1-Aminoanthracene	610-49-1	R-059N	50 mg	R-059S	
2-Aminoanthracene	613-13-8	R-060N	50 mg	R-060S	
1-Aminoanthraquinone	82-45-1	R-061N	50 mg	R-061S	
2-Aminoanthraquinone	117-79-3	R-093N	5 mg	R-093S	
2-Aminobiphenyl	90-41-5	R-062N	10 mg	R-062S	
4-Aminobiphenyl	92-67-1	R-063N	10 mg	R-063S	
6-Aminochrysene	2642-98-0	R-065N	10 mg	R-065S	
2-Aminofluorene	153-78-6	R-066N	10 mg	R-066S	
1-Aminonaphthalene	134-32-7	R-067N	50 mg	R-067S	
2-Aminonaphthalene	91-59-8	R-084N	10 mg	R-084S	
2,7-Diaminofluorene	525-64-4	R-068N	10 mg	R-068S	
1,8-Diaminonaphthalene	479-27-6	R-069N	100 mg	R-069S	
1,2-Diphenylhydrazine	122-66-7	R-070N	100 mg	R-070S	
N-phenyl-1-naphthylamine	90-30-2	R-071N	50 mg	R-071S	
o-Tolidine *(3,3'-Dimethylbenzidine)*	119-93-7	R-072N	100 mg	R-072S	

Hydroxy-PAHs

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION Cat. No.	1 mL
6-Hydroxychrysene	37515-51-8	R-095N	10 mg	R-095S	
1-Hydroxypyrene	5315-79-7	R-096N	10 mg	R-096S	

Amino-Aromatics

Compound	CAS No.	Neat Cat. No.	Unit	100 µg/mL in Toluene Solution Cat. No.	1 mL
Benzidine	92-87-5	R-073N	100 mg	R-073S	
3,3'-Diaminobenzidine	91-95-2	R-074N	50 mg	R-074S	
3,3'-Dichlorobenzidine	91-94-1	R-075N	50 mg	R-075S	
3,3'-Dimethoxybenzidine	119-90-4	R-076N	50 mg	R-076S	
4,4'-Diaminodiphenylmethane *(4,4'-Methylenedianiline)*	101-77-9	R-077N	100 mg	R-077S	
2,4-Diaminotoluene	95-80-7	R-078N	100 mg	R-078S	
4-Dimethylaminoazobenzene	60-11-7	R-079N	10 mg	R-079S	
4,4'-Methylene bis(2-chloroaniline)	101-14-4	R-080N	50 mg	R-080S	
N-Methyl-N'-nitro-N-nitrosoguanidine	70-25-7	R-081N	50 mg	R-081S	
N-Phenyl-2-naphthylamine	135-88-6	R-082N	10 mg	R-082S	
s-Triazine	290-87-9	R-083N	10 mg	R-083S	

DIN-38407-17 Nitroaromatic Compounds

Examination of water, wastewater, and sludge for the determination of selected nitroaromatic compounds by Gas-Liquid Chromatography

DIN38407-17 — **1 x 1 mL**

500 µg/mL each in MeOH — 12 comps.

- Nitrobenzene
- 2-Nitrotoluene
- 4-Nitrotoluene
- 1,3-Dinitrobenzene
- 2,6-Dinitrotoluene
- 2,4-Dinitrotoluene
- 3,4-Dinitrotoluene
- 2-Amino-6-nitrotoluene
- 4-Amino-2-nitrotoluene
- 4-Amino-2,6-dinitrotoluene
- 2-Amino-4,6-dinitrotoluene
- 2,4,6-Trinitrotoluene

Nitrogen Containing Compounds

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Azobenzene	103-33-3	2 mg/mL	CH_2Cl_2	Z-014B-1	1 mL
2-Chloronitrobenzene	88-73-3	100 mg	NEAT	R-017N	100 mg
		100 µg/mL	Toluene	R-017S	1 mL
4-Chloronitrobenzene	100-00-5	100 mg	NEAT	R-018N	100 mg
		100 µg/mL	Toluene	R-018S	1 mL
2,3-Dichloronitrobenzene	3209-22-1	100 mg	NEAT	R-086N	100 mg
		100 µg/mL	Toluene	R-086S	1 mL
2,4-Dichloronitrobenzene	611-06-3	100 mg	NEAT	R-087N	100 mg
		100 µg/mL	Toluene	R-087S	1 mL
2,5-Dichloronitrobenzene	89-61-2	100 mg	NEAT	R-088N	100 mg
		100 µg/mL	Toluene	R-088S	1 mL
2,2'-Dinitrobiphenyl	2436-96-6	100 mg	NEAT	R-025N	100 mg
		100 µg/mL	Toluene	R-025S	1 mL
2,4-Dinitrophenol	51-28-5	100 µg/mL	Toluene	R-053S	1 mL
2,4-Dinitrotoluene	121-14-2	100 mg	NEAT	R-049N	100 mg
		100 µg/mL	Toluene	R-049S	1 mL
		100 µg/mL	MeOH	APP-9-092	1 mL
		5 mg/mL	MeOH	AS-E0033	1 mL
2,6-Dinitrotoluene	606-20-2	100 mg	NEAT	R-050N	100 mg
		100 µg/mL	Toluene	R-050S	1 mL
		100 µg/mL	MeOH	APP-9-093	1 mL
		5 mg/mL	MeOH	AS-E0034	1 mL
N-Methyl-N'-nitro-N-nitrosoguanidine	70-25-7	50 mg	NEAT	R-081N	50 mg
		100 µg/mL	Toluene	R-081S	1 mL
2-Nitrobiphenyl	86-00-0	100 mg	NEAT	R-005N	100 mg
		100 µg/mL	Toluene	R-005S	1 mL
3-Nitrobiphenyl	2113-58-8	100 mg	NEAT	R-006N	100 mg
		100 µg/mL	Toluene	R-006S	1 mL
4-Nitrobiphenyl	92-93-3	100 mg	NEAT	R-007N	100 mg
		100 µg/mL	Toluene	R-007S	1 mL
2-Nitrophenol	88-75-5	100 mg	NEAT	R-051N	100 mg
		100 µg/mL	Toluene	R-051S	1 mL
4-Nitrophenol	100-02-7	100 mg	NEAT	R-052N	100 mg
		100 µg/mL	Toluene	R-052S	1 mL
2-Nitrotoluene	88-72-2	100 mg	NEAT	R-048N	100 mg
		100 µg/mL	Toluene	R-048S	1 mL
Pyridine	110-86-1	100 µg/mL	MeOH	APP-9-186-M	1 mL
		2 mg/mL	MeOH	APP-9-186-M-20X	1 mL
		5 mg/mL	MeOH	AS-E0271	1 mL
		10 mg/mL	Water	M-8015B/5031-26	1 mL
2,3,4,5-Tetrachloronitrobenzene	879-39-0	100 mg	NEAT	R-091N	100 mg
		100 µg/mL	Toluene	R-091S	1 mL
2,3,5,6-Tetrachloronitrobenzene	117-18-0	100 mg	NEAT	R-092N	100 mg
		100 µg/mL	Toluene	R-092S	1 mL
s-Triazine	290-87-9	10 mg	NEAT	R-083N	10 mg
		100 µg/mL	Toluene	R-083S	1 mL
2,3,4-Trichloronitrobenzene	17700-09-3	100 mg	NEAT	R-089N	100 mg
		100 µg/mL	Toluene	R-089S	1 mL
2,4,5-Trichloronitrobenzene	89-69-0	100 mg	NEAT	R-090N	100 mg
		100 µg/mL	Toluene	R-090S	1 mL

Over 1000 Individual Pesticide Standards

Over 125 New Pesticides

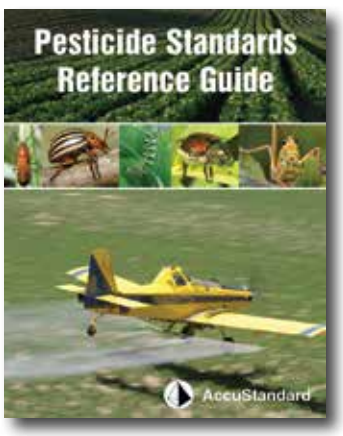
Table of Contents

Pesticides, their by-products, metabolites and degradates

Pesticides are usually viewed as something bad for the environment and human health. The risk/benefit balance needs to be understood, this is what research on the presence and toxicity of these products demonstrates.

In addition to many of the pesticides for which production has been discontinued (but are still present in the environment), AccuStandard has synthesized metabolites, degradates, and by-products such as:

- Aldicarb sulfone and sulfoxide
- Endrin aldehyde and ketone
- Oxychlordane and o,p'-Methoxychlor
- Fipronyl sulfone, sulfoxide and desulfinyl
- DDT by-products



Includes formulations for over 50 EPA and international pesticide methods.

Request or download your Pesticide Standards Reference Guide at AccuStandard.com

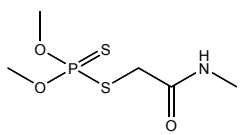
Pesticide Standards Reference Guide

Lists over 1000 pesticides and contains technical information such as: chemical name, structure, CAS number, molecular formula, molecular weight, physical state and for most: solubility, specific gravity, melting or boiling point, flash point and common synonyms.

Sample:

Dimethoate

2-Dimethoxyphosphinothioylthio-N-methylacetamide



CAS 60-51-5 **MF** $C_5H_{12}NO_3PS_2$ **MW** 229.26 **PS** S
SG 1.31 g/cm³ **MP** 50 °C **BP** 117 °C **FP** 107 °C

Matrix	Cat. No.	Unit
Neat	P-039N	10 mg
100 µg/mL in MeOH	P-039S	1 mL

Property Key		Solubility Key (SOL)	
CAS	Chemical Abstract Service Number	**A**	Acetone
		CN	Acetonitrile (AcCN)
MF	Molecular Formula	**D**	Methlyene chloride
MW	Molecular Weight	**DMSO**	Dimethyl sulfoxide
PS	Physical State (Solid, Liquid)	**EA**	Ethyl acetate
		H	Hexane
SOL	Solubility	**IPA**	Isopropanol
SG	Specific Gravity (g/cm³)	**MeOH**	Methanol
		MC	Methyl cellosolve
MP	Melting Point (°C)	**T**	Toluene
BP	Boiling Point (°C)	**TP**	Isooctane
FP	Flash Point (°C)	**W**	Water

Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Call or Visit our website with Custom Requests

Custom pesticide formulations can be prepared for residue screening and other applications.

Information on Pesticides Catalog Numbers

Pesticide Catalog Numbers have 5 parts:

1. The initial **P-** specifies the product is a Pesticide.
2. The following three numbers are sequentially assigned, and are unique to the chemical.
3. The next character **(an N or S)** specifies whether the product is Neat or in Solution.
4. **"-"** with letters specify a solvent other than Methanol (MeOH).
5. **"-"** with a number followed by an X specifies the concentration difference from the 100 µg/mL (ex: -10X is 1000 µg/mL). Check for availability.

Example: P-017S is Chlordane at 100 µg/mL in Methanol
P-017N is Chlordane neat (10 mg)
P-017S-H-10X is Chlordane at 1000 µg/mL in Hexane

Key to symbols appearing in the table:

in Acetone (-A)	in Hexane (-H)	in Toluene (-T)
in Acetonitrile (-CN)	in Isooctane (-TP)	In Water (-W)
in Ethyl acetate (-EA)	in Methyl cellosolve (-MC)	

Can't find a Pesticide? Search using CAS No. Index in back of the catalog.

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

EXACT WEIGHT for Neat Pesticides

Listed Catalog neat products are overfilled approximately 10%, however, pesticides can be provided with **EXACT WEIGHT**. Specify EXACT WEIGHT by ordering **X-WT** and the exact weight is noted on the product label. There is an additional charge for this service. Rinse the pesticide out of the vial with the appropriate amount of solvent to get a weight/volume standard and calculate the concentration.

Purchasing Neat Standards

There are two ways to purchase neat standards: Nominal weight and exact weight. With exact weight, the standards will come with the exact weight contained in the vial indicated on the label. The Cat. No. will have an X-WT to indicate that this is an exact weight. Rinse the sample out of the vial and cap with solvent and dilute to acheive the desired concentration. Unless specified, neat samples are provided with nominal weights. Typically, the vials contain up to 10 to 20% more product, however it is not known when you receive your standard what the exact amount is in the vial. Below is a standard procedure for removing all the neat material from the vial and determining the exact weight of the material in the vial.

Small amounts (5-10 mg) of powder often are spread over the surface of the vial and cap. If the chemical is a liquid it may coat the walls as a thin layer invisible to the eye. To recover all of the contents contained in a vial of neat material please use the procedure described below:

1. Wipe the outside of the vial (containing the Standard) clean and dry (including the cap).
2. Weigh the entire unit on an analytical balance. Record the weight to the nearest 0.1 mg.
3. Carefully transfer the contents to a volumetric flask using a suitable solvent. Rinse the cap and vial several times to assure a complete transfer.
4. Dry inside and outside of the vial and cap with mild heat or inert gas.
5. Weigh the empty dry vial on the same analytical balance to the nearest 0.1 mg and calculate by difference the amount of material transferred.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
AAtrex	see Atrazine		
Abamectin	71751-41-2	NEAT	P-615N
		MeOH	P-615S
Abaphos	see Abate		
Abar	see Leptophos		
Abate	3383-96-8	NEAT	P-101N
		MeOH	P-101S
Abathion	see Abate		
Acalarate	see Chloropropylate		
Acarben	see Chlorobenzilate		
Acclaim	see Fenoxaprop-p-ethyl		
Acephate	30560-19-1	NEAT	P-200N
		Acetone	P-200S-A
Acequinocyl NEW	3383-96-8	NEAT	P-1037N
		MeOH	P-1037S
Acetamiprid	135410-20-7	NEAT	P-820N
		AcCN	P-820S-CN
Acetochlor	34256-82-1	NEAT	P-465N
		MeOH	P-465S
Acibenzolar-S-methyl	135158-54-2	NEAT	P-895N
		MeOH	P-895S
Acifluorfen ◗	50594-66-6	NEAT	P-245N
		MeOH	P-245S
		AcCN	P-245S-CN
Acifluorfen methyl ester	50594-67-7	NEAT	P-246N
		MeOH	P-246S
Aclonifen NEW	74070-46-5	AcCN	P-890S-CN
Acrinathrin	101007-06-1	AcCN	P-842S-CN
Actellic	see Pirimphos methyl ester		
Acti-Aid	see Cycloheximide		
Actosin C	see Chlorophacinone		
Admire	see Imidacloprid		
Afalon	see Linuron		
Affirm	see Abamectin		
Afugan	see Pyrazophos		
Agritox	see Trichloronate		
Agroxone	see MCPA acid		
Aimsan	see Phenthoate		
Akar	see Chlorobenzilate		
Alachlor	15972-60-8	NEAT	P-102N
		MeOH	P-102S
Alanap	132-66-1	NEAT	P-274N
		MeOH	P-274S
Alar	1596-84-5	NEAT	P-174N
		MeOH	P-174S
Albendazole	54965-21-8	NEAT	P-498N
		MeOH	P-498S
Aldicarb	116-06-3	NEAT	P-001N
		MeOH	P-001S
Aldicarb sulfone	1646-88-4	NEAT	P-130N
		MeOH	P-130S
Aldicarb sulfoxide	1646-87-3	NEAT	P-131N ❄
		MeOH	P-131S
Aldoxycarb	see Aldicarb sulfone		
Aldrin	309-00-2	NEAT	P-002N *
		MeOH	P-002S
Alfa-tox	see Diazinon		
Allethrin	584-79-2	NEAT	P-267N
		MeOH	P-267S
Allidochlor	93-71-0	NEAT	P-670N
		MeOH	P-670S
Allisan	see Botran		
Altosid	see Methoprene		
Alloxydim-sodium	55635-13-7	NEAT	P-510N
		MeOH	P-510S
Amaze	see Isofenphos		
Ambush	see Permethrine		
Amdro	see Hydramethylnon		
Ametoctradin NEW	865318-97-4	MeOH	P-1039S
Ametryn	834-12-8	NEAT	P-003N
		MeOH	P-003S
Amicarbazone NEW	129909-90-6	AcCN	P-1152S-CN
Amidosulfuron	120923-37-7	NEAT	P-821N
		AcCN	P-821S-CN
Amigol	see Amitrole		
Aminocarb	2032-59-9	NEAT	P-062N
		MeOH	P-062S
Aminomethylphosphonic acid	1066-51-9	NEAT	P-625N
		H2O	P-625S-W
Aminopyralid NEW	150114-71-9	NEAT	P-1048N
		MeOH	P-1048S
4-Aminopyridine	504-24-5	NEAT	P-407N
		MeOH	P-407S
Aminotriazole	see Amitrole		
Aminozide	see Alar		
Amiral	see Triadimefon		
Amisulbrom NEW	348635-87-0	MeOH	P-998S
Amitraz ◗	33089-61-1	NEAT	P-409N
		AcCN	P-409S-CN
Amitrole (ATA)	61-82-5	NEAT	P-103N
		MeOH	P-103S
Amizine	see Simazine		
Amizol	see Amitrole		
Ammonium sulfamate	7773-06-0	NEAT	P-530N
		MeOH	P-530S
AMS	see Ammonium sulfamate		
Ancymidol	12771-68-5	NEAT	P-410N
		MeOH	P-410S
Anilazine	101-05-3	NEAT	P-287N
		Hexane	P-287S-H
Anilofos NEW	64249-01-0	AcCN	P-973S-CN
Antiphen	see Dichlorophen		
Apl-Luster	see Thiabendazole		
Aprocarb	see Baygon		
Aracide	see Aramite		
Aracnol F	see Cyhexatin		
Aramite	140-57-8	MeOH	P-132S
A-Rest	see Ancymidol		
Arisan	see Buturon		
Arresin	see Monolinuron		
Aspon	3244-90-4	MeOH	P-309S
Assure	see Quizalofop ethyl		
Asulam	3337-71-1	NEAT	P-276N
		MeOH	P-276S
ATA	see Amitrole		
Athrombine-K	see Warfarin		
Atratol	see Atrazine		
Atraton	see Gesatamin		
Atrazine	1912-24-9	NEAT	P-005N
		MeOH	P-005S
	1000 µg/mL	Acetone	P-005S-A-10X
Atrazine desethyl	6190-65-4	NEAT	P-343N
		MeOH	P-343S
Atrazine-desethyl-desisopropyl	3397-62-4	NEAT	P-428N
Atrazine-desethyl-2-hydroxy	19988-24-0	Methyl cellosolve	P-544S-MC
Atrazine-desisopropyl	1007-28-9	NEAT	P-345N
		MeOH	P-345S
Atrazine-desisopropyl-2-hydroxy	7313-54-4	NEAT	P-344N
		Methyl cellosolve	P-344S-MC
Avadex	see Diallate		
Avid	see Abamectin		
Azaconazole NEW	60207-31-0	NEAT	P-971N
		AcCN	P-971S-CN
Azaditrachtin	11141-17-6	MeOH	P-711S
Azamethiphos	35575-96-3	NEAT	P-352N
		MeOH	P-352S
Azimsulfuron NEW	120162-55-2	50 µg/mL AcCN	P-1036S-CN-0.5X
Azinphos-ethyl	2642-71-9	NEAT	P-201N
		MeOH	P-201S

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

* V-Rated packaging surcharge applies for international shipments

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Azinphos-methyl	86-50-0	NEAT	P-007N
		MeOH	P-007S
Azocyclotin	41083-11-8	NEAT	P-353N
		MeOH	P-353S
Azoxystrobin	131860-33-8	NEAT	P-719N
		MeOH	P-719S
Banvel	see Dicamba		
Barbamate	101-27-9	NEAT	P-202N
		MeOH	P-202S
Barban	see Barbamate		
Barben	see Azinphos-methyl		
Barnon	52756-22-6	NEAT	P-646N
		MeOH	P-646S
Basagran	see Bentazon		
Basalin	see Fluchloralin		
Basudin	see Diazinon		
Baythroid	see Cyfluthrin		
Baycarb	3766-81-2	NEAT	P-347N
		MeOH	P-347S
Baycor	See Bitertanol		
Bayfidan	see Triadimenol		
Baygon	114-26-1	NEAT	P-009N
		MeOH	P-009S
Bayleton	see Triadimefon		
Bayluscid	see Niclosamide		
Baytan	see Triadimenol		
Baytex	see Fenthion		
Baythion	see Phoxim		
Beam	see Tricyclazole		
Beflubutamid NEW	113614-08-7	NEAT	P-1041N
		MeOH	P-1041S
Benalaxyl	71626-11-4	NEAT	P-559N
		MeOH	P-559S
Benazolin	3813-05-6	NEAT	P-397N
		MeOH	P-397S
Bendiocarb	22781-23-3	NEAT	P-203N
		MeOH	P-203S
Benefin	see Benfluralin		
Benelux	see Thiofanox		
Benfluralin	1861-40-1	NEAT	P-237N
		MeOH	P-237S
Benfuracarb	82560-54-1	NEAT	P-454N
		MeOH	P-454S
Benfuresate NEW	68505-69-1	NEAT	P-1080N
		MeOH	P-1080S
Benlate	see Benomyl		
Benodanil	15310-01-7	NEAT	P-671N
		MeOH	P-671S
Benomyl	17804-35-2	NEAT	P-104N
		AcCN	P-104S-CN ❄
Benoxacor	98730-04-2	NEAT	P-490N
		MeOH	P-490S
Bensulfuron-methyl	83055-99-6	NEAT	P-597N
		MeOH	P-597S
Bensulide	741-58-2	NEAT	P-204N
		MeOH	P-204S
Bensultap	17606-31-4	NEAT	P-678N
		MeOH	P-678S
Bentazon ◗	25057-89-0	NEAT	P-177N
		Acetone	P-177S-A
		AcCN	P-177S-CN
Bentazon methyl	61592-45-8	NEAT	P-241N
		MeOH	P-241S
Benthiavalicarb-isopropyl NEW	177406-68-7	10 µg/mL Acetone	P-1049S-A-0.1X
Benthiocarb	see Thiobencarb		
Benzofuroline	see Resmethrin		
Benzoximate	29104-30-1	AcCN	P-801S-CN
Benzoylprop ethyl	22212-55-1	NEAT	P-340N
		MeOH	P-340S
Betasan	see Bensulide		
Bethrodine	see Benfluralin		
BHC Tech	608-73-1	NEAT	P-081N
		MeOH	P-081S
α-BHC	319-84-6	NEAT	P-010N
		MeOH	P-010S
β-BHC	319-85-7	NEAT	P-011N
		MeOH	P-011S
δ-BHC	319-86-8	NEAT	P-012N
		MeOH	P-012S
γ-BHC	see Lindane		
Bidrin	see Dicrotophos		
Bifenazate	149877-41-8	5 mg	P-772N-5MG
		MeOH	P-772S
Bifenox	42576-02-3	NEAT	P-257N
		MeOH	P-257S
Bifenthrin	82657-04-3	NEAT	P-445N
		MeOH	P-445S
Biflex	see Bifenthrin		
Binapacryl	485-31-4	NEAT	P-499N
		MeOH	P-499S
Bioallethrin	28057-48-9	NEAT	P-665N
		MeOH	P-665S
S-Bioallethrin	28424-00-6	NEAT	P-664N
		MeOH	P-664S
Bioresmethrin	28434-01-7	NEAT	P-594N
		MeOH	P-594S
Bitertanol	55179-31-2	NEAT	P-351N
		MeOH	P-351S
Bitrex	3734-33-6	NEAT	P-679N
		MeOH	P-679S
Bladafum	see Sulfotep		
Bladan	see Parathion		
Blattanex	see Baygon		
Bloc	60168-88-9	NEAT	P-086N
		MeOH	P-086S
B-Nine	see Alar		
Bolero	see Thiobencarb		
Bolstar	35400-43-2	NEAT	P-108N
		MeOH	P-108S
Bonzi	76738-62-0	NEAT	P-669N
		MeOH	P-669S
Boscalid	188425-85-6	NEAT	P-811N
		MeOH	P-811S ❄
Botran	99-30-9	NEAT	P-013N
		MeOH	P-013S
BPMC	see Baycarb		
Bravo	see Chlorothalonil		
Brigade	see Bifenthrin		
Brodifacoum	56073-10-0	NEAT	P-677N
		MeOH	P-677S
Bromacil	314-40-9	NEAT	P-181N
		MeOH	P-181S
Bromadiolone	28772-56-7	NEAT	P-316N
		MeOH	P-316S ❄
Bromex	see Naled		
Brominal	1689-84-5	NEAT	P-256N
		MeOH	P-256S
Bromobutide NEW	74712-19-9	MeOH	P-1059S
Bromofenoxim	13181-17-4	NEAT	P-511N
		MeOH	P-511S
Bromophos-ethyl	4824-78-6	NEAT	P-372N
		MeOH	P-372S
Bromophos-methyl	2104-96-3	NEAT	P-484N
		MeOH	P-484S
Bromopropylate	18181-80-1	NEAT	P-457N
		MeOH	P-457S
Bromoxynil	see Brominal		
Bromoxynil-heptanoate	56634-95-8	MeOH	P-1012S
Bromoxynil methyl ether	3336-39-8	NEAT	P-573N
		MeOH	P-573S

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Bromoxynil octanoate	1689-99-2	NEAT	P-550N
		MeOH	P-550S
Bromuconazol	116255-48-2	NEAT	P-843N
		AcCN	P-843S-CN
Bueno	2163-80-6	NEAT	P-279N
		MeOH	P-279S
Bupirimate	41483-43-6	NEAT	P-672N
		MeOH	P-672S
Buprofezin	69327-76-0	NEAT	P-595N
		MeOH	P-595S
Busan ◗	21564-17-0	AcCN	P-072S-CN
Butachlor	23184-66-9	NEAT	P-191N
		MeOH	P-191S
Butafenacil	134605-64-4	NEAT	P-940N
		MeOH	P-940S
Butisan S	see Metazachlor		
Butocarboxim	34681-10-2	NEAT	P-518N
		MeOH	P-518S
Butocarboxim sulfoxide	34681-24-8	NEAT	P-701N
		MeOH	P-701S
Butoflin	see Deltamethrin		
Butox	see Deltamethrin		
Butoxycarboxim	34681-23-7	NEAT	P-822N
		AcCN	P-822S-CN
Butralin	33629-47-9	NEAT	P-574N
		MeOH	P-574S
Buturon	3766-60-7	NEAT	P-301N
		MeOH	P-301S
Butylate	2008-41-5	NEAT	P-088N
		MeOH	P-088S
Cadusafos	95465-99-9	NEAT	P-794N *
		MeOH	P-794S
Calcium arsenate NEW	7778-44-1	NEAT	P-1076N
		MeOH	P-1076S
Calixin	see Tridemorph		
Camphechlor	see Toxaphene		
Caparol	see Prometryne		
Captafol	2425-06-1	NEAT	P-254N
		MeOH	P-254S
Captan	133-06-2	NEAT	P-182N
		MeOH	P-182S ❄
Capture	see Bifenthrin		
Carbamult	see Promecarb		
Carbaryl	63-25-2	NEAT	P-083N
		MeOH	P-083S
Carbendazim	10605-21-7	NEAT	P-278N
		MeOH	P-278S
Carbetamide	16118-49-3	NEAT	P-562N
		MeOH	P-562S
Carbexsin	see Oxycarboxin		
Carbicron	see Dicrotophos		
Carbofuran	1563-66-2	NEAT	P-106N
		MeOH	P-106S
Carbofuran phenol-3-ketone	17781-16-7	MeOH	P-630S
Carbophenothion	786-19-6	NEAT	P-095N
		MeOH	P-095S
Carbophenothion methyl-o-analog		10 µg/mL in EtOAc	P-637S-EA-0.1X
Carbosulfan	55285-14-8	NEAT	P-446N
		MeOH	P-446S
Carboxin	5234-68-4	NEAT	P-216N
		MeOH	P-216S
Carbyne	see Barbamate		
Carfentrazone-ethyl NEW	128639-02-1	AcCN	P-957S-CN ❄
Carpropamid NEW	104030-54-8	AcCN	P-1162S-CN
Cartap	15263-53-3	MeOH	P-577S
Cartap hydrochloride	22042-59-7	NEAT	P-949N
CDEC	see Sulfallate		
Cekumethion	see Methyl parathion		
Chemathion	see Malathion		
Chinomethionate	2439-01-2	NEAT	P-399N
		Acetone	P-399S-A
Chloramben	133-90-4	NEAT	P-243N
		MeOH	P-243S

Compound	Synonym / CAS No.	Matrix	Cat. No.
Chloramben methyl ester	7286-84-2	NEAT	P-272N
		MeOH	P-272S
Chlorantraniliprole	500008-45-7	NEAT	P-952N
		MeOH	P-952S
Chlorbenside	103-17-3	NEAT	P-107N
		MeOH	P-107S
Chlorbromuron	13360-45-7	NEAT	P-520N
		MeOH	P-520S
Chlorbufam	1967-16-4	NEAT	P-558N
		MeOH	P-558S
Chlordane (Tech)	12789-03-6	NEAT	P-017N
		MeOH	P-017S
α-Chlordane	5103-71-9	NEAT	P-134N
		MeOH	P-134S
		Hexane	P-134S-H
γ-Chlordane	5103-74-2	NEAT	P-135N
		MeOH	P-135S
cis-Chlordane	see a-Chlordane		
trans-Chlordane	see g-Chlordane		
Chlordecone	see Kepone		
Chlordene	3734-48-3	NEAT	P-136N
		MeOH	P-136S
Chlordimeform	6164-98-3	NEAT	P-333N
		MeOH	P-333S
Chlorethoxyfos	54593-83-8	NEAT	P-1017N
		AcCN	P-1017S-CN
Chlorfenac	see Fenatrol		
Chlorfenson	see Ovex		
Chlorfenapyr	122453-73-0	NEAT	P-807N
		MeOH	P-807S
Chlorfenvinphos	470-90-6	NEAT	P-139N *
		MeOH	P-139S
Chlorfluazuron NEW	71422-67-8	AcCN	P-771S-CN ❄
Chlorflurecol-methyl ester	2536-31-4	NEAT	P-401N
		MeOH	P-401S
Chlorflurenol	see Chlorflurecol-methyl ester		
Chloridazon	see Pyrazon		
Chlorimuron-ethyl	90982-32-4	AcCN	P-284S-CN
Chlormephos	24934-91-6	NEAT	P-329N
		MeOH	P-329S
Chlormequat chloride	999-81-5	NEAT	P-338N
		MeOH	P-338S
Chlorobenzilate ◗	510-15-6	NEAT	P-133N
		AcCN	P-133S-CN
Chloroea	see Monuron		
2-Chloro-2',6'-diethylacetanilide	6967-29-9	NEAT	P-620N
		MeOH	P-620S
2-Chloro-4-ethylamino-6-methylethylamino-s-triazine		NEAT	P-539N
		Methyl cellosolve	P-539S-MC
2-Chloro-4-ethylamino-6-propylamino-s-triazine	90952-64-0	NEAT	P-537N
		Methyl cellosolve	P-537S-MC
2-Chloro-4-methylamino-6-diethylamino-s-triazine		NEAT	P-541N
		Methyl cellosolve	P-541S-MC
2-Chloro-4-methylamino-6-sec-butylamino-s-triazine		NEAT	P-540N
		Methyl cellosolve	P-540S-MC
Chloroneb	2675-77-6	NEAT	P-212N
		MeOH	P-212S
Chlorophacinone	3691-35-8	NEAT	P-314N
		MeOH	P-314S
[3(2-Chlorophenyl)]-1,1-dimethylurea	see 2-Monuron		
4-Chlorophenoxyacetic acid	see 4-CPA		
Chloropicrin	76-06-2	NEAT	P-398N **
		MeOH	P-398S
4-Chloro-2-methylphenol	1570-64-5	NEAT	P-1026N
		MeOH	P-1026S
3-Chloro-1,2-propanediol	96-24-2	NEAT	P-408N
		MeOH	P-408S

* V-Rated packaging surcharge applies for international shipments

** This product can not ship by air.

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
2-Chloroethanol NEW	107-07-3	NEAT	P-1079N
		MeOH	P-1079S
1,1-bis(4-Chlorophenyl)ethylene NEW	2642-81-1	NEAT	P-1054N
		MeOH	P-1054S
Chloropropylate	5836-10-2	NEAT	P-213N
		MeOH	P-213S
Chlorothalonil	1897-45-6	NEAT	P-222N
		MeOH	P-222S
Chloroxuron	1982-47-4	NEAT	P-402N
		MeOH	P-402S
Chlorpropham	101-21-3	NEAT	P-221N
		MeOH	P-221S
Chlorpyrifos	see Dursban		
Chlorpyrifos-methyl	5598-13-0	NEAT	P-223N
		MeOH	P-223S
Chlorpyrifos-oxon	5598-15-2	NEAT	P-700N
		MeOH	P-700S
Chlorsulfuron	64902-72-3	NEAT	P-262N
		AcCN	P-262S-CN
Chlorthal	see DCPA diacid		
Chlorthiamid	1918-13-4	NEAT	P-673N
		MeOH	P-673S
Chlorthion	500-28-7	MeOH	P-674S
Chlorthiophos	60238-56-4	NEAT	P-545N
		MeOH	P-545S
Chlortoluron	15545-48-9	NEAT	P-434N
		MeOH	P-434S
Chlozolinate	84332-86-5	AcCN	P-683S-CN
Cinosulfuron	94593-91-6	NEAT	P-823N
		AcCN	P-823S-CN
Ciodrin	7700-17-6	MeOH	P-218S
CIPC	see Chlorpropham		
Clarity	104040-79-1	H_2O	P-495S-W
Classic	see Chlorimuron-ethyl		
Clethodim	99129-21-2	AcCN	P-602S-CN ❄
Clodinafop	114420-56-3	NEAT	P-1009N
		MeOH	P-1009S
Clodinafop-propargyl NEW	105512-06-9	NEAT	P-755N
		AcCN	P-755S-CN
Clofentezine	74115-24-5	NEAT	P-472N
		MeOH	P-472S
Clomazon	81777-89-1	MeOH	P-286S
Clomeprop NEW	84496-56-0	5 mg	P-1065N-5MG
		Acetone	P-1065S-A
Clopyralid	see Lontrel		
Clopyralid methyl ester	1532-24-7	MeOH	P-488S
Cloquintocet-mexyl	99607-70-2	NEAT	P-929N
		MeOH	P-929S
Cloransulam methyl	147150-35-4	AcCN	P-981S-CN
Clothianidin	210880-92-5	NEAT	P-947N
		MeOH	P-947S
CMU	see Monuron		
Comite	see Propargite		
Command	see Clomazone		
Confidor	see Imidacloprid		
Contrac	see Bromadiolone		
Copper (II) carbonate NEW	12069-69-1	NEAT	P-1074N
		MeOH	P-1074S
Copper oxychloride	1332-40-7	NEAT	P-458N
Cornox	see MCPA acid		
Cotoran	see Fluometuron		
Coumachlor	81-82-3	MeOH	P-684S
Coumaphene	see Warfarin		
Coumaphos	56-72-4	NEAT	P-019N
		MeOH	P-019S
Coumatetralyl	5836-29-3	NEAT	P-313N
		MeOH	P-313S
Counter	see Terbufos		
4-CPA	122-88-3	NEAT	P-373N
		MeOH	P-373S
Crimidine	535-89-7	NEAT	P-561N
		MeOH	P-561S
Crotoxyphos	see Ciodrin		
Crufomate	299-86-5	NEAT	P-292N
		MeOH	P-292S
Cryolite NEW	15096-52-3	NEAT	P-1071N
Cumyluron NEW	99485-76-4	AcCN	P-1135S-CN ❄
Curacron	see Profenofos		
Cyanazine	21725-46-2	NEAT	P-175N
		MeOH	P-175S
Cyanofenphos	13067-93-1	NEAT	P-584N
		MeOH	P-584S
Cyanophos	2636-26-2	NEAT	P-531N
		MeOH	P-531S
Cyazofamid	120116-88-3	NEAT	P-969N
		MeOH	P-969S
Cyclanilide NEW	113136-77-9	AcCN	P-982S-CN
Cycloate	1134-23-2	NEAT	P-248N
		MeOH	P-248S
Cycloheximide	66-81-9	MeOH	P-411N
		MeOH	P-411S
2-Cyclohexyl-4,6-dinitrophenol	see Dinex		
Cycloprate NEW	54460-46-7	NEAT	P-1069N
		MeOH	P-1069S
Cycloxydime	101205-02-1	NEAT	P-735N
		MeOH	P-735S ❄
Cycluron NEW	2163-69-1	AcCN	P-791S-CN ❄
Cyflufenamide NEW	180409-60-3	AcCN	P-975S-CN ❄
Cyfluthrin	68359-37-5	NEAT	P-354N
		MeOH	P-354S ❄
Cygon	see Dimethoate		
Cyhalofop-butyl	122008-85-9	5 mg	P-944N-5MG
		MeOH	P-944S
λ-Cyhalothrin	91465-08-6	NEAT	P-473N
		MeOH	P-473S ❄
Cyhexatin	13121-70-5	NEAT	P-375N
		MeOH	P-375S
Cyolane	see Phosfolan		
Cymoxanil	57966-95-7	NEAT	P-493N
		MeOH	P-493S ❄
Cypermethrin	52315-07-8	NEAT	P-225N
		MeOH	P-225S ❄
α-Cypermethrin	67375-30-8	NEAT	P-548N
		AcCN	P-548S-CN
cis-Cypermethrin	see a-Cypermethrin		
Cyphenothrin	39515-40-7	NEAT	P-709N
		MeOH	P-709S
Cypona	see Dichlorvos		
Cyprazine	22936-86-3	NEAT	P-420N
		MeOH	P-420S
		Hexane	P-420S-H
Cyproconazole (Tech)	113096-99-4	MeOH	P-555S
Cyprodinil	121552-61-2	NEAT	P-720N
		MeOH	P-720S
Cyprofuram NEW	69581-33-5	NEAT	P-1272N
		MeOH	P-1272S
Cyromazine	66215-27-8	NEAT	P-296N
		MeOH	P-296S
Cythion	see Malathion		
2,3-D acid ◗	2976-74-1	NEAT	P-470N
		MeOH	P-470S
		AcCN	P-470S-CN
2,4-D acid ◗	94-75-7	NEAT	P-020N
		MeOH	P-020S
		AcCN	P-020S-CN
2,6-D acid ◗	575-90-6	NEAT	P-690N
		MeOH	P-690S
		AcCN	P-690S-CN
2,4-D butoxyethyl ester	1929-73-3	NEAT	P-438N
2,4-D butyl ester	94-80-4	NEAT	P-712N
		MeOH	P-712S ❄

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Can't find a Pesticide? Search using CAS No. Index in back of the catalog.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
2,4-D ethyl ester	533-23-3	NEAT	P-636N
		MeOH	P-636S
2,4-D ethylhexyl ester	1928-43-4	NEAT	P-439N
		Hexane	P-439S-H
2,4-D isobutyl ester	1713-15-1	NEAT	P-1027N
		AcCN	P-1027S-CN
2,4-D methyl ester	1928-38-7	NEAT	P-021N
		MeOH	P-021S
2,6-D methyl ester		NEAT	P-691N
		MeOH	P-691S
Dacamox	see Thiofanox		
Daconil	see Chlorothalonil		
Dacthal diacid	see DCPA diacid		
Dacthal monoacid	see Monomethyl tetrachloroterephthalate		
Dacthal	1861-32-1	NEAT	P-196N
		MeOH	P-196S
Daimuron NEW	42609-52-9	AcCN	P-1087S-CN ❄
Dalapon acid ◗	75-99-0	NEAT	P-140N
		MeOH	P-140S
		AcCN	P-140S-CN
Dalapon methyl ester	17640-02-7	NEAT	P-226N
		MeOH	P-226S
Daminozide	see Alar		
Danicut	see Amitraz		
Danitol	39515-41-8	NEAT	P-263N
		MeOH	P-263S
Dasanit	115-90-2	NEAT	P-235N
		MeOH	P-235S
Dazomet	533-74-4	NEAT	P-469N
		MeOH	P-469S
2,4-DB acid ◗	94-82-6	NEAT	P-141N
		MeOH	P-141S
		AcCN	P-141S-CN
2,4-DB methyl ester	18625-12-2	NEAT	P-228N
		MeOH	P-228S
DBCP	see Fumazone		
DCMU	see Karmex		
DCNA	see Botran		
DCPA	see Dacthal		
DCPA diacid ◗	2136-79-0	NEAT	P-320N
		MeOH	P-320S
		AcCN	P-320S-CN
o,p'-DDD	53-19-0	NEAT	P-024N
		MeOH	P-024S
o,p'-DDE	3424-82-6	NEAT	P-026N
		MeOH	P-026S
o,p'-DDT	789-02-6	NEAT	P-028N
		MeOH	P-028S
p,p'-DDA	83-05-6	NEAT	P-444N
		MeOH	P-444S
p,p'-DDD	72-54-8	NEAT	P-025N
		MeOH	P-025S
p,p'-DDE	72-55-9	NEAT	P-027N
		MeOH	P-027S
p,p'-DDT	50-29-3	NEAT	P-029N
		MeOH	P-029S
DDT (Tech)	50-29-3	NEAT	P-346N
		MeOH	P-346S
		AcCN	P-346S-CN
4,4'-DDMU	1022-22-6	NEAT	P-424N
		MeOH	P-424S
DDVP	see Dichlorvos		
Dechlorane	see Mirex		
Decis	see Deltamethrin		
Dedevap	see Dichlorvos		
Deet	134-62-3	NEAT	P-255N
		MeOH	P-255S
DEF 6	78-48-8	NEAT	P-150N
		MeOH	P-150S
Delnav	see Dioxathion		
Deltamethrin	52918-63-5	NEAT	P-355N
		MeOH	P-355S
Demeton (mixed isomers)	8065-48-3	NEAT	P-031N
		MeOH	P-031S
Demeton-S	126-75-0	NEAT	P-271N
		MeOH	P-271S
Demeton-S-methyl	919-86-8	NEAT	P-482N
		MeOH	P-482S
Demeton-S-methylsulfone	17040-19-6	NEAT	P-554N
		MeOH	P-554S
Demosan	see Chloroneb		
Desethylterbutylazine	see Terbuthylazin desethyl		
Desmedipham	13684-56-5	NEAT	P-376N
		MeOH	P-376S
Desmel	see Tilt		
Desmetryn	1014-69-3	NEAT	P-566N
		MeOH	P-566S
Devrinol	see Napropamide		
Dexon	see Fenaminosulf		
Diafenthiuron NEW	80060-09-9	NEAT	P-1064N
		Acetone	P-1064S-A
Dialifor	see Dialifos		
Dialifos	10311-84-9	NEAT	P-426N
		MeOH	P-426S
Diallate	2303-16-4	NEAT	P-142N
		MeOH	P-142S
Diazinon	333-41-5	NEAT	P-033N
		MeOH	P-033S
Diazinon-o-analog	962-58-3	NEAT	P-640N
		Acetone	P-640S-A
Dibam	128-04-1	NEAT	P-487N
		MeOH	P-487S
Dibrom	see Naled		
Dibutylchlorendate	1770-80-5	NEAT	P-109N
		MeOH	P-109S
Dicamba ◗	1918-00-9	NEAT	P-008N
		MeOH	P-008S
		AcCN	P-008S-CN
Dicamba diglycolamine (tech)	see Clarity		
Dicamba methyl ester	6597-78-0	NEAT	P-071N
		MeOH	P-071S
Dicaptan	see Dicapthon		
Dicapthon	2463-84-5	NEAT	P-035N
		MeOH	P-035S
Dichlobenil	1194-65-6	NEAT	P-275N
		MeOH	P-275S
Dichlofenthion	97-17-6	NEAT	P-211N
		MeOH	P-211S
Dichlofluanid	1085-98-9	NEAT	P-474N
		MeOH	P-474S
Dichlone	117-80-6	NEAT	P-253N
		MeOH	P-253S
Dichloran	see Botran		
Dichlormid	37764-25-3	NEAT	P-675N
		MeOH	P-675S
3,5-Dichloroaniline	626-43-7	NEAT	P-1008N
		MeOH	P-1008S
3,6-Dichloroanisic acid	see Clarity		
2,6-Dichlorobenzamide	2008-58-4	NEAT	P-1035N
		MeOH	P-1035S
3,5-Dichlorobenzoic acid ◗	51-36-5	NEAT	P-242N
		MeOH	P-242S
		AcCN	P-242S-CN
4,4'-Dichlorobenzophenone	90-98-2	NEAT	P-295N
		MeOH	P-295S
2,4-Dichloro-6-ethylamino-s-triazine		NEAT	P-538N
		MC	P-538S-MC
2,3-Dichloronitrobenzene	3209-22-1	NEAT	P-1005N
		MeOH	P-1005S-T
2,4-Dichlorophenylacetic acid ◗	19719-28-9	NEAT	P-244N
		MeOH	P-244S
		AcCN	P-244S-CN
3-(2,3-Dichlorophenyl)-1,1-dimethylurea	see 2,3-Diuron		

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Dichlorophen	97-23-4	NEAT	P-232N
		MeOH	P-232S
1-(3,4-Dichlorophenyl)-3-methylurea NEW	3567-62-2	NEAT	P-1038N
		MeOH	P-1038S
2,4-Dichlorophenylacetic acid Me	see Methyl-2,4-dichlorophenylacetate		
Dichlorprop ◗	120-36-5	NEAT	P-143N
		MeOH	P-143S
		AcCN	P-143S-CN
Dichlorprop methyl ester	57153-17-0	NEAT	P-229N
		MeOH	P-229S
Dichlorvos	62-73-7	NEAT	P-036N
		MeOH	P-036S
Diclobutrazol	75736-33-3	NEAT	P-641N
		AcCN	P-641S-CN
Diclofop	40843-25-2	NEAT	P-514N
		MeOH	P-514S
Diclofop methyl	51338-27-3	NEAT	P-303N
		MeOH	P-303S
Diclosulam NEW	145701-21-9	NEAT	P-904N
		MeOH	P-904S
o,p'-Dicofol	10606-46-9	NEAT	P-606N
		MeOH	P-606S
Dicofol	see Kelthane		
Dicrotophos	141-66-2	NEAT	P-178N
		MeOH	P-178S
Dieldrin	60-57-1	NEAT	P-037N *
		MeOH	P-037S
Dieltamid	see Deet		
Diethatyl ethyl	38727-55-8	NEAT	P-599N
		MeOH	P-599S
Diethofencarb	87130-20-9	NEAT	P-744N
		MeOH	P-744S
Diethylphosphate	598-02-7	NEAT	P-534N
		MeOH	P-534S
Diethyl phosphate (mono- & di-)	598-02-7	NEAT	P-443N
		MeOH	P-443S
Difenacoum NEW	56073-07-5	AcCN	P-1151S-CN
Difenoconazole	119446-68-3	NEAT	P-447N
		MeOH	P-447S
Difenoxuron	14214-32-5	NEAT	P-604N
		MeOH	P-604S
Diflubenzuron	35367-38-5	NEAT	P-377N
		MeOH	P-377S
Diflufenican	83164-33-4	NEAT	P-722N
		MeOH	P-722S
2,3-Dihydro-2,2-dimethylbenzofuran-7-ol	1563-38-8	NEAT	P-628N
		MeOH	P-628S
Dimecron	see Phosphamidon		
Dimefox	115-26-4	NEAT	P-299N
		MeOH	P-299S
Dimefuron	34205-21-5	NEAT	P-565N
		MeOH	P-565S
Dimepax	22936-75-0	NEAT	P-643N
		MeOH	P-643S
Dimepiperate	61432-55-1	50 µg/mL Acetone	P-1020S-A-0.5X
Dimetate	see Dimethoate		
Dimethachlor	50563-36-5	NEAT	P-642N
		MeOH	P-642S
Dimethenamid	87674-68-8	NEAT	P-747N
		MeOH	P-747S
Dimethenamide-P	163515-14-8	NEAT	P-934S
		MeOH	P-934S
Dimethipin	55290-64-7	NEAT	P-483N
		MeOH	P-483S
Dimethoate	60-51-5	NEAT	P-039N
		MeOH	P-039S
Dimethomorph	110488-70-5	NEAT	P-713N
		MeOH	P-713S
Dimethylarsinic acid NEW	75-60-5	NEAT	P-1075N
		MeOH	P-1075S
Dimethylvinphos (Z type) NEW	67628-93-7	Acetone	P-1057S-A

Compound	Synonym / CAS No.	Matrix	Cat. No.
Dimethyl phosphate	813-78-5	NEAT	P-442N
		MeOH	P-442S
N-(2,4-Dimethylphenyl)formamide	60397-77-5 NEW	AcCN	P-1100S-CN ❄
Dimetilan NEW	644-64-4	AcCN	P-905S-CN
Dimoxystrobin	149961-52-4	AcCN	P-844S-CN
Dinex	131-89-5	NEAT	P-427N
		MeOH	P-427S
Diniconazol	83657-24-3	NEAT	P-845N
		AcCN	P-845S-CN
Dinitramine	29091-05-2	NEAT	P-575N
		MeOH	P-575S
4,6-Dinitro-o-cresol	534-52-1	NEAT	P-384N
		MeOH	P-384S
Dinocap	39300-45-3	NEAT	P-288N
		MeOH	P-288S
Dinoseb ◗	88-85-7	NEAT	P-144N
		MeOH	P-144S
Dinoseb acetate	2813-95-8	NEAT	P-779N
		MeOH	P-779S
Dinoseb methyl ether	6099-79-2	NEAT	P-230N
		MeOH	P-230S
Dinoterb	1420-07-1	NEAT	P-524N
		MeOH	P-524S
Dioxacarb	6988-21-2	NEAT	P-264N
		MeOH	P-264S
Dioxathion	78-34-2	NEAT	P-219N
		MeOH	P-219S
Diphacinone	82-66-6	NEAT	P-315N
		MeOH	P-315S ❄
Diphenamid	957-51-7	NEAT	P-173N
		MeOH	P-173S
Dipropetryn	4147-51-7	NEAT	P-580N
		MeOH	P-580S
Diquat dibromide monohydrate	6385-62-2	NEAT	P-231N
		MeOH	P-231S
Disul-sodium salt	136-78-7	NEAT	P-513N
		MeOH	P-513S
Disulfoton	298-04-4	NEAT	P-042N *
		MeOH	P-042S
Disulfoton sulfone	2497-06-5	NEAT	P-582N
		MeOH	P-582S
Disulfoton sulfoxide	2497-07-6	NEAT	P-593N
		MeOH	P-593S
Disyston	see Disulfoton		
Ditalimfos	5131-24-8	NEAT	P-546N
		MeOH	P-546S
Dithane D-14	see Nabam		
Dithianon	3347-22-6	NEAT	P-725N
		Acetone	P-725S-A
Dithiopyr	97886-45-8	NEAT	P-741N
		MeOH	P-741S
Diuron	see Karmex		
2,3-Diuron	10290-37-6	NEAT	P-632N
		MeOH	P-632S
DMST	66840-71-9	MeOH	P-572S
DNBP	see Dinoseb		
DNOC	see 4,6-Dinitro-o-cresol		
DNTP	see Parathion		
Dodemorph acetate	31717-87-0	NEAT	P-385N
		MeOH	P-385S
Dodine	2439-10-3	NEAT	P-386N
		MeOH	P-386S
Doguadine	see Dodine		
Doramectin NEW	117704-25-3	NEAT	P-935N
		AcCN	P-935S-CN
Dowpon	see Dalapon acid		
Dozer	see Fenuron-TCA		
2,4-DP ethyl hexyl	79270-78-3	NEAT	P-429N
		MeOH	P-429S

* V-Rated packaging surcharge applies for international shipments

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Drinox	see Heptachlor		
Dropp	see Thidiazuron		
DSMA	144-21-8	NEAT	P-598N
		MeOH	P-598S
DTMC	see Kelthane		
Dual	see Metolachlor		
Dursban	2921-88-2	NEAT	P-094N
		MeOH	P-094S
Dybar	see Fenuron		
Dyfonate	944-22-9	NEAT	P-087N
		MeOH	P-087S
		Hexane	P-087S-H
Dylox	see Trichlorfon		
Dymid	see Diphenamid		
Dyrene	see Anilazine		
EDDP	see Edifenphos		
Edifenphos	17109-49-8	NEAT	P-368N
		MeOH	P-368S
Ektafos	see Dicrotophos		
Elgetol	see 4,6-Dinitro-o-cresol		
Eloncron	see Dioxacarb		
Emamectin-benzoate	155569-91-8	5 mg	P-996N-5MG
		MeOH	P-996S
Empenthrin	54406-48-3	NEAT	P-708N
Endosulfan I	959-98-8	NEAT	P-091N
		MeOH	P-091S
Endosulfan II	33213-65-9	NEAT	P-092N
		MeOH	P-092S
α-*Endosulfan*	see Endosulfan I		
β-*Endosulfan*	see Endosulfan II		
Endosulfan, mixed isomers	115-29-7	NEAT	P-435N
		MeOH	P-435S
Endosulfan sulfate	1031-07-8	NEAT	P-145N
		MeOH	P-145S
Endothall ◗	145-73-3	NEAT	P-183N
		MeOH	P-183S
Endothall dimethyl ester		NEAT	P-603N
		MeOH	P-603S
Endrin	72-20-8	NEAT	P-045N
		MeOH	P-045S
Endrin aldehyde	7421-93-4	NEAT	P-046N
		MeOH	P-046S
Endrin ketone	53494-70-5	NEAT	P-146N
		MeOH	P-146S
Enide	see Diphenamid		
EPN	2104-64-5	NEAT	P-220N *
		Acetone	P-220S-A
Epoxiconazole	135319-73-2	NEAT	P-784N
		MeOH	P-784S
Eptam	see EPTC		
Eptapur	see Buturon		
EPTC	759-94-4	NEAT	P-238N
		MeOH	P-238S
Esfenvalerate	66230-04-4	NEAT	P-525N
		MeOH	P-525S ❄
Esprocarb NEW	85785-20-2	MeOH	P-617S
Etaconazole	60207-93-4	NEAT	P-644N
		MeOH	P-644S
Etazine	see Secbumeton		
Ethaboxam NEW	162650-77-3	AcCN	P-1115S-CN
Ethalfluralin	55283-68-6	NEAT	P-269N
		MeOH	P-269S
Ethanedial dioxime NEW	557-30-2	NEAT	P-1070N
		MeOH	P-1070S
Ethephon	16672-87-0	NEAT	P-239N
		MeOH	P-239S
Ethidimuron	30043-49-3	NEAT	P-364N
		MeOH	P-364S
Ethiofencarb	29973-13-5	NEAT	P-448N
		MeOH	P-448S
Ethiofencarb sulfone	53380-23-7	AcCN	P-824S-CN
Ethiofencarb sulfoxide	53380-22-6	AcCN	P-825S-CN
Ethiofencarb metabolite	see 2-Ethylthiomethyl phenol		
Ethiolat NEW	2941-55-1	NEAT	P-785N
		AcCN	P-785S-CN
Ethion	563-12-2	NEAT	P-048N
		MeOH	P-048S
Ethiprole NEW	181587-01-9	NEAT	P-964N
		AcCN	P-964S-CN
Ethiozin	64529-56-2	NEAT	P-660N
		MeOH	P-660S
Ethirimol	23947-60-6	NEAT	P-645N
		MeOH	P-645S
Ethofumesate	26225-79-6	NEAT	P-387N
		MeOH	P-387S
Ethoprop	13194-48-4	NEAT	P-129N
		MeOH	P-129S
Ethoxyquin	91-53-2	NEAT	P-388N
		MeOH	P-388S
Ethoxysulfuron	126801-58-9	NEAT	P-847N
		AcCN	P-847S-CN
Ethyl carbamate	51-79-6	NEAT	P-419N
		MeOH	P-419S
Ethylene bisdithiocarbamate, disodium	see Nabam		
Ethylene thiourea	96-45-7	NEAT	P-588N
		MeOH	P-588S
Ethyl hexanediol (mixed isomers)	94-96-2	NEAT	P-389N
		MeOH	P-389S
bis(2-Ethylhexyl)adipate	103-23-1	NEAT	P-233N
		MeOH	P-233S
Ethyl parathion	see Parathion		
2-Ethylthiomethyl phenol		MeOH	P-423S
Etobenzanid NEW	79540-50-4	AcCN	P-1136S-CN ❄
Etofenprox	80844-07-1	NEAT	P-848N
		AcCN	P-848S-CN
Etoxazole	153233-91-1	MeOH	P-991S
Etridiazole	see Terrazole		
Etrimfos	38260-54-7	NEAT	P-480N
		MeOH	P-480S
Etrolene	see Ronnel		
ETU	see Ethylene thiourea		
Expand	see Sethoxlydim		
Famophos	see Famphur		
Famoxadon	131807-57-3	AcCN	P-849S-CN
Famphur	52-85-7	NEAT	P-147N
		MeOH	P-147S
Fargo	see Triallate		
Fenac	see Fenatrol		
Fenamidone	161326-34-7	NEAT	P-850N
		AcCN	P-850S-CN
Fenaminosulf	140-56-7	NEAT	P-058N
		MeOH	P-058S
Fenamiphos	22224-92-6	NEAT	P-114N
		MeOH	P-114S
Fenamiphos sulfone	31972-44-8	NEAT	P-623N
		MeOH	P-623S
Fenamiphos sulfoxide	31972-43-7	NEAT	P-622N
		MeOH	P-622S
Fenarimol	see Bloc		
Fenatrol	85-34-7	NEAT	P-319N
		MeOH	P-319S
Fenazaquin	120928-09-8	Hexane	P-787S-H
Fenbuconazole	114369-43-6	NEAT	P-662N
		MeOH	P-662S
Fenbutatin oxide	13356-08-6	NEAT	P-481N
		Acetone	P-481S-A
Fenchlorphos	see Ronnel		
Fenfuram NEW	24691-80-3	NEAT	P-896N
		MeOH	P-896S
Fenhexamid	126833-17-8	NEAT	P-783N
		MeOH	P-783S
Fenitrothion	122-14-5	NEAT	P-259N
		MeOH	P-259S
Fenoprop	see Silvex		

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Fenothiocarb	62850-32-2	MeOH	P-1021S
		50 µg/mL MeOH	P-1021S-0.5X
Fenoxanil	115852-48-7	NEAT	P-997N
		MeOH	P-997S
Fenoxaprop	95617-09-7	NEAT	P-884N
		MeOH	P-884S
Fenoxaprop-ethyl	66441-23-4	NEAT	P-365N
		MeOH	P-365S
Fenoxaprop-p-ethyl	71283-80-2	NEAT	P-694N
		MeOH	P-694S
Fenoxycarb	79127-80-3	NEAT	P-686N
		MeOH	P-686S
Fenpropathrin	see Danitol		
Fenpropidin	67306-00-7	NEAT	P-802N
		MeOH	P-802S
Fenpropimorph	67564-91-4	NEAT	P-705N
		MeOH	P-705S
Fenpyroximate	111812-58-9	NEAT	P-724N
		MeOH	P-724S
Fenson	80-38-6	NEAT	P-551N
		MeOH	P-551S
Fensulfothion	see Dasanit		
Fenthion	55-38-9	NEAT	P-148N
		MeOH	P-148S
Fenthion-sulfone NEW	3761-42-0	AcCN	P-953S-CN
Fenthion sulfoxide NEW	3761-41-9	NEAT	P-1052N
		CH_2Cl_2	P-1052S-D
Fentin acetate	900-95-8	NEAT	P-680N
		MeOH	P-680S
Fentin chloride	see Triphenyltin chloride		
Fentin hydroxide NEW	76-87-9	NEAT	P-1042N
		AcCN	P-1042S-CN
Fenuron	101-42-8	NEAT	P-004N
		MeOH	P-004S
Fenuron-TCA	4482-55-7	NEAT	P-006N
		MeOH	P-006S
Fenvalerate	51630-58-1	NEAT	P-194N
		MeOH	P-194S ❄
Ferbam	14484-64-1	NEAT	P-110N
		MeOH	P-110S
Ferber K	see Ferbam		
Ficam	see Bendiocarb		
Fipronil	120068-37-3	NEAT	P-738N
See Technical Data, page 66		MeOH	P-738S ❄
		Acetone	P-738S-A
Fipronil desulfinyl		Acetone	P-782S-A
Fipronil sulfide	120067-83-6	Acetone	P-781S-A
		5 mg	P-781N-5MG
Fipronil sulfone	120068-36-2	Acetone	P-780S-A
Flamprop-methyl	52756-25-9	NEAT	P-366N
		MeOH	P-366S
Flazasulfuron	104040-78-0	AcCN	P-826S-CN
Flonicamid	158062-67-0	NEAT	P-926N
		MeOH	P-926S
Florasulam	145701-23-1	AcCN	P-827S-CN-0.1X
Fluacrypyrim NEW	229977-93-9	MeOH	P-1056S
Fluazifop-butyl	69806-50-4	NEAT	P-310N
		MeOH	P-310S
Fluazifop-p-butyl	79241-46-6	NEAT	P-601N
		MeOH	P-601S
Fluazinam	79622-59-6	NEAT	P-586N
		MeOH	P-586S
Flubendiamide	272451-65-7	NEAT	P-1025N
		AcCN	P-1025S-CN
Flucarbazone-sodium NEW	181274-17-9	NEAT	P-1124N
		AcCN	P-1124S-CN
Fluchloralin	33245-39-5	NEAT	P-270N
		MeOH	P-270S
Flucythrinate	70124-77-5	MeOH	P-378S ❄
Fludioxonil	131341-86-1	NEAT	P-698N
		MeOH	P-698S

Compound	Synonym / CAS No.	Matrix	Cat. No.
Flufenacet NEW	142459-58-3	AcCN	P-902S-CN
Flufenoxuron	101463-69-8	NEAT	P-687N
		MeOH	P-687S
Flumetralin	62924-70-3	NEAT	P-491N
		MeOH	P-491S
Flumetsulam	98967-40-9	NEAT	P-659N
		MeOH	P-659S
Flumiclorac-pentyl	87546-18-7	NEAT	P-993N
		MeOH	P-993S
Flumioxazin	103361-09-7	CH_2Cl_2	P-992S-D
Fluometuron	2164-17-2	NEAT	P-014N
		MeOH	P-014S
Fluopicolide	239110-15-7	NEAT	P-1024N
		Acetone	P-1024S-A
Fluopyram NEW	658066-35-4	MeOH	P-1094S
Fluoxastrobin NEW	361377-29-9	AcCN	P-963S-CN ❄
Fluquinconazole NEW	136426-54-5	NEAT	P-878N
		AcCN	P-878S-CN
Flurenol methyl ester	1216-44-0	NEAT	P-412N
		MeOH	P-412S
Fluridone	59756-60-4	NEAT	P-193N
		MeOH	P-193S
Flurochloridon	61213-25-0	NEAT	P-647N
		MeOH	P-647S
Flurodifen	15457-05-3	NEAT	P-676N
		MeOH	P-676S
Fluroxypyr	69377-81-7	MeOH	P-521S
Fluroxypyr-1-methylheptyl ester	81406-37-3	NEAT	P-927N
		MeOH	P-927S
Flurprimidol NEW	56425-91-3	NEAT	P-1155N
Flusilazole	85509-19-9	NEAT	P-578N
		MeOH	P-578S
Fluthiacet-methyl NEW	117337-19-6	AcCN	P-1095S-CN ❄
Flutolanil	66332-96-5	NEAT	P-587N
		MeOH	P-587S
Flutriafol	76674-21-0	NEAT	P-699N
		MeOH	P-699S
Tau-Fluvalinate	102851-06-9	NEAT	P-356N
		MeOH	P-356S
		AcCN	P-356S-CN
Fluxapyroxad NEW	907204-31-3	AcCN	P-1150S-CN
Folbex	see Chlorobenzilate		
Folex	see Merphos		
Folosan	see Pentachloronitrobenzene		
Folpet	133-07-3	NEAT	P-258N
		MeOH	P-258S
Fomesafen	72178-02-0	NEAT	P-907N
		MeOH	P-907S
Fonofos	see Dyfonate		
Foramsulfuron	173159-57-4	NEAT	P-852N
		AcCN	P-852S-CN
Forchlorfenuron NEW	68157-60-8	NEAT	P-753N
		MeOH	P-753S
Formetanate HCl	23422-53-9	NEAT	P-431N
		MeOH	P-431S
Formothion	2540-82-1	NEAT	P-149N
		AcCN	P-149S-CN
Fosetyl aluminum	39148-24-8	NEAT	P-532N
		MeOH	P-532S
Fosthiazate NEW	98886-44-3	AcCN	P-828S-CN
Frescon	see Trifenmorph		
Frumidor	see Thiophanate-methyl		
Fuberidazole NEW	3878-19-1	AcCN	P-789S-CN ❄
Fumazone	96-12-8	NEAT	P-341N
		MeOH	P-341S
Furadan	see Carbofuran		
Furalaxyl	57646-30-7	NEAT	P-605N
		MeOH	P-605S
Furathiocarb	65907-30-4	NEAT	P-569N
		MeOH	P-569S
Furilazole NEW	121776-33-8	AcCN	P-810S-CN
Furmecyclox	60568-05-0	MeOH	P-607S

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Can't find a Pesticide? Search using CAS No. Index in back of the catalog.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Furore	see Fenoxaprop-ethyl		
Fusilade	see Fluazifop-butyl		
Galtak	see Benazolin		
Gardona	see Tetrachlorvinphos		
Gardoprim	see Terbuthylazine		
Garlon	see Triclopyr		
Garrathion	see Carbophenothion		
Gesafram	see Prometon		
Gesagard	see Prometryne		
Gesamil	see Propazine		
Gesapax	see Ametryn		
Gesaprim	see Atrazine		
Gesatamine	1610-17-9	NEAT	P-189N
		MeOH	P-189S
Gesatop	see Simazine		
Gexane	see Lindane		
Glufosinate, ammonium salt	77182-82-2	NEAT	P-475N
		MeOH	P-475S
Glyodin	556-22-9	NEAT	P-528N
		MeOH	P-528S
Glyphosate	1071-83-6	NEAT	P-015N
		H20	P-015S-W
Goal	see Oxyfluorfen		
Goltix	see Metamitron		
Grasidin	see Sethoxydim		
Grasp	see Tralkoxydim		
Guazatine acetate	115044-19-4	MeOH	P-612S
Gusathion M	see Azinphos-methyl		
Guthion	see Azinphos-methyl		
Gy-bon	see Simetryn		
Halfenprox NEW	111872-58-3	10 µg/mL MeOH	P-1050S-0.1X
Halofenozide NEW	112226-61-6	AcCN	P-804S-CN ❄
Halosulfuron methyl NEW	100784-20-1	AcCN	P-1089S-CN ❄
Haloxyfop ◗	69806-34-4	NEAT	P-496N
		MeOH	P-496S
		AcCN	P-496S-CN
Haloxyfop-methyl	69806-40-2	NEAT	P-497N
		MeOH	P-497S
Hanane	see Dimefox		
Hedonal	see MCPP acid		
Helothion	see Bolstar		
HEOD	see Dieldrin		
Heptachlor	76-44-8	NEAT	P-053N
		MeOH	P-053S
Heptachlor epoxide [Isomer A]	28044-83-9	MeOH	P-294S
Heptachlor epoxide [Isomer B]	1024-57-3	NEAT	P-054N
		MeOH	P-054S
2-Hepta-decyl-2-imidazoline	see Glyodin		
Heptamul	see Heptachlor		
Heptenophos	23560-59-0	NEAT	P-547N
		MeOH	P-547S
Heptox	see Heptachlor		
Herald	see Danitol		
Herb-All	see MSMA		
Herkol	see Dichlorvos		
Hexaconazole	79983-71-4	NEAT	P-500N
		MeOH	P-500S
Hexaflumuron	86479-06-3	NEAT	P-697N
		MeOH	P-697S ❄
Hexamethylphosphoramide	680-31-9	NEAT	P-205N
		MeOH	P-205S
Hexazinone	51235-04-2	NEAT	P-123N
		MeOH	P-123S
Hexylthiocarbam	see Cycloate		
Hexythiazox	78587-05-0	NEAT	P-658N
		MeOH	P-658S
Hoe 2810	see Linuron		
Hoelon	see Dichlofop methyl		
Horbadox	see Pendimethalin		
Hostathion	see Triazophos		

Compound	Synonym / CAS No.	Matrix	Cat. No.
Hoxan	see Dichlofop methyl		
Hydramethylnon	67485-29-4	NEAT	P-403N
		MeOH	P-403S
2-Hydroxyatrazine	2163-68-0	MeOH	P-326S
3-Hydroxycarbofuran	16655-82-6	MeOH	P-186S
1-Hydroxychlordene	24009-05-0	MeOH	P-151S
Hymexazol	10004-44-1	MeOH	P-571S
Hyvar	see Bromacil		
Illoxan	see Dichlofop methyl		
Imazalil	35554-44-0	NEAT	P-332N
		MeOH	P-332S
Imazamethabenz methyl	81405-85-8	NEAT	P-414N
		MeOH	P-414S
Imazamox NEW	114311-32-9	NEAT	P-806N
		AcCN	P-806S-CN
Imazapic NEW	104098-48-8	NEAT	P-1063N
		MeOH	P-1063S
Imazapyr ◗	81334-34-1	NEAT	P-589N
		MeOH	P-589S
		AcCN	P-589S-CN
Imazaquin	81335-37-7	NEAT	P-283N
		MeOH	P-283S ❄
Imazethapyr	81335-77-5	MeOH	P-285S
Imazosulfuron	122548-33-8	AcCN 10 µg	P-853S-CN-0.1X
Imibenconazole	86598-92-7	AcCN 50 µg	P-1019S-CN-0.5X
Imidacloprid	138261-41-3	NEAT	P-596N
		MeOH	P-596S
Imidan	732-11-6	NEAT	P-055N
		MeOH	P-055S
Imiprothrin NEW	72963-72-5	AcCN	P-983S-CN ❄
Indalone	532-34-3	NEAT	P-648N
		MeOH	P-648S
Indanofan	133220-30-1	NEAT	P-988N
		MeOH	P-988S
Indaziflam NEW	950782-86-2	AcCN	P-1168S-CN
Indoxacarb	144171-61-9	NEAT	P-829N
		AcCN	P-829S-CN
Ingran 80W	see Prebane		
INPC	see Propham		
Iodofenphos	18181-70-9	NEAT	P-379N
		MeOH	P-379S
Iodosulfuron-methyl-sodium	144550-36-7	NEAT	P-830N
		AcCN	P-830S-CN
Ioxynil	1689-83-4	NEAT	P-522N
		MeOH	P-522S
IPB	see Iprobenfos		
IPC	see Propham		
Ipconazole NEW	125225-28-7	AcCN	P-958S-CN ❄
Iprobenfos	26087-47-8	NEAT	P-609N
		MeOH	P-609S
Iprodione	36734-19-7	NEAT	P-016N
		Acetone	P-016S-A
		AcCN	P-016S-CN
Iprovalicarb	140923-17-7	NEAT	P-831N
		AcCN	P-831S-CN
Irgarol	28159-98-0	NEAT	P-746N
		MeOH	P-746S
Isazophos	42509-80-8	NEAT	P-449N
		MeOH	P-449S
Isobenzan	297-78-9	MeOH	P-323S
Isobenzofuranone	87-41-2	NEAT	P-1022N
		MeOH	P-1022S
Isocarbamid NEW	30979-48-7	AcCN	P-880S-CN
Isocarbophos NEW	24353-61-5	NEAT	P-893N
		AcCN	P-893S-CN
Isodrin	465-73-6	NEAT	P-471N
		MeOH	P-471S
Isofenphos	25311-71-1	NEAT	P-018N
		MeOH	P-018S

* V-Rated packaging surcharge applies for international shipments

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Isofenphos-methyl	99675-03-3	MeOH	P-984S
Isoprocarb	2631-40-5	NEAT	P-317N
		MeOH	P-317S
Isopropalin	33820-53-0	NEAT	P-100N
		MeOH	P-100S
2-Isopropylamino-4,6-dichloro-s-triazine		NEAT	P-635N
		MeOH	P-635S
2-Isopropyl-6-methyl-4-pyrimidinol		NEAT	P-631N
	2814-20-2	MeOH	P-631S
1-(4-Isopropylphenyl)-3-methylurea	34123-57-4 NEW	MeOH	P-1040S
Isoprothiolane	50512-35-1	NEAT	P-661N
		MeOH	P-661S
Isoproturon	34123-59-6	NEAT	P-302N
		MeOH	P-302S
Isopyrazam NEW	881685-58-1	AcCN	P-1159S-CN
Isoxaben	82558-50-7	NEAT	P-533N
		MeOH	P-533S
Isoxaflutole	141112-29-0	NEAT	P-832N
		AcCN	P-832S-CN
Isoxathion NEW	18854-01-8	NEAT	P-1096N
		AcCN	P-1096S-CN
Jodfenphos	see Iodofenphos		
Kadethrine	58769-20-3	NEAT	P-367N
		MeOH	P-367S
Karbutilate	4849-32-5	NEAT	P-337N
		MeOH	P-337S
Karmex	330-54-1	NEAT	P-227N
		MeOH	P-227S
Kelthane	115-32-2	NEAT	P-057N
		MeOH	P-057S
Kepone	143-50-0	NEAT	P-152N
		MeOH	P-152S
Kerb	see Pronamide		
3-Ketocarbofuran	16709-30-1	Acetone	P-298S-A
Kilprop	see MCPP acid		
Kothar	see Oxyfluorfen		
Kresoxim-methyl	143390-89-0	NEAT	P-740N
		MeOH	P-740S
Lactofen NEW	77501-63-4	NEAT	P-979N
		AcCN	P-979S-CN
Lannate	see Methomyl		
Larvadex	see Cyromazine		
Lasso	see Alachlor		
Lazo	see Alachlor		
Lenacil	2164-08-1	NEAT	P-649N
		MeOH	P-649S
Lentagran	see Pyridate		
Lepton	see Leptophos		
Leptophos	21609-90-5	NEAT	P-206N
		MeOH	P-206S
Lesan	see Fenaminosulf		
Lethane 384	112-56-1	NEAT	P-506N
		MeOH	P-506S
Lindane (γ-BHC)	58-89-9	NEAT	P-059N
		MeOH	P-059S
Linuron	330-55-2	NEAT	P-022N
		MeOH	P-022S
Liphadione	see Chlorophacinone		
Lonacol	see Zineb		
Lontrel	1702-17-6	NEAT	P-224N
		MeOH	P-224S
Lorox	see Linuron		
Lufenuron	103055-07-8	NEAT	P-704N
		MeOH	P-704S
Machete	see Butachlor		
Malaoxon	1634-78-2	NEAT	P-529N
		MeOH	P-529S
Malaspray	see Malathion		
Malathion	121-75-5	NEAT	P-060N
		MeOH	P-060S
Maleic hydrazide	123-33-1	NEAT	P-380N
		MeOH	P-380S
Mancozan	see Zineb		
Mancozeb	8018-01-7	NEAT	P-322N
Mandipropamid	374726-62-2	NEAT	P-1023N
		AcCN	P-1023S-CN
Maneb	12427-38-2	NEAT	P-282N
Manzeb	see Mancozeb		
Marathon	see Imidacloprid		
Marlate	see Methoxychlor		
Matacil	see Aminocarb		
Mataven	see Flamprop-methyl		
Mavrik	see Fluvalinate		
Maxforce	see Hydramethylnon		
MCPA-acid ◗	94-74-6	NEAT	P-153N
		MeOH	P-153S
		AcCN	P-153S-CN
MCPA 2-ethylhexyl ester NEW	29450-45-1	NEAT	P-1082N
		MeOH	P-1082S
MCPA methyl ester	2436-73-9	NEAT	P-038N
		MeOH	P-038S
MCPB acid	94-81-5	NEAT	P-370N
		MeOH	P-370S
MCPB methyl ester	57153-18-1	NEAT	P-371N
		MeOH	P-371S
MCPP acid ◗	7085-19-0	NEAT	P-154N
		MeOH	P-154S
		AcCN	P-154S-CN
MCPP methyl ester	23844-56-6	NEAT	P-040N
		MeOH	P-040S
Mecarbam	2595-54-2	NEAT	P-318N
		MeOH	P-318S
Mecoprop	see MCPP acid		
Mecoprop, 2-ethylhexyl ester	71526-69-7	NEAT	P-502N
		MeOH	P-502S
Mecoprop-1-octyl ester	161922-37-8	AcCN	P-1028S-CN
Mecoprop-2-octyl ester	28473-03-2	NEAT	P-1029N
		AcCN	P-1029S-CN
Mecoprop-p NEW	16484-77-8	NEAT	P-1053N
		Acetone	P-1053S-A
Mediben	see Dicamba		
Mefenacet	73250-68-7	NEAT	P-745N
		MeOH	P-745S
Mefenpyr-diethyl	135590-91-9	NEAT	P-1010N
		MeOH	P-1010S
Meltatox	see Dodemorph acetate		
Menaphace	see MCPA acid		
Mepanipyrim	110235-47-7	NEAT	P-855N
		AcCN	P-855S-CN
Mephosfolan	950-10-7	NEAT	P-718N
		MeOH	P-718S
Mepiquat chloride NEW	24307-26-4	NEAT	P-1062N
		MeOH	P-1062S
Mepro	see MCPP acid		
Meptyldinocap NEW	131-72-6	MeOH	P-1043S
2-Mercaptobenzothiazole monoethanolamine salt	see Vanicide-20S		
Mercaptodimethur	see Methiocarb		
Mercaptophos	see Fenthion		
Mercuram	see Thiram		
Merge 823	see MSMA		
Merphos	150-50-5	NEAT	P-124N
		MeOH	P-124S
Mesosulfuron-methyl NEW	208465-21-8	NEAT	P-1044N
		MeOH	P-1044S
Mesotrione NEW	104206-82-8	AcCN	P-962S-CN ❄
Metacide	see Methyl parathion		
Metaflumizone NEW	139968-49-3	AcCN	P-1090S-CN ❄
Metalaxyl	57837-19-1	NEAT	P-120N
		MeOH	P-120S
Metalaxyl-M	70630-17-0	NEAT	P-874N
		MeOH	P-874S
Metaldehyde ◗	9002-91-9	NEAT	P-600N
		MeOH	P-600S
		AcCN	P-600S-CN

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Metamitron	41394-05-2	NEAT	P-252N
		MeOH	P-252S
Metam-sodium	see Metam-sodium dihydrate		
Metam-sodium dihydrate	6734-80-1	NEAT	P-381N
		MeOH	P-381S
Metasystox R	see Oxydemeton methyl		
Metazachlor	67129-08-2	NEAT	P-249N
		MeOH	P-249S
Metconazole	125116-23-6	NEAT	P-856N
		AcCN	P-856S-CN
Methabenzthiazuron	18691-97-9	NEAT	P-563N
		MeOH	P-563S
Methacrifos	62610-77-9	NEAT	P-556N
		MeOH	P-556S
Methamidophos	see Monitor		
Methfuroxam NEW	28730-17-8	AcCN	P-881S-CN ❄
Methidathion	950-37-8	NEAT	P-195N *
		MeOH	P-195S
Methiocarb	2032-65-7	NEAT	P-156N
		MeOH	P-156S
Methiocarb sulfone NEW	2179-25-1	NEAT	P-570N
		AcCN	P-570S-CN
Methiocarb sulfoxide NEW	2635-10-1	NEAT	P-650N
		MeOH	P-650S
Methomyl	16752-77-5	NEAT	P-032N
		MeOH	P-032S
	1000 µg/mL	MeOH	P-032S-10X
Methoprene	40596-69-8	NEAT	P-157N
		MeOH	P-157S
Methoprotryne	841-06-5	NEAT	P-564N
		MeOH	P-564S
Methoxychlor	72-43-5	NEAT	P-064N
		MeOH	P-064S
o,p'-Methoxychlor	30667-99-3	MeOH	P-535S
		Isooctane	P-535S-TP
p,p'-Methoxychlor-olefin	2132-70-9	MeOH	P-466S
Methoxy-DDT	see Methoxychlor		
Methoxyfenozide	161050-58-4	NEAT	P-857N
		AcCN	P-857S-CN
Methylamine hydrochloride	593-51-1	NEAT	P-624N
		MeOH	P-624S
Methyl-3,5-dichlorobenzoate	2905-67-1	NEAT	P-247N
		MeOH	P-247S
2-Methyl-4,6-dinitroanisole	29027-13-2	NEAT	P-611N
		MeOH	P-611S
2-Methyl-4,6-dinitrophenol methyl ether	see 2-Methyl-4,6-dinitroanisole		
Methyl dursban	see Chlorpyrifos-methyl ester		
Methyl-2,4-dichlorophenylacetate	55954-23-9	NEAT	P-214N
		MeOH	P-214S
3-Methyl-4-nitrophenol	2581-34-2	NEAT	P-509N
		MeOH	P-509S
Methyl nonyl ketone ◗	112-12-9	NEAT	P-415N
		MeOH	P-415S
		AcCN	P-415S-CN
Methyl paraoxon	950-35-6	NEAT	P-311N
		MeOH	P-311S
Methyl parathion	298-00-0	NEAT	P-065N *
		MeOH	P-065S
Methylpentachlorophenyl sulfide	1825-19-0	NEAT	P-567N
		MeOH	P-567S
Methyl tiofanato	see Thiophanate-methyl		
Methyl trithion	953-17-3	MeOH	P-652S
Metiram	9006-42-2	NEAT	P-416N
Metobromuron	3060-89-7	NEAT	P-436N
		MeOH	P-436S
Metolachlor	51218-45-2	NEAT	P-158N
		MeOH	P-158S
S-Metolachlor	87392-12-9	NEAT	P-1013N
		MeOH	P-1013S
Metolcarb	1129-41-5	NEAT	P-494N
		MeOH	P-494S
Metosulam NEW	139528-85-1	AcCN	P-900S-CN
Metoxuron	19937-59-8	NEAT	P-437N
		MeOH	P-437S
Metrafenone	220899-03-6	NEAT	P-1032N
		AcCN	P-1032S-CN
Metribuzin	21087-64-9	NEAT	P-089N
		MeOH	P-089S
Metron	see Methyl parathion		
Metsulfuron-methyl	74223-64-6	NEAT	P-463N
		MeOH	P-463S ❄
Mevinphos	7786-34-7	NEAT	P-074N *
		MeOH	P-074S
Mexacarbate	315-18-4	NEAT	P-030N
		MeOH	P-030S
MGK-264	113-48-4	NEAT	P-082N
		MeOH	P-082S
MGK-326	136-45-8	NEAT	P-342N
		MeOH	P-342S
Milogard	see Propazine		
MIPC	see Isoprocarb		
Mirex	2385-85-5	NEAT	P-066N
		MeOH	P-066S
Mitac	see Amitraz		
Mocap	see Ethoprop		
Molinate	2212-67-1	NEAT	P-176N
		MeOH	P-176S
Monalide	7287-36-7	NEAT	P-737N
		MeOH	P-737S
Monceren	see Pencycuron		
Monitor	10265-92-6	NEAT	P-155N
		MeOH	P-155S
Monocrotophos	6923-22-4	NEAT	P-112N
		MeOH	P-112S
Monolinuron	1746-81-2	NEAT	P-382N
		MeOH	P-382S
Monomethyltetrachloroterephthalate	887-54-7	NEAT	P-707N
		Acetone	P-707S-A
Monuron	150-68-5	NEAT	P-023N
		MeOH	P-023S
Monuron TCA	140-41-0	NEAT	P-034N
		MeOH	P-034S
2-Monuron		NEAT	P-633N
		MeOH	P-633S
Morestan	see Chinomethionate		
Moxidectin NEW	113507-06-5	AcCN	P-961S-CN ❄
MSMA	see Bueno		
Myclobutanil	88671-89-0	NEAT	P-330N
		MeOH	P-330S
Nabam	142-59-6	NEAT	P-383N
		MeOH	P-383S
Naled	300-76-5	NEAT	P-159N
		MeOH	P-159S
1-Naphthalene acetamide	86-86-2	NEAT	P-512N
		MeOH	P-512S
1-Naphthol	90-15-3	NEAT	P-1007N
		MeOH	P-1007S
Napropamide	15299-99-7	NEAT	P-179N
		MeOH	P-179S
Naptalam	see Alanap		
1-Naphthylacetic acid	86-87-3	NEAT	P-461N
		MeOH	P-461S
Navadel	see Dioxathion		
Neburon	555-37-3	NEAT	P-041N
		MeOH	P-041S
Neguvon	see Trichlorfon		
Nemacur R	see Fenamiphos		
Neocidol	see Diazinon		
Netrazine	see Cyromazine		
Niagaramite	see Aramite		
Nialate	see Ethion		
Niclosamide	50-65-7	NEAT	P-160N
		MeOH	P-160S
Nicosulfuron	111991-09-4	NEAT	P-591N
		AcCN	P-591S-CN
Nifos	see TEPP		

* V-Rated packaging surcharge applies for international shipments

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Nitenpyram	120738-89-8	NEAT	P-858N
		AcCN	P-858S-CN
Nitralin	4726-14-1	NEAT	P-583N
		MeOH	P-583S
Nitrapyrin	1929-82-4	NEAT	P-489N
		MeOH	P-489S
4-Nitroanisole	100-17-4	NEAT	P-273N
		MeOH	P-273S
Nitrofen	1836-75-5	NEAT	P-363N
		MeOH	P-363S
Nitrothal-isopropyl	10552-74-6	NEAT	P-695N
		MeOH	P-695S
Nix-Scald	see Ethoxyquin		
Nomersan	see TEPP		
cis-Nonachlor	5103-73-1	NEAT	P-297N
		MeOH	P-297S
trans-Nonachlor	39765-80-5	NEAT	P-184N
		MeOH	P-184S
Norflurazon	27314-13-2	NEAT	P-217N
		MeOH	P-217S
Norflurazon-desmethyl NEW	23576-24-1	AcCN	P-1129S-CN ❄
Novaluron	116714-46-6	5 mg	P-966N-5MG
		MeOH	P-966S
Noviflumuron NEW	121451-02-3	AcCN	P-967S-CN ❄
Nuarimol	see Trimidal		
Nucidol	see Diazinon		
Nuvacron	see Monocrotophos		
Nuvanol	see Iodofenphos		
Octachlor	see Chlordane		
Octacide 264	see MGK 264		
Octalox	see Dieldrin		
Octamethylpyrophosphoramide	see Schradan		
Octhilinone NEW	26530-20-1	NEAT	P-788N
		AcCN	P-788S-CN
OFF	see Deet		
Oftanol	see Isofenphos		
Ofurace	58810-48-3	10 µg/mL Isooctane	P-653S-TP-0.1X
Omethoate	1113-02-6	NEAT	P-121N
		MeOH	P-121S
Omite	see Propargite		
OMPA	see Schradan		
Omtan	see Isobenzan		
Option	see Fenoxaprop-ethyl		
Orbencarb	34622-58-7	NEAT	P-433N
		MeOH	P-433S
Orbit	see Tilt		
Ordram	see Molinate		
Ornamec	see Fluazifop-p-butyl		
Orthene	see Acephate		
Orthocide	see Captan		
Orthosulfamuron NEW	213464-77-8	Acetone	P-1045S-A
Oryzalin	19044-88-3	NEAT	P-043N
		MeOH	P-043S
Outfox	see Cyprazine		
Ovex	80-33-1	NEAT	P-425N
		MeOH	P-425S
Ovochlor	see Ovex		
Oxabetrinil	74782-23-3	NEAT	P-995N
		MeOH	P-995S
Oxadiargyl	39807-15-3	NEAT	P-1031N
		AcCN	P-1031S-CN
Oxadiazon	19666-30-9	NEAT	P-236N
		MeOH	P-236S
Oxadixyl	77732-09-3	NEAT	P-560N
		MeOH	P-560S
Oxamyl	23135-22-0	NEAT	P-161N
		MeOH	P-161S
Oxamyl oxime NEW	30558-43-1	AcCN	P-1138S-CN
Oxasulfuron	144651-06-9	NEAT	P-859N
		AcCN	P-859S-CN
Oxaziclomefone NEW	153197-14-9	MeOH	P-1066S
Oxycarboxin	5259-88-1	NEAT	P-391N
		MeOH	P-391S
Oxychlordane Isomer	27304-13-8 10 µg/mL in	MeOH	P-331S
		MeOH	P-331S-0.1X
		Hexane	P-331S-H
Oxydemeton-methyl	301-12-2	MeOH	P-290S
Oxyfluorfen	42874-03-3	NEAT	P-277N
		MeOH	P-277S
Oxythioquinox	see Chinomethionate		
Paarlan	see Isopropalin		
Paraoxon	311-45-5	NEAT	P-453N
		MeOH	P-453S
Paraquat dichloride tetrahydrate	1910-42-5	NEAT	P-051N *
		MeOH	P-051S
Parathion	56-38-2	NEAT	P-070N
		MeOH	P-070S
Paridol	see Methyl parathion		
PCA	see Pyrazon		
PCNB	see Pentachloronitrobenzene		
PCP methyl ether	see Pentachloroanisole		
PDU	see Fenuron		
PEBC	see Tillam		
Pebulate	see Tillam		
Penconazole	66246-88-6	NEAT	P-450N
		MeOH	P-450S
Pencycuron	66063-05-6	NEAT	P-358N
		MeOH	P-358S
Pendimethalin	40487-42-1	NEAT	P-097N
		MeOH	P-097S
Penoxalin	see Pendimethalin		
Penoxsulam NEW	219714-96-2	MeOH	P-1046S
Pentachloroaniline	527-20-8	NEAT	P-875N
		AcCN	P-875S-CN
Pentachloroanisole	1825-21-4	NEAT	P-199N
		MeOH	P-199S
Pentachloronitrobenzene	82-68-8	NEAT	P-113N
		MeOH	P-113S
Pentanochlor NEW	2307-68-8	NEAT	P-1067N
		MeOH	P-1067S
Penthiopyrad NEW	183675-82-3	AcCN	P-1131S-CN ❄
Pentoxazone NEW	110956-75-7	MeOH	P-1051S-0.1X
Permethrin (cis/trans)	52645-53-1	NEAT	P-128N
		MeOH	P-128S
Perthane	72-56-0	NEAT	P-162N
		MeOH	P-162S
Peropal	see Azocyclotin		
Pestox III	see Schradan		
Pethoxamid NEW	106700-29-2	NEAT	P-1047N
		MeOH	P-1047S
Phenacide	see Toxaphene		
Phenamiphos	see Fenamiphos		
Phenmedipham	13684-63-4	NEAT	P-392N
		MeOH	P-392S
Phenothiazine	92-84-2	NEAT	P-579N
		MeOH	P-579S
Phenothrin	see Sumithrin		
Phenthoate	2597-03-7	NEAT	P-476N
		MeOH	P-476S
Phenyl mercury acetate	62-38-4	NEAT	P-393N
		MeOH	P-393S
o-Phenylphenol	90-43-7	NEAT	P-460N
		MeOH	P-460S
Phenyl valerate	20115-23-5	NEAT	P-734N
		MeOH	P-734S
Phorate	298-02-2	NEAT	P-170N *
		MeOH	P-170S
Phorate-oxon	2600-69-3	10 µg/mL Toluene	P-1018S-T-0.1X
Phorate-oxon sulfone NEW	2588-06-9	AcCN	P-1161S-CN
Phorate-oxon sulfoxide NEW	2588-05-8	AcCN	P-1153S-CN
Phorate sulfone	2588-04-7	Hexane	P-655S-H

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Can't find a Pesticide? Search using CAS No. Index in back of the catalog.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Phorate sulfoxide	2588-03-6	NEAT	P-732N
		MeOH	P-732S
Phosalone	2310-17-0	NEAT	P-163N
		MeOH	P-163S
Phosdrin	see Mevinphos		
Phosethoprop	see Ethoprop		
Phosfolan	947-02-4	NEAT	P-234N
		MeOH	P-234S
Phosmet	see Imidan		
Phosmet oxon	3735-33-9	Toluene	P-733S-T
Phosphamidon	13171-21-6	NEAT	P-075N
		MeOH	P-075S
Phosphothion	see Malathion		
Phosvel	see Leptophos		
Phoxim	14816-18-3	NEAT	P-357N
		MeOH	P-357S
Phthalide	see 1-Isobenzofuranone		
Phthalthrin	see Tetramethrin		
Picloram	1918-02-1	NEAT	P-047N
		MeOH	P-047S
Picloram methyl ester	14143-55-6	NEAT	P-198N
		MeOH	P-198S
Picolinafen NEW	137641-05-5	NEAT	P-1061N
		MeOH	P-1061S
4-Picoline	see 4-Aminopyridine		
Picoxystrobin	117428-22-5	NEAT	P-860N
		AcCN	P-860S-CN
Pindone	83-26-1	NEAT	P-394N
		MeOH	P-394S
Pinoxaden NEW	243973-20-8	NEAT	P-1154N
		AcCN	P-1154S-CN
Piperalin	3478-94-2	NEAT	P-663N
		MeOH	P-663S
Piperonyl butoxide	51-03-6	NEAT	P-348N
		MeOH	P-348S
Piperophos	24151-93-7	NEAT	P-656N
Pirimicarb	23103-98-2	NEAT	P-304N
		MeOH	P-304S
Pirimicarb-desmethyl NEW	30614-22-3	AcCN	P-1139S-CN
Pirimiphos-ethyl	23505-41-1	NEAT	P-328N
		MeOH	P-328S
Pirimiphos-methyl	29232-93-7	NEAT	P-305N
		MeOH	P-305S
Pirimor	see Pirimicarb		
Pival	see Pindone		
PMA	see Phenyl mercury acetate		
Polytrin	see Cypermethrin		
Potassium dimethyl dithiocarbamate	128-03-0	AcCN	P-714S-CN ❄
Potassium n-hydroxymethyl-n-methyl dithiocarbamate	51026-28-9	AcCN	P-715S-CN ❄
Prallethrin	23031-36-9	MeOH	P-667S
Pramitol	see Prometon		
Prebane	886-50-0	NEAT	P-119N
		MeOH	P-119S
Preeglone	see Paraquat CL		
Prefar	see Bensulide		
Premerg	see Trichlorfon		
Pretilachlor	51218-49-6	NEAT	P-485N
		MeOH	P-485S
Primatol P	see Propazine		
Primatol Q	see Prometryne		
Primatol S	see Simazine		
Primaze	see Prometryne		
Primicid	see Pirimphos-ethyl		
Primisulfuron-methyl	86209-51-0	NEAT	P-833N
		AcCN	P-833S-CN
Princep	see Simazine		
Probenazole	27605-76-1	NEAT	P-710N
		Acetone	P-710S-A
Prochloraz	67747-09-5	NEAT	P-549N
		MeOH	P-549S
Procymidone	32809-16-8	NEAT	P-430N
		MeOH	P-430S
Prodiamine	29091-21-2	NEAT	P-739N
		MeOH	P-739S
Profenofos	41198-08-7	NEAT	P-260N
		MeOH	P-260S
Profluoralin	26399-36-0	NEAT	P-099N
		MeOH	P-099S
Prohexadione-calcium NEW	127277-53-6	NEAT	P-1068N
		Water	P-1068S-W
Prolate	see Imidan		
Promecarb	2631-37-0	NEAT	P-265N
		MeOH	P-265S
Prometon	1610-18-0	NEAT	P-077N
		MeOH	P-077S
Prometryne	7287-19-6	NEAT	P-078N
		MeOH	P-078S
Pronamide	23950-58-5	NEAT	P-164N
		MeOH	P-164S
Propachlor	1918-16-7	NEAT	P-215N
		MeOH	P-215S
Propamocarb	24579-73-5	NEAT	P-312N
		MeOH	P-312S
Propamocarb hydrochloride NEW	25606-41-1	AcCN	P-1137S-CN ❄
Propanil	709-98-8	NEAT	P-049N
		MeOH	P-049S
Propaquizafop	111479-05-1	NEAT	P-908N
		MeOH	P-908S
Propargite	2312-35-8	NEAT	P-251N
		MeOH	P-251S
Propazine	139-40-2	NEAT	P-079N
		MeOH	P-079S
Propetamphos	31218-83-4	NEAT	P-417N
		MeOH	P-417S
Propham	122-42-9	NEAT	P-052N
		MeOH	P-052S
Prophos	see Ethoprop		
Propiconazole	see Tilt		
Propineb	12071-83-9	NEAT	P-608N
Propoxur	see Baygon		
Propoxycarbazone-sodium	181274-15-7	NEAT	P-1014N
	50 µg/mL in	Water	P-1014S-W-0.5X
Propylenethiourea (PTU)	2055-46-1	NEAT	P-861N
		AcCN	P-861S-CN
Propyzamide	see Pronamide		
Proquinazid NEW	189278-12-4	AcCN	P-1156S-CN
Prosulfocarb	52888-80-9	NEAT	P-742N
		MeOH	P-742S
Prosulfuron	94125-34-5	NEAT	P-834N
		AcCN	P-834S-CN
Protector 3L	see Busan		
Protex	see Rotenone		
Prothioconazole NEW	178928-70-6	AcCN	P-965S-CN
Prothiophos	see Tokuthion		
Prowl	see Pendimethalin		
Proximpham NEW	2828-42-4	NEAT	P-1081N
		MeOH	P-1081S
Pursuit	see Imazethapyr		
Pymetrozin	123312-89-0	NEAT	P-835N
		AcCN	P-835S-CN
Pynamin	see Allethrin		
Pyracarbolid NEW	24691-76-7	AcCN	P-792S-CN ❄
Pyraclofos	77458-01-6	MeOH	P-716S
Pyraclostrobin	175013-18-0	NEAT	P-863N
		AcCN	P-863S-CN
Pyraflufen-ethyl	129630-19-9	NEAT	P-1015N
		Acetone	P-1015S-A
Pyrasulfotole NEW	365400-11-9	AcCN	P-1144S-CN
Pyrazon	1698-60-8	NEAT	P-395N
		MeOH	P-395S
Pyrazophos	13457-18-6	NEAT	P-359N
		MeOH	P-359S
Pyrazoxyfen	71561-11-0	NEAT	P-618N
		MeOH	P-618S
Pyrethrins	8003-34-7	NEAT	P-187N
		MeOH	P-187S

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Pyrethrum	see Pyrethrins		
Pyributicarb	88678-67-5	MeOH	P-987S
Pyridaben	96489-71-3	NEAT	P-693N
		MeOH	P-693S
Pyridalyl	179101-81-6	NEAT	P-990N
		MeOH	P-990S
Pyridaphenthion	119-12-0	MeOH	P-610S
Pyridate	55512-33-9	NEAT	P-404N
		MeOH	P-404S
Pyrifluquinazon NEW	337458-27-2	AcCN	P-1093S-CN
Pyrimethanil	53112-28-0	NEAT	P-723N
		MeOH	P-723S
Pyrimidifen	105779-78-0	MeOH	P-989S
Pyriminil	see Vacor		
(E)-Pyriminobac-methyl	147411-69-6 50 µg/mL	MeOH	P-1030S-0.5X
Pyriphenox	88283-41-4	MeOH	P-668S
Pyriproxyfen	95737-68-1	NEAT	P-795N
		AcCN	P-795S-CN
Pyron	see Pyridate		
Pyroquilon	57369-32-1	NEAT	P-696N
		MeOH	P-696S
Pyroxsulam NEW	422556-08-9	NEAT	P-1060N
		MeOH	P-1060S
Queletox	see Fenthion		
Quinalphos	13593-03-8	NEAT	P-462N
		MeOH	P-462S
Quinclorac ◗	84087-01-4	NEAT	P-692N
		MeOH	P-692S
		AcCN	P-692S-CN
Quinmerac	90717-03-6	NEAT	P-836N
		AcCN	P-836S-CN
Quinoclamine	2797-51-5	NEAT	P-985N
		MeOH	P-985S
Quinoxyfen	124495-18-7	5 mg	P-882N-5MG
		MeOH	P-882S
Quintozene	see Pentachloronitrobenzene		
Quizalofop ethyl	76578-14-8	NEAT	P-293N
		AcCN	P-293S-CN
Racumin	see Coumatetralyl		
Radapon	see Dalapon acid		
Ramrod	see Propachlor		
Reglone	see Diquat dibromide		
Resmethrin	10453-86-8	NEAT	P-325N
		MeOH	P-325S
Rezifilm	see Thiram		
Rimsulfuron	122931-48-0	NEAT	P-837N
		AcCN	P-837S-CN ❄
Rogor	see Dimethoate		
Rogue	see Propanil		
Ronilan	see Vinclozolin		
Ronnel	299-84-3	NEAT	P-080N
		MeOH	P-080S
Ronstar	see Oxadiazon		
Rospin	see Chloropropylate		
Rotenone	83-79-4	NEAT	P-056N
		MeOH	P-056S ❄
Roundup	see Glyphosate		
Rovral	see Iprodione		
Roxion	see Dimethoate		
Rubigan	see Bloc		
Ruelene	see Crufomate		
S421	127-90-2	NEAT	P-749N
		MeOH	P-749S
SADH	see Alar		
Saflufenacil NEW	372137-35-4	NEAT	P-1078N
		MeOH	P-1078S
Safrotin	see Propetamphos		
Sancap	see Dipropetryn		
Sanmarton	see Fenvalerate		
Scepter	see Imazaquin		
Schradan	152-16-9	NEAT	P-418N
		MeOH	P-418S
Sebuthylazine	7286-69-3	NEAT	P-432N
		MeOH	P-432S
Secbumeton	26259-45-0	NEAT	P-165N
		MeOH	P-165S
Select	see Clethodim		
Sencor	see Metribuzin		
Sethoxydim	74051-80-2	NEAT	P-306N
		AcCN	P-306S-CN ❄
Sevin	see Carbaryl		
Siduron	1982-49-6	NEAT	P-063N
		MeOH	P-063S
Silafluofen	105024-66-6	NEAT	P-717N
		MeOH	P-717S
Silmurix	see Schradan		
Silvex ◗	93-72-1	NEAT	P-084N
		MeOH	P-084S
		AcCN	P-084S-CN
Silvex 2-ethylhexyl ester	53404-76-5	NEAT	P-728N
		MeOH	P-728S
Silvex methyl ester	4841-20-7	NEAT	P-115N
		MeOH	P-115S
Simazine	122-34-9	NEAT	P-085N
		MeOH	P-085S
Simeton	673-04-1	NEAT	P-501N
		MeOH	P-501S
Simetryn	1014-70-6	NEAT	P-166N
		MeOH	P-166S
Sinbar	see Terbacil		
Siperin	see Cypermethrin		
Sipscasan	see Thiophanate-methyl		
Sodium diethyldithiocarbamate trihydrate	20624-25-3	NEAT	P-505N
		H_2O	P-505S-W
Solfac	see Cyfluthrin		
Sonalan	see Ethalfluralin		
Sonar	see Fluridone		
Spike	see Tebuthiuron		
Spinetoram NEW mix of isomers J & L	187166-40-1 / 187166-15-0	AcCN	P-1083S-CN
Spirodiclofen	148477-71-8	NEAT	P-938N
		MeOH	P-938S
Spiromesifen	283594-90-1	AcCN	P-960S-CN
Spirotetramat NEW	203313-25-1	NEAT	P-1077N
		AcCN	P-1077S-CN
Spinosad	168316-95-8	NEAT	P-864N
		AcCN	P-864S-CN
Spiroxamine	118134-30-8	NEAT	P-869N
		AcCN	P-869S-CN
Stam F-34	see Propanil		
Stirofos	see Tetrachlorvinphos		
Stomp	see Pendimethalin		
Strobane	8001-50-1	NEAT	P-339N
		MeOH	P-339S
Suffix	see Benzoylprop ethyl		
Sulcontrione	99105-77-8	NEAT	P-951N
		MeOH	P-951S
Sulfallate	95-06-7	NEAT	P-327N
		MeOH	P-327S
Sulfentrazone NEW	122836-35-5	NEAT	P-798N
		AcCN	P-798S-CN
Sulfometuron methyl ester	74222-97-2	NEAT	P-336N
Sulfaquinoxaline	59-40-5	MeOH	P-681S
Sulfosulfuron	141776-32-1	10 µg/mL AcCN	P-865S-CN-0.1X
Sulfotep	3689-24-5	NEAT	P-167N
		MeOH	P-167S
Sulfox-cide	see Sulfoxide		
Sulfoxide	120-62-7	NEAT	P-396N
		MeOH	P-396S

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Sulfoxyl	see Sulfoxide		
Sulprofos	see Bolstar		
Sumicidin	see Fenvalerate		
Sumifly	see Fenvalerate		
Sumipower	see Fenvalerate		
Sumithrin	26002-80-2	NEAT	P-050N
		MeOH	P-050S
Sumitol	see Secbumeton		
Summit	see Triadimenol		
Super X	see Terrazole		
Supracide	see Methidathion		
Surcopur	see Propanil		
Surflan	see Oryzalin		
Sutan	see Butylate		
Swebate	see Abate		
Swep	1918-18-9	NEAT	P-061N
		MeOH	P-061S
Systhane	see Myclobutanil		
Systox	see Demeton		
2,4,5-T acid ◗	93-76-5	NEAT	P-168N
		MeOH	P-168S
		AcCN	P-168S-CN
2,4,5-T butoxyethyl ester	2545-59-7	NEAT	P-441N
		AcCN	P-441S-CN
2,4,5-T n-butyl ester	93-79-8	NEAT	P-440N
		AcCN	P-440S-CN
2,4,5-T methyl ester	1928-37-6	NEAT	P-067N
		MeOH	P-067S
2,4,6-T ◗	575-89-3	NEAT	P-523N
		MeOH	P-523S
		AcCN	P-523S-CN
Talstar	see Bifenthrin		
Tame	see Danitol		
Tamaron	see Monitor		
Tamogan	see Bromadiolone		
Target	see MSMA		
TCA	see Trichloroacetic acid		
TCMTB	see Busan		
TCNB	see Tecnazene		
Tebuconazol	107534-96-3	NEAT	P-451N
		MeOH	P-451S
Tebufenozide	112410-23-8	NEAT	P-726N
		MeOH	P-726S
Tebufenpyrad	119168-77-3	NEAT	P-877N
		MeOH	P-877S
Tebupirimfos	96182-53-5	NEAT	P-727N
		MeOH	P-727S
Tebutam	35256-85-0	MeOH	P-879S
Tebuthiuron	34014-18-1	NEAT	P-188N
		MeOH	P-188S
Tecto	see Thiabendazole		
Tecnazene	see 2,3,5,6-Tetrachloronitrobenzene		
Tedion	see Tetradifon		
Teflubenzuron	83121-18-0	NEAT	P-452N
		MeOH	P-452S
Tefluthrin	79538-32-2	MeOH	P-568S ❄
Telodrin	see Isobenzan		
Tembotrione NEW	335104-84-2	NEAT	P-1109N
		AcCN	P-1109S-CN
Temephos	see Abate		
Temik	see Aldicarb		
Temus	see Bromadiolone		
Tenoran	see Chloroxuron		
TEPP	107-49-3	NEAT	P-207N
Terbacil	5902-51-2	NEAT	P-096N
		MeOH	P-096S
Terbufos	13071-79-9	NEAT	P-208N
		MeOH	P-208S
Terbufos sulfone	56070-16-7	MeOH	P-729S
Terbufos sulfoxide	10548-10-4	NEAT	P-730N
		MeOH	P-730S
Terbumeton	33693-04-8	NEAT	P-504N
		MeOH	P-504S
Terbuthylazine	5915-41-3	NEAT	P-169N
		MeOH	P-169S
Terbuthylazine desethyl	30125-63-4	NEAT	P-613N
		MeOH	P-613S
Terbutol	1918-11-2	NEAT	P-464N
		MeOH	P-464S
Terbutryn	see Prebane		
Terpene polychlorinates	see Strobane		
Terraclor	see Pentachloronitrobenzene		
Terracur P	see Dasanit		
Terrazole	2593-15-9	NEAT	P-190N
		MeOH	P-190S
Terre-Sytam	see Dimefox		
Tersan	see Thiram		
Tersan SP	see Chloroneb		
1,2,3,4-Tetrachlorobenzene	634-66-2	NEAT	P-999N
		MeOH	P-999S
1,2,3,5-Tetrachlorobenzene	634-90-2	NEAT	P-1001N
		Isooctane	P-1001S-TP
1,2,4,5-Tetrachlorobenzene	95-94-3	NEAT	P-1003N
		MeOH	P-1003S
1,2,3,4-Tetrachloro-5-nitrobenzene	879-39-0	NEAT	P-1000N
		MeOH	P-1000S
2,3,5,6-Tetrachloronitrobenzene	117-18-0	NEAT	P-467N
		MeOH	P-467S
Tetrachlorvinphos	961-11-5	NEAT	P-125N
		MeOH	P-125S
Tetraconazole	112281-77-3	NEAT	P-721N
		MeOH	P-721S
Tetradifon	116-29-0	NEAT	P-261N
		MeOH	P-261S
cis-d4-Tetrahydrophthalimide	1469-48-3	MeOH	P-116S
1,2,3,6-Tetrahydrophthalimide	85-40-5	NEAT	P-621N
		MeOH	P-621S
Tetramethrin	7696-12-0	NEAT	P-406N
		MeOH	P-406S
Tetrasul	2227-13-6	NEAT	P-552N
		MeOH	P-552S
Tetron	see TEPP		
Thiabendazole	148-79-8	NEAT	P-068N
		MeOH	P-068S
Thiacloprid	111988-49-9	NEAT	P-838N
		AcCN	P-838S-CN
Thiamethoxam	153719-23-4	NEAT	P-866N
		AcCN	P-866S-CN
Thiazopyr NEW	117718-60-2	NEAT	P-808N
		MeOH	P-808S
Thidiazuron	51707-55-2	NEAT	P-369N
		MeOH	P-369S
Thifensulfuron methyl	79277-27-3	NEAT	P-468N
		MeOH	P-468S
Thifluzamide NEW	130000-40-7	NEAT	P-1055N
		MeOH	P-1055S
Thimet	see Phorate		
Thiobencarb	28249-77-6	NEAT	P-180N
		MeOH	P-180S
Thiocyclam hydrogen oxalate	31895-22-4	MeOH	P-688S

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Can't find a Pesticide? Search using CAS No. Index in back of the catalog.

◗ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

❄ ColdPAK required to maintain integrity of product.

For Pesticide Kits and Mixtures

See end of Pesticide section

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Thiodan I	see Endosulfan I		
Thiodan II	see Endosulfan II		
Thiodicarb	59669-26-0	NEAT	P-477N
		MeOH	P-477S
4,4'-Thiodiphenol	2664-63-3	NEAT	P-117N
		MeOH	P-117S
Thiofanox	39196-18-4	NEAT	P-266N
		MeOH	P-266S
Thiofanox sulfone		AcCN	P-839S-CN-0.1X
Thiofanox sulfoxide	39184-27-5	NEAT	P-702N
		MeOH	P-702S
Thiometon	640-15-3	NEAT	P-486N
		MeOH	P-486S
Thionazin	297-97-2	MeOH	P-171S
Thiophanate ◗	23564-06-9	NEAT	P-321N
		MeOH	P-321S
		AcCN	P-321S-CN
Thiophanate-methyl	23564-05-8	NEAT	P-349N
		MeOH	P-349S
Thiophos	see Parathion		
Thiram	137-26-8	NEAT	P-118N
		MeOH	P-118S
Tiguvon	see Fenthion		
Tillam	1114-71-2	NEAT	P-105N
		MeOH	P-105S
Tilt	60207-90-1	NEAT	P-280N
		MeOH	P-280S
Tomadorane	see 4-CPA		
Tobaz	see Thiabendazole		
Tokuthion	34643-46-4	NEAT	P-126N
		MeOH	P-126S
Tolban	see Profluralin		
Tolclofos-methyl	57018-04-9	NEAT	P-557N
		MeOH	P-557S
Tolylfluanide	731-27-1	NEAT	P-553N
		MeOH	P-553S ❄
Torak	see Dialifos		
Tordon	see Picloram		
Toxaphene (Tech)	8001-35-2	NEAT	P-093N
		MeOH	P-093S
2,4,5-TP	see Silvex		
2,4,5-TP methyl ester	see Silvex methyl ester		
Tralkoxydim	87820-88-0	NEAT	P-405N
		MeOH	P-405S
Tralomethrin	66841-25-6	NEAT	P-478N
		MeOH	P-478S
Transfluthrin	118712-89-3	NEAT	P-743N
		MeOH	P-743S
Treflan	see Trifluralin		
Triadimefon	43121-43-3	NEAT	P-069N
		MeOH	P-069S
Triadimenol	55219-65-3	NEAT	P-361N
		MeOH	P-361S
Triallate	2303-17-5	NEAT	P-268N
		MeOH	P-268S
Triasulfuron	82097-50-5	NEAT	P-592N
		MeOH	P-592S
1,2,4-Triazole	288-88-0	NEAT	P-627N
		MeOH	P-627S
Triazophos	24017-47-8	NEAT	P-334N
		MeOH	P-334S
Tribenuron-methyl	101200-48-0	NEAT	P-666N
		MeOH	P-666S
Tribufos	see DEF		
Tributylphosphorotrithioite	see Merphos		
bis(Tributyltin)oxide	56-35-9	NEAT	P-455N
		MeOH	P-455S
Trichlorfon	52-68-6	NEAT	P-044N
		MeOH	P-044S
Trichloroacetic acid	76-03-9	NEAT	P-459N
		MeOH	P-459S
		AcCN	P-459S-CN
1,2,3-Trichlorobenzene	87-61-6	NEAT	P-1002N
		Isooctane	P-1002S-TP
1,2,4-Trichlorobenzene	120-82-1	NEAT	P-1004N
		MeOH	P-1004S
2,3,5-Trichlorobenzoic acid	50-73-7	NEAT	P-508N
		MeOH	P-508S
Trichloronate	327-98-0	NEAT	P-127N
		MeOH	P-127S
2,4,6-Trichlorophenol	88-06-2	NEAT	P-1006N
		MeOH	P-1006S
3,5,6-Trichloro-2-pyridinol	6515-38-4	NEAT	P-626N
		MeOH	P-626S
Trichloropyrphos	see Dursban		
Triclopyr ◗	55335-06-3	NEAT	P-289N
		MeOH	P-289S
		AcCN	P-289S-CN
Triclopyr-2-butoxy ethyl ester	64700-56-7	NEAT	P-703N
		AcCN	P-703S-CN
Triclopyr methyl ester		MeOH	P-291S
Tricresyl phosphate	1330-78-5	NEAT	P-209N
		MeOH	P-209S
Tricyclazole	41814-78-2	NEAT	P-090N
		MeOH	P-090S
Tridemorph	24602-86-6	NEAT	P-307N
		MeOH	P-307S
Trietazine	1912-26-1	NEAT	P-492N
		MeOH	P-492S
Triethylphosphate	78-40-0	NEAT	P-335N
		MeOH	P-335S
o,o,o-Triethylphosphorothioate	126-68-1	NEAT	P-172N
		MeOH	P-172S
Trifene	see Fenatrol		
Trifenmorph	1420-06-0	NEAT	P-300N
		MeOH	P-300S
Trifloxystrobin	141517-21-7	NEAT	P-867N
		AcCN	P-867S-CN
Triflumizole	68694-11-1	AcCN	P-479S-CN
Triflumuron	64628-44-0	NEAT	P-689N
		MeOH	P-689S
Trifluralin	1582-09-8	NEAT	P-197N
		MeOH	P-197S
Triflusulfuron-methyl	126535-15-7	NEAT	P-840N
		AcCN	P-840S-CN
Triforine	26644-46-2	NEAT	P-308N
		MeOH	P-308S
2,3,5-Triiodobenzoic acid ◗	88-82-4	NEAT	P-507N
		MeOH	P-507S
		AcCN	P-507S-CN
2,3,5-Trimethacarb	2655-15-4	NEAT	P-515N
		MeOH	P-515S
3,4,5-Trimethacarb	2686-99-9	NEAT	P-516N
		MeOH	P-516S
Trimethyl phosphate	512-56-1	NEAT	P-210N
		MeOH	P-210S
Trimethylsulfonium iodide	2181-42-2	NEAT	P-1016N
		MeOH	P-1016S
Trimidal	63284-71-9	NEAT	P-422N
		MeOH	P-422S
Trinexapac-ethyl	95266-40-3	NEAT	P-1034N
		MeOH	P-1034S
Triphenylphosphate	115-86-6	NEAT	P-192N
		MeOH	P-192S
Triphenyltin chloride	639-58-7	NEAT	P-526N
		MeOH	P-526S
Trithion	see Carbophenothion		
Triticonazole	131983-72-7	10 µg/mL Isooctane	P-868S-TP-0.1X
Trucidor	see Vamidithion		
Tugon	see Trichlorfon		
Tupersan	see Siduron		
Unden	see Baygon		

Most at Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Pesticides

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Uniconazole NEW	83657-22-1	AcCN	P-1092S-CN ❄
Urab	see Fenuron-TCA		
Urox	see Monuron TCA		
Ustilan	see Ethidimuron		
Vacor	53558-25-1	NEAT	P-240N
		MeOH	P-240S
Vamidothion	2275-23-2	NEAT	P-350N
		MeOH	P-350S ❄
Vamidoate	see Vamidothion		
Vancide 89	see Captan		
Vandyke 264	see MGK 264		
Vanicide-20S		NEAT	P-073N
		MeOH	P-073S
Vapona	see Dichlorvos		
Vapotone	see TEPP		
Vegadex	see Sulfallate		
Velpar	see Hexazinone		
Vernam	see Vernolate		
Vernolate	1929-77-7	NEAT	P-111N
		MeOH	P-111S
Vinclozolin	50471-44-8	NEAT	P-122N
		MeOH	P-122S
Warbex	see Famphur		
Warfarin	81-81-2	NEAT	P-076N
		MeOH	P-076S
Waylay	see Napropamide		
Weedol	see Paraquat CL		
Weedone	see 2,4,5-T acid		
XMC NEW	2655-14-3	NEAT	P-1085N
		MeOH	P-1085S
Zectran	see Mexacarbate		
Zerlate	see Ziram		
Zinc phosphide	1314-84-7	NEAT	P-527N
Zineb	12122-67-7	NEAT	P-098N
Zinophos	see Thionazin		
Ziram	137-30-4	NEAT	P-324N
		MeOH	P-324S
Zolone	see Phosalone		
Zoxamide NEW	156052-68-5	AcCN	P-970S-CN ❄

❄ ColdPAK required to maintain integrity of product.

EXACT WEIGHT for Neat Pesticides

Listed Catalog neat products are overfilled approximately 10%, however, pesticides can be provided with **EXACT WEIGHT**. Specify EXACT WEIGHT by ordering **X-WT** and the exact weight is noted on the product label. There is an additional charge for this service. Rinse the pesticide out of the vial with the appropriate amount of solvent to get a weight/volume standard and calculate the concentration.

Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.

Pesticides and Herbicides
Kits & Mixtures

Pesticide Kits and Mixtures

Neat Pesticide Kit
Z-004-SET * **set of 20 x 10 mg**

- Aldrin (01)
- α-BHC (02)
- β-BHC (03)
- δ-BHC (04)
- o,p'-DDD (05)
- p,p'-DDD (06)
- o,p'-DDE (07)
- p,p'-DDE (08)
- o,p'-DDT (09)
- p,p'-DDT (10)
- Dieldrin (11)
- Heptachlor (12)
- Heptachlor epoxide (Isomer B) (13)
- Lindane *(γ-BHC)* (14)
- Malathion (15)
- Methoxychlor (16)
- Mirex (17)
- Parathion (18)
- Carbaryl (19)
- Toxaphene (20)

Pesticide (Solid Waste) Kit
Z-017-SET **set of 6 x 10 mg**

- 2,4-Dichlorophenoxyacetic acid *(2,4-D acid)*
- Endrin
- Lindane
- Methoxychlor
- Silvex
- Toxaphene

Pesticide Mixture for Evaluating GC Columns
M-100 **1 x 1 mL**
At stated conc. in Isooctane 13 comps.

Aldrin	(0.050 µg/mL)	p,p'-DDT	(0.260 µg/mL)
α-BHC	(0.025 µg/mL)	Dieldrin	(0.120 µg/mL)
β-BHC	(0.100 µg/mL)	Endrin	(0.200 µg/mL)
o,p'-DDD	(0.200 µg/mL)	Heptachlor	(0.025 µg/mL)
p,p'-DDD	(0.190 µg/mL)	Heptachlor epoxide (Isomer B)	(0.080 µg/mL)
p,p'-DDE	(0.100 µg/mL)		
o,p'-DDT	(0.225 µg/mL)	Lindane *(γ-BHC)*	(0.025 µg/mL)

Technical Note

Designed for evaluating the ability of a column to separate pesticides and their degradation products.

Pesticides in Solutions (Individual and Kits)

Compound (in Isooctane)	Conc.	Cat. No.
Aldrin	200 ng/µL	P-002S-1
	2 ng/µL	P-002S-2
Chlordane	200 ng/µL	P-017S-1
	2 ng/µL	P-017S-2
2,4-D methyl ester	200 ng/µL	P-021S-1
p,p'-DDE	200 ng/µL	P-027S-1
	2 ng/µL	P-027S-2
p,p'-DDT	200 ng/µL	P-029S-1
	2 ng/µL	P-029S-2
Dieldrin	200 ng/µL	P-037S-1
	2 ng/µL	P-037S-2
Endrin	200 ng/µL	P-045S-1
	2 ng/µL	P-045S-2
Heptachlor	200 ng/µL	P-053S-1
	2 ng/µL	P-053S-2
Lindane	200 ng/µL	P-059S-1
	2 ng/µL	P-059S-2
Methoxychlor	200 ng/µL	P-064S-1
	2 ng/µL	P-064S-2
Silvex methyl ester	200 ng/µL	P-115S-1
Toxaphene	200 ng/µL	P-093S-1

Set of above 21 pesticides (21 x 1 mL) Z-023-SET
At stated concentrations

Technical Note

Convenient concentrations in isooctane for use with different GC detectors. The concentrated solutions are suited for FID & TC detectors. The diluted solutions are suited for EC detectors.

* V-Rated packaging surcharge applies for international shipments

Herbicide Kit and Mixtures

Herbicide Kit
Z-031-SET **set of 15 x 1 mL**
0.1 mg/mL in MeOH Individual Standards

- Atrazine (01)
- Dicamba (02)
- Benfluralin (03)
- Bentazon (04) *
- Dacthal (05)
- Dichlobenil (06)
- Diuron (07)
- Metolachlor (08)
- Prometryn (09)
- Prometone (10)
- Propanil (11)
- Propazine (12)
- Simazine (13)
- Tebuthiuron (14)
- Trifluralin (15)

* *in Acetone*

Herbicide Mix #1
M-HERB-1 **1 x 1 mL**
0.1 mg/mL each in EtOAc 13 comps.

- Atrazine
- Bromacil
- Cycloate
- Eptam
- Isopropalin
- Hexazinone
- Molinate
- Oxyfluorfen
- Sencor
- Sutan
- Terbacil
- Tillam
- Trifluralin

Herbicide Mix #2
M-HERB-2 **1 x 1 mL**
0.1 mg/mL each in EtOAc 9 comps.

- Benfluralin
- Metolachlor
- Oxadiazon
- Propachlor
- Propazine
- Prowl
- Simazine
- Tolban
- Vernam

Neats at 10 mg. Solutions at 100 µg/mL in MeOH, except -MC (in Methyl cellosolve)

Triazines and Metabolites

Compound	CAS No.	Neat Cat. No.	10 mg	Solution Cat. No.	1 mL
2,4-bis(Ethylamino)-6-diethylamino-s-triazine		P-536N		P-536S-MC	
2-Chloro-4-ethylamino-6-propylamino-s-triazine	90952-64-0	P-537N		P-537S-MC	
2,4-Dichloro-6-ethylamino-s-triazine		P-538N		P-538S-MC	
2-Chloro-4-ethylamino-6-methylethylamino-s-triazine		P-539N		P-539S-MC	
2-Chloro-4-methylamino-6-sec-butylamino-s-triazine		P-540N		P-540S-MC	
2-Chloro-4-methylamino-6-diethylamino-s-triazine		P-541N		P-541S-MC	
3-(2,3-Dichlorophenyl)-1,1-dimethylurea	10290-37-6	P-632N		P-632S	
Atrazine-desethyl-2-hydroxy (4-Amino-2-hydroxy-6-isopropylamino-s-triazine)	19988-24-0	----------	----	P-544S-MC	
Desethyl atrazine	6190-65-4	P-343N		P-343S	
Atrazine-desisopropyl	1007-28-9	P-345N		P-345S	
Atrazine-desisopropyl-2-hydroxy	7313-54-4	P-344N		P-344S-MC	
Atrazine	1912-24-9	P-005N		P-005S	
Ametryn	834-12-8	P-003N		P-003S	
Cyanazine	21725-46-2	P-175N		P-175S	
Gesatamine	1610-17-9	P-189N		P-189S	
2-Hydroxyatrazine	2163-68-0	----------	----	P-326S-MC	
Imazethapyr	81335-77-5	----------	----	P-285S	
2-Isopropylamino-4,6-dichloro-s-triazine		P-635N		P-635S	
2-Monuron		P-633N		P-633S	
Prometryne	7287-19-6	P-078N		P-078S	
Propazine	139-40-2	P-079N		P-079S	
Prometon	1610-18-0	P-077N		P-077S	
Sebuthylazin	7286-69-3	P-432N		P-432S	
Simazine	122-34-9	P-085N		P-085S	
Terbuthylazine	5915-41-3	P-169N		P-169S	

Phenylurea Pesticide Mixtures

Phenylurea Pesticide Mixture

PES-PU-001 **1 x 1 mL**
PES-PU-001-PAK ***SAVE*** **5 x 1 mL**
200 µg/mL each in AcCN:Acetone 8 comps.

- Diflubenzuron
- Diuron
- Fluometuron
- Linuron
- Propanil
- Siduron
- Tebuthiuron
- Thidiazuron

Phenylurea Surrogate Mixture

PES-PU-SS **1 x 1 mL**
PES-PU-SS-PAK ***SAVE*** **5 x 1 mL**
500 µg/mL each in MeOH:AcCN 2 comps.

- Carbazole
- Monuron

Honeybee Colony Collapse Disorder (CCD)

Neonicotinoids and Fipronils (CCD) UPDATE

On-going research into honeybee colony collapse disorder (CCD) has revealed that this group of pesticides may be a contributing factor which, may be solely responsible or working synergistically contributing to honeybee decline. Included in this group are the **Neonicotinoid pesticides**. **Fipronil and Fipronil metabolites** also have been suspected as possible causative agents.

Neonicotinoids

Compound	CAS	NEAT Cat. No.	Unit	SOLUTION Cat. No.	100 µg/mL Solvent	Unit
Acetamiprid	135410-20-7	P-820N	10 mg	P-820S-CN	AcCN	1 mL
6-Chloropyridine-3-carboxylic acid **NEW**	5326-23-8	P-1267N	10 mg	P-1267S	MeOH	1 mL
Clothianidin	210880-92-5	P-947N	10 mg	P-947S	MeOH	1 mL
n-Desmethylthiamethoxam **NEW**	171103-04-1	-----	--------	P-1266S	MeOH	1 mL
Dinotefuran	165252-70-0	-----	--------	P-986S-CN	AcCN	1 mL
Furathiocarb	65907-30-4	P-569N	10 mg	P-569S	MeOH	1 mL
6-Hydroxypyridine-3-carboxylic acid **NEW**	5006-66-6	P-1226N	10 mg	P-1226S	MeOH	1 mL
Imidaclorid	138261-41-3	P-596N	10 mg	P-596S	MeOH	1 mL
2-Imidazolidone **NEW**	120-93-4	P-1224N	10 mg	P-1224S	MeOH	1 mL
Nitenpyram	120738-89-8	P-858N	10 mg	P-858S-CN	AcCN	1 mL
Sulfoxaflor	946578-00-3	-----	--------	P-1133S	MeOH	1 mL
Thiacloprid	111988-49-9	P-838N	10 mg	P-838S-CN	AcCN	1 mL
Thiacloprid-amide **NEW**	676228-91-4	P-1223N	10 mg	P-1223S	MeOH	1 mL
Thiamethoxam	153719-23-4	P-866N	10 mg	P-866S-CN	AcCN	1 mL

Fipronils

Fipronil	120068-37-3	P-738N	10 mg	P-738S ❄	MeOH	1 mL
				P-738S-A ❄	Acetone	1 mL
Fipronil desulfinyl	205650-65-3	-----	--------	P-782S-A ❄	Acetone	1 mL
Fipronil sulfide	120067-83-6	P-781N-5MG	5 mg	P-781S-A ❄	Acetone	1 mL
Fipronil sulfone	120068-36-2	-----	--------	P-780S-A ❄	Acetone	1 mL
Fipronil and Metabolite Kit				**P-FIP-MET-KIT** ❄ P-738S-A,P-782S-A,P-781S-A,P-780S-A		**4 x 1 mL**

❄ ColdPAK required to maintain integrity of product.

Technical Note

Fipronil is in the phenyl pyrazole class of pesticides. It is a broad-spectrum insecticide used in many different applications. It is used in many commercial topical flea and tick treatments for cats and dogs. Fipronil is used in these types of applications because it is not readily absorbed through the skin, and has a comparatively low toxicity if ingested.

Fipronil produces three notable metabolites: Fipronil Sulfide, Fipronil Sulfone and Fipronil Desulfinyl. These metabolites form under different conditions, and are of particular interest, because unlike the parent compound, they can be more toxic and environmentally persistent.

Volatile Organic Compounds (VOCs)

Volatile Organic Chemicals (VOCs) are generally classified as compounds that under normal ambient conditions can vaporize. This group includes aldehydes, ketones, as well as some light aromatic and straight chain hydrocarbons.

VOCs can enter the environment through many different routes. Many solvents, cleaners, paint thinners, dry cleaning solvents, and degreasers used both in industry and homes contain these compounds. Although not usually water soluble, if these compounds are released to the environment, they can still be found as contaminants in air, soil, as well as waste and drinking water.

EPA Volatile Methods:

502 Volatiles (PID/ELCD), Volatile Surrogates & ISTDs
503 VOC - Aromatics & Alkenes (PID/ELCD)
504 EDB & DBCP (ECD)
524 Volatiles (GC/MS)
551 Chlorinated Solvents, Trihalomethanes
556 Carbonyl Compounds (GC/ECD)
601 Purgeable Halocarbons (ELCD)
602 Purgeable Aromatics (PID)
603 Acrolein & Acrylonitrile (FID)
624 Purgeable Volatiles (GC/MS)
1666 PMI Volatiles (GC/MS)
8010 Halogenated Volatiles (ELCD)
8011 EDB & DBCP (GC/MS)
8015B Non Halogenated Organics (GC/FID)
8020 Aromatic Volatiles (PID)
8021 Halogenated Volatiles PID/ELCD
8030 Acrolein & Acrylonitrile (GC/FID)
8031 Acrylonitrile (GC/NPD)
8032 Acrylamide (GC/ECD)
8033 Acetonitrile (NPD)

Neats are as stated, Solutions are 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
Acetonitrile 75-05-8	100 µg/mL	MeOH	APP-9-005
	10 mg/mL	Water	M-8015B/5031-02
	1 mg/mL	Water	M-8033
	1 mg/mL	MeOH	APP-9-005-10X
	5 mg/mL	MeOH	APP-9-005-50X
	5 mg/mL	IPA	AS-E0473
Acrylamide 79-06-1	1 mg/mL	MeOH	M-8032
Acrylonitrile 107-13-1	100 µg/mL	MeOH	APP-9-008
	10 mg/mL	Water	M-8015B/5031-04
	1 mg/mL	MeOH	APP-9-008-10X
	10 mg/mL	MeOH	AS-E0003
Allyl chloride 107-05-1	100 µg/mL	MeOH	APP-9-010
	2 mg/mL	MeOH	APP-9-010-20X
	1 mg/mL	MeOH	AS-E0476
n-Amylbenzene 538-68-1	100 mg	NEAT	V-001
Azobenzene 103-33-3	2 mg/mL	CH_2Cl_2	Z-014B-1
Benzene 71-43-2	1 gram	NEAT	M-502-01N
	100 µg/mL	MeOH	APP-9-015
	1 mg/mL	MeOH	AS-E0004
	0.2 mg/mL	MeOH	M-502-01
	2 mg/mL	MeOH	M-502-01-10X
Benzene-d_6 1076-43-3	0.2 mg/mL	MeOH	M-624-SS-01
	2 mg/mL	MeOH	M-624-SS-01-10X
Benzyl chloride 100-44-7	0.2 mg/mL	MeOH	M-8010-01
	5 mg/mL	AcCN	AS-E0169
2-Bromo-1-chloropropane 3017-95-6	20 mg/mL	MeOH	M-001R-3
	0.2 mg/mL	MeOH	M-624-SS-04
1-Bromo-2-nitrobenzene 577-19-5	1 mg/mL	Acetone	M-8081-IS-DC
Bromobenzene 108-86-1	1 gram	NEAT	M-502-02N
	5 mg/mL	MeOH	AS-E0406
	0.2 mg/mL	MeOH	M-502-02
	2 mg/mL	MeOH	M-502-02-10X
Bromochloroacetonitrile 83463-62-1	1 mg/mL	Acetone	AS-E1186
	5 mg/mL	Acetone	M-551B-1
2-Bromochlorobenzene 694-80-4	0.2 mg/mL	MeOH	M-624-SS-12
4-Bromochlorobenzene 106-39-8	2 mg/mL	MeOH	M-8020-SS-1
Bromochloromethane 74-97-5	100 mg	NEAT	K-007N
	1 gram	NEAT	M-502-03N
	10 mg/mL	MeOH	AS-E0136
	0.2 mg/mL	MeOH	M-502-03
	2 mg/mL	MeOH	M-502-03-10X
p-Bromofluorobenzene 460-00-4	25 µg/mL	MeOH	CLP-004
	250 µg/mL	MeOH	CLP-004-10X
	0.15 mg/mL	MeOH	AS-E0233
	25 mg/mL	MeOH	CLP-004-1000X
	2.5 mg/mL	MeOH	CLP-004-100X
	2 mg/mL	MeOH	CLP-004-80X
	0.2 mg/mL	MeOH	M-624-SS-03
	2 mg/mL	MeOH	M-624-SS-03-10X
	100 µg/mL	Acetone	M-551.1-IS
	10 mg/mL	Acetone	M-551.1-IS-100X
Bromoform 75-25-2	1 gram	NEAT	M-502-05N
	0.2 mg/mL	MeOH	M-502-05
	2 mg/mL	MeOH	M-502-05-10X
	5 mg/mL	MeOH	AS-E0212
Bromomethane 74-83-9	100 µg/mL	MeOH	APP-9-032
	0.2 mg/mL	MeOH	M-502-06
	2 mg/mL	MeOH	M-502-06-10X

Compound	Conc.	Matrix	Cat. No.
Bromotrichloromethane 75-62-7	100 mg	NEAT	K-009N
1,3-Butadiene 106-99-0	0.2 mg/mL	MeOH	S-406A
	2 mg/mL	MeOH	S-406A-10X
n-Butylbenzene 104-51-8	100 mg	NEAT	V-002
	1 gram	NEAT	M-502-07N
	5 mg/mL	MeOH	AS-E1105
	0.2 mg/mL	MeOH	M-502-07
	2 mg/mL	MeOH	M-502-07-10X
iso-Butylbenzene 538-93-2	100 mg	NEAT	V-003
sec-Butylbenzene 135-98-8	100 mg	NEAT	V-004
	1 gram	NEAT	M-502-08N
	5 mg/mL	MeOH	AS-E1104
	0.2 mg/mL	MeOH	M-502-08
	2 mg/mL	MeOH	M-502-08-10X
tert-Butylbenzene 98-06-6	1 gram	NEAT	M-502-09N
	5 mg/mL	MeOH	AS-E1106
	0.2 mg/mL	MeOH	M-502-09
	2 mg/mL	MeOH	M-502-09-10X
Carbon disulfide 75-15-0	100 µg/mL	MeOH	APP-9-035
	2 mg/mL	MeOH	APP-9-035-20X
	5 mg/mL	MeOH	AS-E0363
Carbon tetrabromide 558-13-4	100 mg	NEAT	K-006N
Carbon tetrachloride 56-23-5	100 mg	NEAT	K-003N
	1 gram	NEAT	M-502-10N
	100 µg/mL	MeOH	APP-9-036
	5 mg/mL	MeOH	AS-E0360
	0.2 mg/mL	MeOH	M-502-10
	2 mg/mL	MeOH	M-502-10-10X
Chloral hydrate 302-17-0	1 mg/mL	MeOH	M-E-1179-M ❄
	1 mg/mL	Acetone	AS-E1179
	5 mg/mL	Acetone	M-551B-2
1-Chloro-2-fluorobenzene 348-51-6	2 mg/mL	MeOH	S-163
1-Chloro-3-nitrobenzene 121-73-3	1 mg/mL	Acetone	M-8091-SS-100X
1-Chloro-4-fluorobenzene 352-33-0	0.2 mg/mL	MeOH	M-624-SS-13
Chlorobenzene 108-90-7	100 mg	NEAT	A-001
	1 gram	NEAT	M-502-11N
	100 µg/mL	MeOH	APP-9-039
	1 mg/mL	MeOH	AS-E0006
	0.2 mg/mL	MeOH	M-502-11
	2 mg/mL	MeOH	M-502-11-10X
Chlorobenzene-d_5 3114-55-4	5 mg/mL	MeOH	CLP-PI-3-5X
Chloroethane 75-00-3	100 µg/mL	MeOH	APP-9-042
	1 mg/mL	MeOH	AS-E0015
	0.2 mg/mL	MeOH	M-502-12
	2 mg/mL	MeOH	M-502-12-10X
bis(2-Chloroethoxy)methane 111-91-1	100 µg/mL	CH_2Cl_2	APP-9-026
	1 mg/mL	MeOH	APP-9-026-M-10X
	5 mg/mL	MeOH	AS-E0041
Chloroform 67-66-3	1 gram	NEAT	M-502-13N
	0.2 mg/mL	MeOH	M-502-13
	2 mg/mL	MeOH	M-502-13-10X
1-Chlorohexane 544-10-5	0.2 mg/mL	MeOH	M-8010R-1-04
	2 mg/mL	MeOH	M-8010R-1-04-10X
Chloromethane 74-87-3	100 µg/mL	MeOH	APP-9-044
	0.2 mg/mL	MeOH	M-502-14
	2 mg/mL	MeOH	M-502-14-10X

❄ ColdPAK required to maintain integrity of product.

Volatile Organic Compounds (VOCs)

Neats are as stated, Solutions are 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
Chloroprene 126-99-8	100 µg/mL	MeOH	APP-9-048-R1
	200 µg/mL	MeOH	APP-9-048-R1-2X
	1 mg/mL	MeOH	APP-9-048-R1-10X
	2.0 mg/mL	MeOH	APP-9-048-R1-20X
3-Chloropropionitrile 542-76-7	1 mg/mL	MeOH	AS-E0375
2-Chlorotoluene 95-49-8	1 gram	NEAT	M-502-15N
	0.2 mg/mL	MeOH	M-502-15
	2 mg/mL	MeOH	M-502-15-10X
	5 mg/mL	MeOH	AS-E0150
3-Chlorotoluene 108-41-8	5 mg/mL	MeOH	AS-E0151
4-Chlorotoluene 106-43-4	1 gram	NEAT	M-502-16N
	0.2 mg/mL	MeOH	M-502-16
	2 mg/mL	MeOH	M-502-16-10X
Cyclohexane 110-82-7	1 gram	NEAT	TK-102-08N
	2 mg/mL	MeOH	TK-102-08S-10X
Decylbenzene 104-72-3	100 mg	NEAT	V-005
Diallate 2303-16-4	1 mg/mL	AcCN	AS-E0623
1,2-Dibromochloromethane 124-48-1	1 gram	NEAT	M-502-17N
	0.2 mg/mL	MeOH	M-502-17
	2 mg/mL	MeOH	M-502-17-10X
1,2-Dibromo-3-chloropropane 96-12-8	1 gram	NEAT	M-502-18N
	0.2 mg/mL	MeOH	M-502-18
	2 mg/mL	MeOH	M-502-18-10X
	5 mg/mL	MeOH	AS-E0993
Dibromoacetonitrile 3252-43-5	5 mg/mL	Acetone	M-551B-4
1,2-Dibromoethane 106-93-4	1 gram	NEAT	M-502-19N **
	100 µg/mL	MeOH	APP-9-214
	0.2 mg/mL	MeOH	M-502-19
	2 mg/mL	MeOH	M-502-19-10X
	5 mg/mL	MeOH	AS-E0171
Dibromofluoromethane 1868-53-7	0.2 mg/mL	MeOH	M-8260-SS-2
	2 mg/mL	MeOH	M-8260-SS-2-10X
Dibromomethane 74-95-3	100 mg	NEAT	K-004N
	1 gram	NEAT	M-502-20N
	100 µg/mL	MeOH	APP-9-062
	0.2 mg/mL	MeOH	M-502-20
	2 mg/mL	MeOH	M-502-20-10X
	5 mg/mL	MeOH	AS-E1097
a,a-Dibromo-m-xylene 626-15-3	1 mg/mL	Acetone	M-8081-IS-X
1,2-Dibromopropane 78-75-1	5 mg/mL	MeOH	M-552-IS
	10 mg/mL	Hexane	M-556-IS
1,2-Dibromo-1,1,2,2-tetrafluoroethane 124-73-2	1000 µg/mL	MeOH	AS-E0463
2,3-Dichloro-1-propene 78-88-6	4.2 mg/mL	MeOH	AS-E0170
trans-1,4-Dichloro-2-butene 110-57-6	100 µg/mL	MeOH	APP-9-068
	2 mg/mL	MeOH	APP-9-068-20X
Dichloroacetonitrile 3018-12-0	5 mg/mL	Acetone	M-551B-5
1,2-Dichlorobenzene 95-50-1	100 mg	NEAT	A-002
	1 gram	NEAT	M-502-21N
	100 µg/mL	MeOH	APP-9-064
	0.2 mg/mL	MeOH	M-502-21
	2 mg/mL	MeOH	M-502-21-10X
	5 mg/mL	MeOH	AS-E0023
	2.0 mg/mL	Hexane	M-8120-02
1,2-Dichlorobenzene-d_4 2199-69-1	0.15 mg/mL	MeOH	AS-E0776
	0.2 mg/mL	MeOH	M-624-SS-11
	2 mg/mL	MeOH	M-624-SS-11-10X
1,3-Dichlorobenzene 541-73-1	100 mg	NEAT	A-003
	1 gram	NEAT	M-502-22N
	100 µg/mL	MeOH	APP-9-065
	0.2 mg/mL	MeOH	M-502-22
	1 mg/mL	MeOH	AS-E0214
	2 mg/mL	MeOH	M-502-22-10X
	2.0 mg/mL	Hexane	M-8120-03
1,4-Dichlorobenzene 106-46-7	100 mg	NEAT	A-004
	1 gram	NEAT	M-502-23N
	100 µg/mL	MeOH	APP-9-066
	0.2 mg/mL	MeOH	M-502-23
	2 mg/mL	MeOH	M-502-23-10X
	5 mg/mL	MeOH	AS-E0025
	0.2 mg/mL	Acetone	M-8151-IS-2
	2.0 mg/mL	Hexane	M-8120-04
1,4-Dichlorobenzene-d_4 3855-82-1	2 mg/mL	MeOH	Z-014J-3-M-0.5X
	4 mg/mL	CH_2Cl_2	Z-014J-3
Dichlorobromomethane 75-27-4	100 mg	NEAT	M-502-04N
	0.2 mg/mL	MeOH	M-502-04
	2 mg/mL	MeOH	M-502-04-10X
	5 mg/mL	MeOH	AS-E0046
1,4-Dichlorobutane 110-56-5	0.2 mg/mL	MeOH	M-624-SS-05
	20 mg/mL	MeOH	M-001R-2
1,4-Dichlorobutane-d_8 83547-96-0	0.15 mg/mL	MeOH	AS-E0196
Dichlorodifluoromethane 75-71-8	100 µg/mL	MeOH	APP-9-069
	5000 µg/mL	MeOH	AS-E0346
	0.2 mg/mL	MeOH	M-502-24
	2 mg/mL	MeOH	M-502-24-10X
1,1-Dichloroethane 75-34-3	1 gram	NEAT	M-502-25N
	100 µg/mL	MeOH	APP-9-070
	0.2 mg/mL	MeOH	M-502-25
	1 mg/mL	MeOH	AS-E0012
	2 mg/mL	MeOH	M-502-25-10X
1,2-Dichloroethane 107-06-2	1 gram	NEAT	M-502-26N
	100 µg/mL	MeOH	APP-9-071
	1 mg/mL	MeOH	AS-E0009
	0.2 mg/mL	MeOH	M-502-26
	2 mg/mL	MeOH	M-502-26-10X
1,2-Dichloroethane-d_4 17060-07-0	0.2 mg/mL	MeOH	M-624-SS-06
	2.0 mg/mL	MeOH	M-624-SS-06-10X
1,1-Dichloroethene 75-35-4	1 gram	NEAT	M-502-27N
	100 µg/mL	MeOH	APP-9-072
	0.2 mg/mL	MeOH	M-502-27
	2 mg/mL	MeOH	M-502-27-10X
cis-1,2-Dichloroethene 156-59-2	1 gram	NEAT	M-502-28N
	0.2 mg/mL	MeOH	M-502-28
	2 mg/mL	MeOH	M-502-28-10X
	10 mg/mL	MeOH	AS-E0173
trans-1,2-Dichloroethene 156-60-5	1 gram	NEAT	M-502-29N
	100 µg/mL	MeOH	APP-9-073
	0.2 mg/mL	MeOH	M-502-29
	1 mg/mL	MeOH	AS-E0028
	2 mg/mL	MeOH	M-502-29-10X
Dichlorofluoromethane 75-43-4	0.2 mg/mL	MeOH	M-502-61
	2 mg/mL	MeOH	M-502-61-10X
Dichloromethane 75-09-2	100 mg	NEAT	K-001N
	1 gram	NEAT	M-502-39N
	100 µg/mL	MeOH	APP-9-074
	0.2 mg/mL	MeOH	M-502-39
	2 mg/mL	MeOH	M-502-39-10X
1,2-Dichloropropane 78-87-5	1 gram	NEAT	M-502-30N
	100 µg/mL	MeOH	APP-9-077
	0.2 mg/mL	MeOH	M-502-30
	1 mg/mL	MeOH	AS-E0030
	2 mg/mL	MeOH	M-502-30-10X
1,3-Dichloropropane 142-28-9	1 gram	NEAT	M-502-31N
	0.2 mg/mL	MeOH	M-502-31
	2 mg/mL	MeOH	M-502-31-10X
	5 mg/mL	MeOH	AS-E1109
2,2-Dichloropropane 594-20-7	1 gram	NEAT	M-502-32N
	0.2 mg/mL	MeOH	M-502-32
	2 mg/mL	MeOH	M-502-32-10X
	5 mg/mL	MeOH	AS-E1167
1,3-Dichloropropene (cis/trans) 542-75-6	1 gram	NEAT	M-502-34N
	0.2 mg/mL	MeOH	M-502-34
	0.4 mg/mL	MeOH	M-502-34-R
	4 mg/mL	MeOH	M-502-34-R-10X
1,1-Dichloropropene 563-58-6	0.2 mg/mL	MeOH	M-502-33
	2 mg/mL	MeOH	M-502-33-10X
cis-1,3-Dichloropropene 10061-01-5	100 µg/mL	MeOH	APP-9-078
trans-1,3-Dichloropropene 10061-02-6	100 µg/mL	MeOH	APP-9-079
1,3-Dichloropropylene (cis & trans)	5 mg/mL	MeOH	AS-E0218

❄ ColdPAK required to maintain integrity of product.

** This product can not ship by air.

Volatile Organic Compounds (VOCs)

Neats are as stated, Solutions are 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
1,1-Dichloro-1-propylene 563-58-6	5 mg/mL	MeOH	AS-E1166
2,4-Dichlorotoluene 95-73-8	5 mg/mL	MeOH	AS-E0149
1,2:3,4-Diepoxybutane 1464-53-5	1 mg/mL	AcCN	AS-E0577
1,4-Diethylbenzene 105-05-5	100 mg	NEAT	V-008
	100 µg/mL	Isooctane	M-GRA-ST
m-Diethylbenzene 141-93-5	100 mg	NEAT	V-007
o-Diethylbenzene 135-01-3	100 mg	NEAT	V-006
1,4-Difluorobenzene 540-36-3	0.2 mg/mL	MeOH	M-624-SS-07
	2 mg/mL	MeOH	M-624-SS-07-10X
Dimethyl sulfate 77-78-1	1 mg/mL	AcCN	AS-E0389
1,3-Dimethyl-2-nitrobenzene 81-20-9	0.2 mg/mL	MtBE	M-507-SS
1,3-Dinitrobenzene 99-65-0	100 µg/mL	CH_2Cl_2	APP-9-089
	1 mg/mL	CH_2Cl_2	APP-9-089-10X
	5 mg/mL	MeOH	AS-E0527
2,5-Dinitrotoluene 619-15-8	100 µg/mL	AcCN	M-8095-SS-03
3,4-Dinitrotoluene 610-39-9	100 µg/mL	AcCN	M-8095-SS-01
Dodecylbenzene 123-01-3	100 mg	NEAT	V-009
Epichlorohydrin 106-89-8	5 mg/mL	AcCN	AS-E0258
1,2-Epoxybutane 106-88-7	5 mg/mL	AcCN	AS-E0286
1,2-Epoxypropane(Propylene oxide) 75-56-9	1 mg/mL	AcCN	AS-E0308
Ethyl acetate 141-78-6	10 mg/mL	Water	M-8015B/5031-12
Ethyl methacrylate 97-63-2	100 µg/mL	MeOH	APP-9-105
	1 mg/mL	MeOH	AS-E0687
Ethyl methanesulfonate 62-50-0	100 µg/mL	CH_2Cl_2	APP-9-106
	1 mg/mL	AcCN	AS-E0456
Ethylbenzene 100-41-4	1 gram	NEAT	M-502-35N
	100 µg/mL	MeOH	APP-9-104
	0.2 mg/mL	MeOH	M-502-35
	2 mg/mL	MeOH	M-502-35-10X
	10 mg/mL	MeOH	AS-E0036
Ethylbenzene-d_{10} 25837-05-2	0.2 mg/mL	MeOH	M-624-SS-08
Ethylene glycol 107-21-1	2 mg/mL	Water	D-4291-93
Ethylene oxide 75-21-8	0.2 mg/mL	Isooctane	S-354-2
	5 mg/mL	Water	M-8015B/5031-14-R1 ❄
m-Ethyltoluene 620-14-4	100 mg	NEAT	V-031
o-Ethyltoluene 611-14-3	100 mg	NEAT	V-010
p-Ethyltoluene 622-96-8	100 mg	NEAT	V-011
2-Fluoroacetamide 640-19-7	5 mg/mL	AcCN	AS-E0299
Fluorobenzene 462-06-6	0.15 mg/mL	MeOH	AS-E0232
	0.2 mg/mL	MeOH	M-624-SS-09
	2 mg/mL	MeOH	M-524-IS-2
	20 mg/mL	MeOH	M-524-IS-2-10X
Fluorotrichloromethane 75-69-4	5 mg/mL	MeOH	AS-E0047
Heptadecylbenzene 14752-75-1	100 mg	NEAT	V-014
Heptylbenzene 1078-71-3	100 mg	NEAT	V-012
Hexachlorobenzene 118-74-1	100 mg	NEAT	A-012
	100 µg/mL	MeOH	APP-9-112
	1 mg/mL	Acetone	M-8091-IS-20X
	2 mg/mL	CH_2Cl_2	APP-9-112-D-20X
	2.0 mg/mL	Hexane	M-8120-05
Hexachlorobutadiene 87-68-3	1 gram	NEAT	M-502-36N
	100 µg/mL	MeOH	APP-9-113
	0.2 mg/mL	MeOH	M-502-36
	2 mg/mL	MeOH	M-502-36-10X
	5 mg/mL	MeOH	AS-E0050
	2.0 mg/mL	Hexane	M-8120-06
Hexachlorocyclopentadiene 77-47-4	100 µg/mL	MeOH	APP-9-114
	1 mg/mL	MeOH	APP-9-114-10X
	2.0 mg/mL	Hexane	M-8120-07
Hexachloroethane 67-72-1	100 µg/mL	MeOH	APP-9-115
	1 mg/mL	MeOH	AS-E0011
	2.0 mg/mL	Hexane	M-8120-08
Hexachlorophene 70-30-4	100 µg/mL	MeOH	APP-9-116
	2 mg/mL	CH_2Cl_2	APP-9-116-D-20X
	5 mg/mL	MeOH	AS-E0323
Hexachloropropene 1888-71-7	100 µg/mL	MeOH	APP-9-117
	1 mg/mL	MeOH	AS-E0364
Hexadecylbenzene 1459-09-2	100 mg	NEAT	V-015
Hexylbenzene 1077-16-3	100 mg	NEAT	V-013
Isopropylbenzene 98-82-8	1 gram	NEAT	M-502-37N
	0.2 mg/mL	MeOH	M-502-37
	2 mg/mL	MeOH	M-502-37-10X
p-Isopropyltoluene (p-Cymene) 99-87-6	1 gram	NEAT	M-502-38N
	5 mg/mL	MeOH	AS-E1108
	0.2 mg/mL	MeOH	M-502-38
	2 mg/mL	MeOH	M-502-38-10X
Methacrylonitrile 126-98-7	100 µg/mL	MeOH	APP-9-125
	1 mg/mL	MeOH	AS-E0686
Methyl 2,3-dibromopropionate 1729-67-5	1 mg/mL	MtBE	M-552.2-SS-ME
Methyl 2-bromopropionate 5445-17-0	1 mg/mL	MtBE	M-552.1-SS-ME
Methyl bromide 74-83-9	1 mg/mL	AcCN	AS-E0044
Methyl chloride 74-87-3	5 mg/mL	MeOH	AS-E0043
1-Methyl ethyl benzene 98-82-8	5 mg/mL	MeOH	AS-E0669
Methyl iodide 74-88-4	100 µg/mL	MeOH	APP-9-130
	2.0 mg/mL	MeOH	APP-9-130-20X
Methyl isothiocyanate 556-61-6	25 µg/mL	Acetone	M-1659-RPS
Methyl methacrylate 80-62-6	100 µg/mL	MeOH	APP-9-131
	1 mg/mL	MeOH	AS-E0439
	2 mg/mL	MeOH	APP-9-131-20X
Methyl methanesulfonate 66-27-3	100 µg/mL	CH_2Cl_2	APP-9-132
	1 mg/mL	AcCN	AS-E0431
Methylene chloride 75-09-2	1 mg/mL	MeOH	AS-E0042
Methylene chloride-d_2 1665-00-5	2 mg/mL	MeOH	M-502-IS-2-3
Naphthalene 91-20-3	1 gram	NEAT	M-502-40N
	2 mg/mL	MeOH	M-502-40-10X
Nitrobenzene 98-95-3	100 µg/mL	MeOH	APP-9-143
	1 mg/mL	MeOH	APP-9-143-10X
	5 mg/mL	MeOH	AS-E0054
Nitrobenzene-d_5 4165-60-0	0.2 mg/mL	CH_2Cl_2	M-625-13
	2.0 mg/mL	CH_2Cl_2	M-625-13-10X
Nonadecylbenzene 29136-19-4	100 mg	NEAT	V-018
Nonylbenzene 1081-77-2	100 mg	NEAT	V-017
Octadecylbenzene 4445-07-2	100 mg	NEAT	V-020
Octylbenzene 2189-60-8	100 mg	NEAT	V-019
Pentachlorobenzene 608-93-5	100 mg	NEAT	A-011
	100 µg/mL	MeOH	APP-9-173
	2.5 mg/mL	MeOH	AS-E0260
Pentachloroethane 76-01-7	100 µg/mL	MeOH	APP-9-174
	2.0 mg/mL	MeOH	APP-9-174-20X
	5 mg/mL	MeOH	AS-E0300
Pentadecylbenzene 2131-18-2	100 mg	NEAT	V-021
Pentafluorobenzene 363-72-4	0.2 mg/mL	MeOH	M-624-SS-10
1,2-Propanediol 57-55-6	1 mg/mL	AcCN	AS-E0524
Propionic acid 79-09-4	5 mg/mL	AcCN	AS-E0673
Propionitrile 107-12-0	100 µg/mL	MeOH	APP-9-184
	5 mg/mL	MeOH	AS-E0338
	10 mg/mL	Water	M-8015B/5031-25

❄ ColdPAK required to maintain integrity of product.

Neats are as stated, Solutions are 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
n-Propylbenzene (1-Phenylpropane) 103-65-1	100 mg	NEAT	V-022
	1 gram	NEAT	M-502-41N
	0.2 mg/mL	MeOH	M-502-41
	2 mg/mL	MeOH	M-502-41-10X
	5 mg/mL	MeOH	AS-E1112
Styrene 100-42-5	1 gram	NEAT	M-502-42N
	100 µg/mL	MeOH	APP-9-189
	0.2 mg/mL	MeOH	M-502-42
	2 mg/mL	MeOH	M-502-42-10X
	5 mg/mL	MeOH	AS-E0257
TCMX 877-09-8	100 µg/mL	Hexane	M-8082-SS
	1 mg/mL	Hexane	M-8082-SS-10X
1,2,3,4-Tetrachlorobenzene 634-66-2	100 mg	NEAT	A-008
	1 mg/mL	MeOH	AS-E0225
1,2,3,5-Tetrachlorobenzene 634-90-2	100 mg	NEAT	A-009
1,2,4,5-Tetrachlorobenzene 95-94-3	100 mg	NEAT	A-010
	100 µg/mL	MeOH	APP-9-191
	1.0 mg/mL	MeOH	APP-9-191-10X
	2.0 mg/mL	Hexane	M-8120-09
	2.5 mg/mL	AcCN	AS-E0177
1,1,1,2-Tetrachloroethane 630-20-6	1 gram	NEAT	M-502-43N
	100 µg/mL	MeOH	APP-9-192
	0.2 mg/mL	MeOH	M-502-43
	1 mg/mL	MeOH	AS-E0335
	2 mg/mL	MeOH	M-502-43-10X
1,1,2,2-Tetrachloroethane 79-34-5	1 gram	NEAT	M-502-44N
	100 µg/mL	MeOH	APP-9-193
	0.2 mg/mL	MeOH	M-502-44
	2 mg/mL	MeOH	M-502-44-10X
	5 mg/mL	MeOH	AS-E0014
Tetrachloroethene 127-18-4	1 gram	NEAT	M-502-45N
	100 µg/mL	MeOH	APP-9-194
	0.2 mg/mL	MeOH	M-502-45
	2 mg/mL	MeOH	M-502-45-10X
	5 mg/mL	MeOH	AS-E0083
Tetrachloro-m-xylene 877-09-8	0.2 mg/mL	MeOH	S-279
	1 mg/mL	MeOH	S-279-5X
Tetradecylbenzene 1459-10-5	100 mg	NEAT	V-023
Tetrahydrofuran 109-99-9	0.2 mg/mL	MeOH	S-457S
	2 mg/mL	MeOH	S-457S-10X
	1 mg/mL	Water	M-1671A-IS
1,2,3,4-Tetramethylbenzene 488-23-3	100 mg	NEAT	V-024
1,2,3,5-Tetramethylbenzene 527-53-7	100 mg	NEAT	V-025
1,2,4,5-Tetramethylbenzene 95-93-2	100 mg	NEAT	V-026
Toluene 108-88-3	1 gram	NEAT	M-502-46N
	100 µg/mL	MeOH	APP-9-198
	0.2 mg/mL	MeOH	M-502-46
	1 mg/mL	MeOH	AS-E0084
	2 mg/mL	MeOH	M-502-46-10X
Toluene-d_8 2037-26-5	0.25 mg/mL	MeOH	CLP-PS-3
	2.5 mg/mL	MeOH	CLP-PS-3-10X
1,3,5-Tribromobenzene 626-39-1	50 µg/mL	Acetone	M-8121-IS
Trichloroacetonitrile 545-06-2	5 mg/mL	Acetone	M-551B-7
1,2,3-Trichlorobenzene 87-61-6	100 mg	NEAT	A-005
	1 gram	NEAT	M-502-47N
	0.2 mg/mL	MeOH	M-502-47
	2 mg/mL	MeOH	M-502-47-10X
	5 mg/mL	MeOH	AS-E0175
1,2,4-Trichlorobenzene 120-82-1	100 mg	NEAT	A-006
	1 gram	NEAT	M-502-48N
	100 µg/mL	MeOH	APP-9-201
	0.2 mg/mL	MeOH	M-502-48
	1 mg/mL	MeOH	AS-E0007
	2 mg/mL	MeOH	M-502-48-10X
1,3,5-Trichlorobenzene 108-70-3	100 mg	NEAT	A-007
	5 mg/mL	MeOH	AS-E0176
1,1,1-Trichloroethane 71-55-6	100 µg/mL	MeOH	APP-9-202
	0.2 mg/mL	MeOH	M-502-49
	1 mg/mL	MeOH	AS-E0010
	2 mg/mL	MeOH	M-502-49-10X
1,1,2-Trichloroethane 79-00-5	1 gram	NEAT	M-502-50N
	100 µg/mL	MeOH	APP-9-203
	0.2 mg/mL	MeOH	M-502-50
	1 mg/mL	MeOH	AS-E0013
	2 mg/mL	MeOH	M-502-50-10X
Trichloroethene 79-01-6	1 gram	NEAT	M-502-51N
	100 µg/mL	MeOH	APP-9-204
	0.2 mg/mL	MeOH	M-502-51
	1 mg/mL	MeOH	AS-E0085
	2 mg/mL	MeOH	M-502-51-10X
Trichlorofluoromethane 75-69-4	100 µg/mL	MeOH	APP-9-205
	0.2 mg/mL	MeOH	M-502-52
	2 mg/mL	MeOH	M-502-52-10X
1,1,2-Trichloropropane 598-77-6	200 µg/mL	MeOH	S-1321B
1,2,3-Trichloropropane 96-18-4	1 gram	NEAT	M-502-53N
	100 µg/mL	MeOH	APP-9-208
	0.2 mg/mL	MeOH	M-502-53
	1 mg/mL	MeOH	APP-9-208-10X
	2 mg/mL	MeOH	M-502-53-10X
	5 mg/mL	MeOH	AS-E0368
a,a,a-Trichlorotoluene 98-07-7	0.2 mg/mL	MeOH	M-624-SS-14
Tridecylbenzene 123-02-4	100 mg	NEAT	V-027
1,2,3-Trimethylbenzene 526-73-8	100 mg	NEAT	V-028
1,2,4-Trimethylbenzene 95-63-6	100 mg	NEAT	V-029
	1 gram	NEAT	M-502-54N
	0.2 mg/mL	MeOH	M-502-54
	2 mg/mL	MeOH	M-502-54-10X
	5 mg/mL	MeOH	AS-E1107
1,3,5-Trimethylbenzene 108-67-8	100 mg	NEAT	V-016
	1 gram	NEAT	M-502-55N
	0.2 mg/mL	MeOH	M-502-55
	2 mg/mL	MeOH	M-502-55-10X
	5 mg/mL	MeOH	AS-E1103
1,2,3-Trimethylbenzene 526-73-8	3 % w/w	Isooctane	M-GRA-FP
1,3,5-Trinitrobenzene 99-35-4	100 µg/mL	MeOH	APP-9-210
	2 mg/mL	MeOH	M-8270-10
	2.0 mg/mL	CH_2Cl_2	APP-9-210-D-20X
Undecylbenzene 6742-54-7	100 mg	NEAT	V-030
Vinyl acetate 108-05-4	100 µg/mL	MeOH	APP-9-211 ❄
	2 mg/mL	MeOH	APP-9-211-20X ❄
	1 mg/mL	AcCN	AS-E0327
Vinyl chloride 75-01-4	100 µg/mL	MeOH	APP-9-212
	0.2 mg/mL	MeOH	M-502-56
	1 mg/mL	MeOH	AS-E0536
	2 mg/mL	MeOH	M-502-56-10X
Xylene (total) 1330-20-7	100 µg/mL	MeOH	APP-9-213
m-Xylene 108-38-3	1 gram	NEAT	M-502-58N
	0.2 mg/mL	MeOH	M-502-58
	1 mg/mL	MeOH	AS-E0202
	2 mg/mL	MeOH	M-502-58-10X
o-Xylene 95-47-6	1 gram	NEAT	M-502-57N
	0.2 mg/mL	MeOH	M-502-57
	1 mg/mL	MeOH	AS-E0201
	2 mg/mL	MeOH	M-502-57-10X
p-Xylene 106-42-3	1 gram	NEAT	M-502-59N
	0.2 mg/mL	MeOH	M-502-59
	1 mg/mL	MeOH	AS-E0203
	2 mg/mL	MeOH	M-502-59-10X

❄ ColdPAK required to maintain integrity of product.

Analytes by Functional Group
Alcohols & Aldehydes and Derivatives

In order to make it easier to find individual standards, AccuStandard has now organized them by functional group, as well as by application, and of course they are still listed with their applicable USEPA methods.

Search by

- ✔ **Functional Group**
- Application
- EPA Method

See Qualitative Analysis Kits for material of these functional groups. pages 109-111

Alcohol EPA Methods include: 1673, 8015

Alcohols

Neats are as stated, Solutions are 1 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
Allyl alcohol	107-18-6	1 mg/mL	MeOH	AS-E0475
		10 mg/mL	Water	M-8015B/5031-05
Benzyl alcohol	100-51-6	100 µg/mL	MeOH	APP-9-021
		5 mg/mL	MeOH	APP-9-021-50X
		5 mg/mL	AcCN	AS-E0326
1-Butanol	71-36-3	10 mg/mL	Water	M-8015B/5031-06
t-Butanol	75-65-0	10 mg/mL	Water	M-8015B/5031-07
		2 mg/mL	MeOH	S-410
1,3-Dichloro-2-propanol	96-23-1	5 mg/mL	MeOH	AS-E0928
Ethanol	64-17-5	10 mg/mL	Water	M-8015B/5031-11
Ethylene glycol	107-21-1	10 mg/mL	Water	M-8015B/5031-13
Isobutanol (Isobutyl alcohol)	78-83-1	10 mg/mL	Water	M-8015B/5031-15
		100 µg/mL	MeOH	APP-9-120
		2.0 mg/mL	MeOH	APP-9-120-20X
Isopropanol	67-63-0	10 mg/mL	Water	M-8015B/5031-16
Methanol	67-56-1	10 mg/mL	Water	M-8015B/5031-17
2-Methyl-1-propanol (Isobutyl alcohol)	78-83-1	5 mg/mL	MeOH	AS-E0659
Polyethylene glycol (PEG-600)	25322-68-3	2.5 mg/mL	THF	M-1673
1-Propanol	71-23-8	10 mg/mL	Water	M-8015B/5031-24
Propargyl alcohol	107-19-7	1 mg/mL	Cyclo-hexanone	AS-E0543

Aldehydes EPA Methods include: 554, 556, 1667A, 8315, 8315A

Aldehydes and Derivatives

Compound	CAS No.	Conc.	Matrix	Cat. No.
Acetaldehyde	75-07-0	1 mg/mL	MeOH	M-554-01 ❄
		1 mg/mL	Water	M-8315-01
Acetaldehyde-DNPH	1019-57-4	1 mg/mL	MeOH:AcCN	M-554-DNPH-01
		0.1 mg/mL	AcCN	M-8315-R-DNPH-01
Acrolein	107-02-8	100 µg/mL	MeOH:Water	APP-9-007 ❄
		1 mg/mL	MeOH:Water	APP-9-007-10X ❄
		100 µg/mL	Water	APP-9-007-W
		1.0 mg/mL	Water	APP-9-007-W-10X
		5 mg/mL	p-Dioxane	AS-E0002
		10 mg/mL	Water	M-8015B/5031-03
Acrolein-DNPH	888-54-0	0.1 mg/mL	AcCN	M-8315-R-DNPH-03
		1 µg/mL	AcCN	S-1275-1-03
Benzaldehyde-DNPH	1157-84-2	0.1 mg/mL	AcCN	M-8315-R-DNPH-04
Butanal	123-72-8	1 mg/mL	MeOH	M-554-02 ❄
Butanal-DNPH	1527-98-6	1 mg/mL	MeOH:AcCN	M-554-DNPH-02
		0.1 mg/mL	AcCN	M-8315-R-DNPH-05
Crotonaldehyde	123-73-9	1 mg/mL	AcCN	AS-E0479
		1 mg/mL	MeOH	M-554-03 ❄
		10 mg/mL	Water	M-8015B/5031-08
Crotonaldehyde-DNPH	1527-96-4	1 mg/mL	MeOH:AcCN	M-554-DNPH-03
		0.1 mg/mL	AcCN	M-8315-R-DNPH-06
Decanal	112-31-2	1 mg/mL	MeOH	M-554-05
Decanal-DNPH		1 mg/mL	MeOH:AcCN	M-554-DNPH-05
		0.1 mg/mL	AcCN	M-8315-R-DNPH-08
2,5-Dimethylbenzaldehyde-DNPH	152477-96-8	0.1 mg/mL	AcCN	M-8315-R-DNPH-09

❄ ColdPAK required to maintain integrity of product.

Aldehydes continued on next page

Aldehydes and Derivatives (continued)

Neats are as stated, Solutions are 1 mL

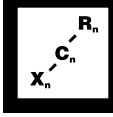
Compound	CAS No.	Conc.	Matrix	Cat. No.
Formaldehyde	50-00-0	1 mg/mL	MeOH	M-554-06 ❄
		1 mg/mL	Water	M-8315-02
Formaldehyde-DNPH	1081-15-8	1.0 mg/mL	AcCN	M-1667A-DNPH-01
		1 mg/mL	MeOH:AcCN	M-554-DNPH-06
		0.1 mg/mL	AcCN	M-8315-R-DNPH-10
Formamide	75-12-7	50 µg/mL	Water	M-1666A-DI-R-ADD2
2-Furaldehyde-DNPH		1.0 mg/mL	AcCN	M-1667A-DNPH-02
Heptanal	111-71-7	1 mg/mL	MeOH	M-554-07
Heptanal-DNPH		1 mg/mL	MeOH:AcCN	M-554-DNPH-07
		0.1 mg/mL	AcCN	M-8315-R-DNPH-11
Hexanal	66-25-1	1 mg/mL	MeOH	M-554-08
Hexanal-DNPH	1527-97-5	1 mg/mL	MeOH:AcCN	M-554-DNPH-08
		0.1 mg/mL	AcCN	M-8315-R-DNPH-12
Isobutyraldehyde-DNPH		1.0 mg/mL	AcCN	M-1667A-DNPH-03
		0.1 mg/mL	AcCN	M-8315-R-DNPH-13
Nonanal	124-19-6	1 mg/mL	MeOH	M-554-09
Nonanal-DNPH		1 mg/mL	MeOH:AcCN	M-554-DNPH-09
		0.1 mg/mL	AcCN	M-8315-R-DNPH-14
Octanal	124-13-0	1 mg/mL	MeOH	M-554-10
Octanal-DNPH		1 mg/mL	MeOH:AcCN	M-554-DNPH-10
		0.1 mg/mL	AcCN	M-8315-R-DNPH-15
Paraldehyde	123-63-7	10 mg/mL	Water	M-8015B/5031-21
Pentanal	110-62-3	1 mg/mL	MeOH	M-554-11
Pentanal-DNPH	2057-84-3	1 mg/mL	MeOH:AcCN	M-554-DNPH-11
		0.1 mg/mL	AcCN	M-8315-R-DNPH-16
Propanal	123-38-6	1 mg/mL	MeOH	M-554-12 ❄
Propanal-DNPH	725-00-8	1 mg/mL	MeOH:AcCN	M-554-DNPH-12
		0.1 mg/mL	AcCN	M-8315-R-DNPH-17
m-Tolualdehyde-DNPH	2880-05-9	0.1 mg/mL	AcCN	M-8315-R-DNPH-18
o-Tolualdehyde-DNPH	1773-44-0	0.1 mg/mL	AcCN	M-8315-R-DNPH-19
p-Tolualdehyde-DNPH	2571-00-8	0.1 mg/mL	AcCN	M-8315-R-DNPH-20

Ketones EPA Methods include: 554, 556, 8091, 8315, 8315A

Ketones and Derivatives

Compound	CAS No.	Conc.	Matrix	Cat. No.
Acetone	67-64-1	100 µg/mL	MeOH	APP-9-003 ❄
		2 mg/mL	MeOH	APP-9-003-20X ❄
		5 mg/mL	MeOH	AS-E0284 ❄
		10 mg/mL	Water	M-8015B/5031-01
Acetone-DNPH	1567-89-1	0.1 mg/mL	AcCN	M-8315-R2-DNPH-02
Acetophenone	98-86-2	100 µg/mL	CH_2Cl_2	APP-9-004
		2 mg/mL	CH_2Cl_2	APP-9-004-20X
		5 mg/mL	MeOH	AS-E0411
2-Chloroacetophenone	532-27-4	100 µg/mL	Hexane	IRT-001S
2'-Chloroacetophenone	2142-68-9	100 µg/mL	Hexane	IRT-002S
3'-Chloroacetophenone	99-02-5	100 µg/mL	Hexane	IRT-003S
4'-Chloroacetophenone	99-91-2	100 µg/mL	Hexane	IRT-004S
Cyclohexanone	108-94-1	1 mg/mL	MeOH	M-554-04 ❄
Cyclohexanone-DNPH	1589-62-4	500 µg/mL	AcCN	AE-00046
		1 mg/mL	MeOH:AcCN	M-554-DNPH-04
		0.1 mg/mL	AcCN	M-8315-R-DNPH-07
1,1-Dichloro-2-propanone	513-88-2	5 mg/mL	Acetone	M-551B-6
2-Hexanone	591-78-6	100 µg/mL	MeOH	APP-9-118 ❄
		2.0 mg/mL	MeOH	APP-9-118-20X ❄
Isophorone	78-59-1	100 µg/mL	MeOH	APP-9-122
		1.0 mg/mL	MeOH	APP-9-122-10X
		1 mg/mL	MeOH	AS-E0052
Methyl ethyl ketone	78-93-3	100 µg/mL	MeOH	APP-9-129 ❄
		1 mg/mL	MeOH	APP-9-129-10X ❄
		2 mg/mL	MeOH	APP-9-129-20X ❄
		5 mg/mL	MeOH	AS-E0311 ❄
		10 mg/mL	Water	M-8015B/5031-18
4-Methyl-2-pentanone (Methyl isobutyl ketone)	108-10-1	10 mg/mL	Water	M-8015B/5031-19
		100 µg/mL	MeOH	APP-9-135
		2 mg/mL	MeOH	APP-9-135-20X
		5 mg/mL	MeOH	AS-E0349
2-Pentanone	107-87-9	10 mg/mL	Water	M-8015B/5031-22
1,1,1-Trichloro-2-propanone (1,1,1-Trichloroacetone)	918-00-3	5 mg/mL	Acetone	M-551B-8
		1 mg/mL	Acetone	AS-E1181
2',4',5'-Trifluoroacetophenone	129322-83-4	20 µg/mL	AcCN	M-556-SS
		2 mg/mL	AcCN	M-556-SS-100X

❄ ColdPAK required to maintain integrity of product.



Phenols EPA Methods: 558, 604, 642, 8040, 8041, 8085

Phenols

Compound	CAS No.	Conc.	Matrix	Cat. No.
Bisphenol A (BPA)	80-05-7	1000 µg/mL	MeOH	M-1626-01S
4-Chloro-3-cresol	59-50-7	1.0 mg/mL	MeOH	M-8040-01
(4-Chloro-3-methylphenol)		100 µg/mL	MeOH	APP-9-041
2-Chlorophenol	95-57-8	100 mg	NEAT	A-013
		100 µg/mL	MeOH	APP-9-046
		5.0 mg/mL	MeOH	APP-9-046-50X
		2 mg/mL	CH_2Cl_2	APP-9-046-D-20X
		5 mg/mL	MeOH	AS-E0022
3-Chlorophenol	108-43-0	100 mg	NEAT	A-014
		5 mg/mL	MeOH	AS-E0182
4-Chlorophenol	106-48-9	100 mg	NEAT	A-015
		5 mg/mL	MeOH	AS-E0183
2-Chlorophenol-d_4	93951-73-6	0.2 mg/mL	CH_2Cl_2	M-625-20
o-Chlorophenol	95-57-8	1.0 mg/mL	MeOH	M-8040-02
m-Cresol	108-39-4	100 µg/mL	CH_2Cl_2	APP-9-050
		1 mg/mL	CH_2Cl_2	APP-9-050-10X
		5 mg/mL	MeOH	AS-E0251
		1.0 mg/mL	MeOH	M-8040-03
o-Cresol	95-48-7	100 µg/mL	CH_2Cl_2	APP-9-051
		2 mg/mL	CH_2Cl_2	APP-9-051-20X
		1.0 mg/mL	MeOH	M-8040-04
		5 mg/mL	MeOH	AS-E0250
p-Cresol	106-44-5	100 µg/mL	CH_2Cl_2	APP-9-052
		2 mg/mL	CH_2Cl_2	APP-9-052-20X
		1.0 mg/mL	MeOH	M-8040-05
		5 mg/mL	MeOH	AS-E0252
2-Cyclohexyl-4,6-dinitrophenol	131-89-5	1.0 mg/mL	MeOH	M-8040-06
2,4-Dibromophenol	615-58-7	1.6 µg/mL	IPA	M-8041-SS
		16 µg/mL	IPA	M-8041-SS-10X
		160 µg/mL	IPA	M-8041-SS-100X
		1 mg/mL	IPA	M-8041-SS-625X
2,3-Dichlorophenol	576-24-9	100 mg	NEAT	A-016
2,4-Dichlorophenol	120-83-2	100 mg	NEAT	A-017
		100 µg/mL	MeOH	APP-9-075
		1.0 mg/mL	MeOH	M-8040-07
		5 mg/mL	MeOH	APP-9-075-50X
		5 mg/mL	MeOH	AS-E0029
		1 mg/mL	MtBE	M-552A-R-06
2,5-Dichlorophenol	583-78-8	100 mg	NEAT	A-018
2,6-Dichlorophenol	87-65-0	100 mg	NEAT	A-019
		100 µg/mL	CH_2Cl_2	APP-9-076
		1.0 mg/mL	MeOH	M-8040-08
		5 mg/mL	MeOH	APP-9-076-M-50X
3,4-Dichlorophenol	95-77-2	100 mg	NEAT	A-020
3,5-Dichlorophenol	591-35-5	100 mg	NEAT	A-021
2,4-Dimethylphenol	105-67-9	100 µg/mL	MeOH	APP-9-087
		5 mg/mL	MeOH	APP-9-087-50X
		1.0 mg/mL	MeOH	M-8040-09
2,4-Dimethylphenol-3,5,6-d_3	93951-75-8	0.1 mg/mL	Acetone	AS-E0190
4,6-Dinitro-o-cresol	534-52-1	100 mg	NEAT	R-057N
		100 µg/mL	Toluene	R-057S
		1 mg/mL	MeOH	APP-9-090-10X
		5 mg/mL	MeOH	AS-E0058
2,4-Dinitrophenol	51-28-5	100 µg/mL	MeOH	APP-9-091
		1.0 mg/mL	MeOH	M-8040-10
		5 mg/mL	MeOH	APP-9-091-50X
2-Fluorophenol	367-12-4	0.1 mg/mL	Acetone	AS-E0193
		2 mg/mL	MeOH	CLP-AS-1
		0.2 mg/mL	CH_2Cl_2	M-625-16
		2 mg/mL	CH_2Cl_2	M-625-16-10X
2-Methyl-4,6-dinitrophenol	534-52-1	1.0 mg/mL	MeOH	M-8040-12
2-Nitrophenol	88-75-5	100 mg	NEAT	R-051N
(o-Nitrophenol)		100 µg/mL	Toluene	R-051S
		100 µg/mL	MeOH	APP-9-144
		1.0 mg/mL	MeOH	M-8040-13
		5.0 mg/mL	MeOH	APP-9-144-50X
3-Nitrophenol	554-84-7	5 mg/mL	MeOH	AS-E0662
4-Nitrophenol	100-02-7	100 µg/mL	MeOH	APP-9-145
(p-Nitrophenol)		1.0 mg/mL	MeOH	M-8040-14
		5 mg/mL	MeOH	APP-9-145-50X

Neats are as stated, Solutions are 1 mL

Phenols & Nitrosamines

Phenols and Nitrosamines can react with the active sites on a column which can sometimes give inconsistent results from run to run. By saturating these sites, the problem should go away. To do this, run a standard that is between 2 to 5 times higher than your highest calibration point. This can be repeated if necessary until the problem is alleviated.

For Nonylphenols and Octylphenols see page 261

Phenols continued on next page

Phenols (continued)

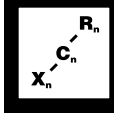
Neats are as stated, Solutions are 1 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
Pentachlorophenol	87-86-5	100 mg	NEAT	A-031
		100 µg/mL	MeOH	APP-9-176
		1 mg/mL	MeOH	APP-9-176-10X
		2 mg/mL	CH_2Cl_2	APP-9-176-D-20X
		5 mg/mL	MeOH	AS-E0062
		25 µg/mL	CH_2Cl_2	M-625C-2
		0.2 mg/mL	CH_2Cl_2	M-625C-2-10X
		1.0 mg/mL	MeOH	M-8040-15
Pentachlorophenol-$^{13}C_6$	85380-74-1	0.1 mg/mL	Acetone	AS-E0191
Pentafluorophenol	771-61-9	0.2 mg/mL	CH_2Cl_2	M-625-17
Phenol	108-95-2	100 µg/mL	CH_2Cl_2	APP-9-179
		5 mg/mL	MeOH	AS-E0063
Phenol-d_5	4165-62-2	0.1 mg/mL	Acetone	AS-E0189
		0.2 mg/mL	CH_2Cl_2	M-625-18
		2 mg/mL	CH_2Cl_2	M-625-18-10X
2,3,4,5-Tetrachlorophenol	4901-51-3	5 mg	NEAT	A-028
2,3,4,6-Tetrachlorophenol	58-90-2	10 mg	NEAT	A-029-10MG
		100 µg/mL	MeOH	APP-9-195
		1.0 mg/mL	MeOH	M-8040-17
2,3,5,6-Tetrachlorophenol	935-95-5	100 mg	NEAT	A-030
2,4,6-Tribromophenol	118-79-6	20 µg/mL	MtBE	M-8085-HERB-SS
		0.2 mg/mL	CH_2Cl_2	M-625-19
		0.2 mg/mL	MeOH	M-604-SS
		2 mg/mL	MeOH	CLP-AS-3
		6 mg/mL	MeOH	CLP-LC-SS-2
2,3,4-Trichlorophenol	15950-66-0	100 mg	NEAT	A-022
2,3,5-Trichlorophenol	933-78-8	100 mg	NEAT	A-023
		5 mg/mL	MeOH	AS-E0222
2,3,6-Trichlorophenol	933-75-5	100 mg	NEAT	A-024
		1 mg/mL	MeOH	AS-E0181
2,4,5-Trichlorophenol	95-95-4	100 mg	NEAT	A-025
		0.1 mg/mL	Acetone	CLP-FC
		100 µg/mL	MeOH	APP-9-206
		1.0 mg/mL	MeOH	M-8040-18
		5 mg/mL	MeOH	AS-E0179
2,4,6-Trichlorophenol	88-06-2	100 mg	NEAT	A-026
		100 µg/mL	MeOH	APP-9-207
		5 mg/mL	MeOH	APP-9-207-50X
		0.1 µg/mL	Acetone	M-1618-SE
		0.1 mg/mL	Acetone	M-1600-SPE
		1 mg/mL	MtBE	M-552A-7
		1.0 mg/mL	MeOH	M-8040-19
3,4,5-Trichlorophenol	609-19-8	10 mg	NEAT	A-027
		1 mg/mL	MeOH	M-1653-IS
		1 mg/mL	Acetone	M-1653-IS-R

Amines, Anilines and Amino Compounds EPA Methods: 605, 607, 620, 625, 1666, 8015, 8095, 8131, 8325

Amines, Anilines and other Amino Compounds

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Amino-4-nitrotoluene	99-55-8	100 µg/mL	AcCN	RAC-03
		1 mg/mL	AcCN	RAC-03-10X
p-Aminoazobenzene	60-09-3	100 µg/mL	AcCN	RAC-21
		1000 µg/mL	AcCN	RAC-21-10X
o-Aminoazotoluene	97-56-3	100 µg/mL	AcCN	RAC-01
		1 mg/mL	AcCN	RAC-01-10X
2-Aminobiphenyl	90-41-5	10 mg	NEAT	R-062N
		100 µg/mL	Toluene	R-062S
		100 µg/mL	AcCN	RAC-22
		1000 µg/mL	AcCN	RAC-22-10X
4-Aminobiphenyl	92-67-1	10 mg	NEAT	R-063N
		100 µg/mL	Toluene	R-063S
		100 µg/mL	CH_2Cl_2	APP-9-011
		100 µg/mL	AcCN	RAC-02
		1 mg/mL	AcCN	RAC-02-10X
		1 mg/mL	MeOH	AS-E0578
Aniline	62-53-3	100 mg	NEAT	L-001N
		100 µg/mL	MeOH	APP-9-012
		1 mg/mL	MeOH	APP-9-012-10X
		5 mg/mL	MeOH	AS-E0542
Aniline-d_5	4165-61-1	0.2 mg/mL	CH_2Cl_2	M-625-01
		2 mg/mL	CH_2Cl_2	M-625-01-10X
o-Anisidine	90-04-0	100 µg/mL	AcCN	RAC-23
		1000 µg/mL	AcCN	RAC-23-10X



Amines, Anilines and other Amino Compounds (continued)

Neats are as stated, Solutions are 1 mL

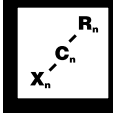
Compound	CAS No.	Conc.	Matrix	Cat. No.
Benzidine	92-87-5	50 µg/mL	CH_2Cl_2	M-625C-1
		2 mg/mL	CH_2Cl_2	M-625C-1-40X
		100 µg/mL	AcCN	RAC-04
		1 mg/mL	AcCN	RAC-04-10X
Benzidine (as dihydrochloride)	531-85-1	1 mg/mL	MeOH	AS-E0005
2-Bromo-4,6-dinitroaniline	1817-73-8	100 mg	NEAT	L-017N
4-Bromoaniline	106-40-1	100 mg	NEAT	L-007N
4-Chloro-2-nitroaniline	89-63-4	100 mg	NEAT	L-013N
2-Chloro-4,6-dinitroaniline	3531-19-9	100 mg	NEAT	L-015N
2-Chloro-4-nitroaniline	121-87-9	100 mg	NEAT	L-012N
2-Chloroaniline	95-51-2	100 mg	NEAT	L-002N
3-Chloroaniline	108-42-9	100 mg	NEAT	L-003N
4-Chloroaniline (p-Chloroaniline)	106-47-8	100 mg	NEAT	L-004N
		100 µg/mL	AcCN	RAC-05
		1 mg/mL	AcCN	RAC-05-10X
		100 µg/mL	MeOH	APP-9-038
		5 mg/mL	MeOH	AS-E0305
3-Chloro-o-toluidine	87-60-5	100 µg/mL	AcCN	RAC-24
		1000 µg/mL	AcCN	RAC-24-10X
4-Chloro-o-toluidine	95-69-2	100 µg/mL	AcCN	RAC-06
		1 mg/mL	AcCN	RAC-06-10X
p-Cresidine	120-71-8	100 µg/mL	AcCN	RAC-07
		1.0 mg/mL	AcCN	RAC-07-10X
2,4-Diaminoanisole sulfate hydrate	123333-56-2	100 µg/mL	Pyridine	RAC-08
		1 mg/mL	Pyridine	RAC-08-10X
3,3'-Diaminobenzidine	91-95-2	50 mg	NEAT	R-074N
		100 µg/mL	Toluene	R-074S
4,4'-Diaminodiphenylmethane (4,4'-Methylenedianiline)	101-77-9	100 mg	NEAT	R-077N
		100 µg/mL	Toluene	R-077S
		100 µg/mL	AcCN	RAC-09
		1 mg/mL	AcCN	RAC-09-10X
2,4-Diaminotoluene	95-80-7	100 mg	NEAT	R-078N
		100 µg/mL	Toluene	R-078S
		100 µg/mL	AcCN	RAC-10
		1 mg/mL	AcCN	RAC-10-10X
		1 mg/mL	MeOH	AS-E0932
2,6-Dibromo-4-nitroaniline	827-94-1	100 mg	NEAT	L-016N
2,6-Dichloro-4-nitroaniline	99-30-9	100 mg	NEAT	L-014N
3,4-Dichloroaniline	95-76-1	100 mg	NEAT	L-005N
3,3'-Dichlorobenzidine	91-94-1	50 mg	NEAT	R-075N
		100 µg/mL	MeOH	APP-9-067
		1 mg/mL	MeOH	AS-E0026
		100 µg/mL	Toluene	R-075S
		100 µg/mL	AcCN	RAC-11
		1 mg/mL	AcCN	RAC-11-10X
		2 mg/mL	MeOH	Z-014F-2
3,3'-Dimethoxybenzidine	119-90-4	50 mg	NEAT	R-076N
		100 µg/mL	Toluene	R-076S
		100 µg/mL	AcCN	RAC-12
		1 mg/mL	AcCN	RAC-12-10X
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	100 µg/mL	AcCN	RAC-14
		1 mg/mL	AcCN	RAC-14-10X
4-Dimethylaminoazobenzene	60-11-7	10 mg	NEAT	R-079N
		100 µg/mL	Toluene	R-079S
2,6-Dimethylaniline	87-62-7	100 mg	NEAT	L-018N
		100 µg/mL	AcCN	L-018S-CN
3,3'-Dimethylbenzidine	119-93-7	100 µg/mL	CH_2Cl_2	APP-9-085
		2.0 mg/mL	CH_2Cl_2	APP-9-085-20X
		100 µg/mL	AcCN	RAC-13
		1 mg/mL	AcCN	RAC-13-10X
a,a-Dimethylphenethylamine	122-09-8	100 µg/mL	CH_2Cl_2	APP-9-086
		2.0 mg/mL	CH_2Cl_2	APP-9-086-20X
2,4-Dinitroaniline	97-02-9	100 mg	NEAT	L-011N
Diphenylamine	122-39-4	100 µg/mL	CH_2Cl_2	APP-9-097
		1 mg/mL	MeOH	M-620
		5 mg/mL	MeOH	AS-E0263
Ethylenediamine	107-15-3	1 mg/mL	MeOH	AS-E0358
4-Fluoroaniline	371-40-4	0.2 mg/mL	CH_2Cl_2	M-625-08
		2 mg/mL	CH_2Cl_2	M-625-08-10X
2-Methyl-4-nitroaniline	99-52-5	100 µg/mL	AcCN	M-8095-SS-02
Methylamine	74-89-5	2500 µg/mL	Water	M-1666A-DI-R-ADD1
4,4'-Methylenebis(2-chloroaniline)	101-14-4	50 mg	NEAT	R-080N
		100 µg/mL	Toluene	R-080S
		100 µg/mL	AcCN	RAC-15
		1 mg/mL	AcCN	RAC-15-10X
		5 mg/mL	MeOH	AS-E0322
2-Naphthylamine	91-59-8	100 µg/mL	AcCN	RAC-16
		1 mg/mL	AcCN	RAC-16-10X

Amines, Anilines and other Amino compounds continued on next page

Amines, Anilines and other Amino Compounds (continued)

Neats are as stated, Solutions are 1 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Nitroaniline	88-74-4	100 mg	NEAT	L-008N
		100 mg	NEAT	R-054N
		100 µg/mL	Toluene	R-054S
3-Nitroaniline	99-09-2	100 mg	NEAT	L-009N
		100 µg/mL	Toluene	R-055S
4-Nitroaniline	100-01-6	100 mg	NEAT	L-010N
		100 µg/mL	Toluene	R-056S
m-Nitroaniline	99-09-2	100 µg/mL	CH_2Cl_2	APP-9-141
o-Nitroaniline	88-74-4	100 µg/mL	CH_2Cl_2	APP-9-140
		5 mg/mL	MeOH	AS-E0324
p-Nitroaniline	100-01-6	100 µg/mL	CH_2Cl_2	APP-9-142
		5 mg/mL	MeOH	AS-E0342
		5 mg/mL	AcCN	AS-E0392
5-Nitro-o-toluidine	99-55-8	100 µg/mL	CH_2Cl_2	APP-9-156
		5 mg/mL	MeOH	AS-E0344
N-Nitrosodiethylamine	55-18-5	100 µg/mL	CH_2Cl_2	APP-9-148
		2 mg/mL	CH_2Cl_2	APP-9-148-20X
		5 mg/mL	MeOH	AS-E0334
N-Nitrosodimethylamine	62-75-9	100 µg/mL	CH_2Cl_2	APP-9-149
		1 mg/mL	MeOH	APP-9-149-M-10X
		5 mg/mL	MeOH	AS-E0059
N-Nitrosodi-n-butylamine	924-16-3	100 µg/mL	CH_2Cl_2	APP-9-147
		2 mg/mL	CH_2Cl_2	APP-9-147-20X
		0.5 mg/mL	Water	M-8015B/5031-20
N-Nitrosodi-n-propylamine	621-64-7	100 µg/mL	CH_2Cl_2	APP-9-151
		2.5 mg/mL	CH_2Cl_2	APP-9-151-25X
		5 mg/mL	MeOH	AS-E0061
N-Nitrosodiphenylamine	86-30-6	100 µg/mL	CH_2Cl_2	APP-9-150
		1.0 mg/mL	MeOH	APP-9-150-M-10X
		5 mg/mL	MeOH	AS-E0060
N-Nitrosomethylethylamine	10595-95-6	100 µg/mL	CH_2Cl_2	APP-9-152
N-Nitroso-N-methyl ethylamine		1 mg/mL	MeOH	AS-E0974
1-Nitrosopiperidine	100-75-4	5 mg/mL	MeOH	AS-E0458
4,4'-Oxydianiline	101-80-4	100 µg/mL	AcCN	RAC-17
		1 mg/mL	AcCN	RAC-17-10X
p-Phenylenediamine	106-50-3	100 µg/mL	MeOH	APP-9-180
		1 mg/mL	AcCN	AS-E0275
		2 mg/mL	MeOH	APP-9-180-20X
1-Propanamine	107-10-8	1 mg/mL	MeOH	AS-E0657
Pyridine	110-86-1	100 µg/mL	MeOH	APP-9-186-M
		2 mg/mL	MeOH	APP-9-186-M-20X
		5 mg/mL	MeOH	AS-E0271
		10 mg/mL	Water	M-8015B/5031-26
Pyridine-d_5	7291-22-7	0.2 mg/mL	CH_2Cl_2	M-625-15
		2.0 mg/mL	CH_2Cl_2	M-625-15-10X
3,3',5,5'-Tetramethylbenzidene	54827-17-7	1 mg/mL	AcCN	RAC-IS
		1 mg/mL	Ethyl acetate	RAC-IS-EA
4,4'-Thiodianiline	139-65-1	100 µg/mL	AcCN	RAC-18
		1 mg/mL	AcCN	RAC-18-10X
o-Toluidine	95-53-4	100 µg/mL	MeOH	APP-9-199
		2 mg/mL	MeOH	AS-E0503
		100 µg/mL	AcCN	RAC-19
		1 mg/mL	AcCN	RAC-19-10X
		10 mg/mL	Water	M-8015B/5031-27
2,4,5-Trichloroaniline	636-30-6	100 mg	NEAT	L-006N
2,4,5-Trimethylaniline	137-17-7	100 µg/mL	AcCN	RAC-20
		1 mg/mL	AcCN	RAC-20-10X



Ether EPA Methods: 601, 8150

Ethers

Neats are as stated, Solutions are 1 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
bis(2-Chloroethyl)ether	111-44-4	4.0 mg/mL	MeOH	APP-9-027-40X
2-Chloroethylvinyl ether	110-75-8	2 mg/mL	MeOH	M-601C-10X
2,4-Dichlorophenyl-3-methyl-4-nitrophenyl ether	42488-57-3	1.0 mg/mL	Isooctane	E-020S
Diethyl ether	60-29-7	10 mg/mL	Water	M-8015B/5031-09
Dinoseb methyl ether	6099-79-2	0.2 mg/mL	Hexane	M-8150-08
p-Dioxane	123-91-1	100 µg/mL	MeOH	APP-9-096
		1 mg/mL	MeOH	APP-9-096-10X
		10 mg/mL	MeOH	AS-E0480
1,4-Dioxane	123-91-1	10 mg/mL	Water	M-8015B/5031-10
MtBE	1634-04-4	0.2 mg/mL	MeOH	S-078
		2 mg/mL	MeOH	S-078-10X
TAME	994-05-8	0.2 mg/mL	MeOH	S-1019

Halo Ethers

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Chlorophenyl-4-nitrophenyl ether	209-61-4	1 mg/mL	Isooctane	E-005S
3-Chlorophenyl-4-nitrophenyl ether	2303-23-3	1 mg/mL	Isooctane	E-006S
4-Chlorophenyl-4-nitrophenyl ether	1836-74-4	1 mg/mL	Isooctane	E-007S
2,4-Dibromophenyl-4-nitrophenyl ether	2671-93-4	1 mg/mL	Isooctane	E-004S
2,3-Dichlorophenyl-4-nitrophenyl ether	82239-20-1	1 mg/mL	Isooctane	E-008S
2,5-Dichlorophenyl-4-nitrophenyl ether	391-48-7	1 mg/mL	Isooctane	E-010S
2,6-Dichlorophenyl-4-nitrophenyl ether	2093-28-9	1 mg/mL	Isooctane	E-011S
3,5-Dichlorophenyl-4-nitrophenyl ether	21105-77-1	1 mg/mL	Isooctane	E-012S
2,4-Dichlorophenyl-4-nitrophenyl ether	1836-75-5	1 mg/mL	Isooctane	E-009S
3,4-Dichlorophenyl-4-nitrophenyl ether	22532-80-5	1 mg/mL	Isooctane	E-013S
4-Nitrophenyl phenyl ether	620-88-2	1 mg/mL	Isooctane	E-003S
2,3,5-Trichlorophenyl-4-nitrophenyl ether	142022-59-1	1 mg/mL	Isooctane	E-015S
2,3,6-Trichlorophenyl-4-nitrophenyl ether	142022-58-0	1 mg/mL	Isooctane	E-016S
2,3,4-Trichlorophenyl-4-nitrophenyl ether	142022-61-5	1 mg/mL	Isooctane	E-014S
2,4,5-Trichlorophenyl-4-nitrophenyl ether	22532-68-9	1 mg/mL	Isooctane	E-017S
2,4,6-Trichlorophenyl-4-nitrophenyl ether	1836-77-7	1 mg/mL	Isooctane	E-018S
3,4,5-Trichlorophenyl-4-nitrophenyl ether		1 mg/mL	Isooctane	E-019S

Haloacetic Acids EPA Methods: 552A, 552.1, 522.2, 515

Haloacetic Acids

Compound	CAS No.	Conc.	Matrix	Cat. No.
Bromoacetic acid	79-08-3	1 mg/mL	MtBE	M-552A-1
Bromochloroacetic acid	5589-96-8	40 µg/mL	MtBE	M-552.2A-01
		1 mg/mL	MtBE	M-552A-R-02
Bromodichloroacetic acid	71133-14-7	40 µg/mL	MtBE	M-552.2A-02
Chloroacetic acid	79-11-8	1 mg/mL	MtBE	M-552A-2
Chlorodibromoacetic acid	5278-95-5	100 µg/mL	MtBE	M-552.2A-03
Dibromoacetic acid	631-64-1	20 µg/mL	MtBE	M-552.2A-05
		1 mg/mL	MtBE	M-552A-5
Dichloroacetic acid	79-43-6	60 µg/mL	MtBE	M-552.2A-06
		1 mg/mL	MtBE	M-552A-3
2,4-Dichlorophenylacetic acid	19719-28-9	2 µg/mL	Acetone	M-1618-SA
2,4-Dichlorophenylacetic methyl ester	55954-23-9	0.1 mg/mL	MtBE	M-515-SS
		5 mg/mL	MtBE	M-515-SS-50X
Methyl bromoacetate	96-32-2	40 µg/mL	MtBE	M-552.2-02
		200 µg/mL	MeOH	M-552.1-02
Methyl bromochloroacetate	20428-74-4	40 µg/mL	MtBE	M-552.2-03
		200 µg/mL	MeOH	M-552.1-03
		1 mg/mL	MtBE	M-552-R-03
Methyl bromodichloroacetate	20428-76-6	40 µg/mL	MtBE	M-552.2-04
Methyl chloroacetate	96-34-4	60 µg/mL	MtBE	M-552.2-05
		300 µg/mL	MeOH	M-552.1-04
		1 mg/mL	MtBE	M-552-R-04
Methyl chlorodibromoacetate	20428-75-5	100 µg/mL	MtBE	M-552.2-06
Methyl dibromoacetate	6482-26-4	20 µg/mL	MtBE	M-552.2-07
		100 µg/mL	MeOH	M-552.1-05
Methyl dichloroacetate	116-54-1	60 µg/mL	MtBE	M-552.2-08
		300 µg/mL	MeOH	M-552.1-06
Methyl tribromoacetate	3222-05-7	200 µg/mL	MtBE	M-552.2-09 ❄
Methyl trichloroacetate	598-99-2	20 µg/mL	MtBE	M-552.2-10
		100 µg/mL	MeOH	M-552.1-07
Monobromoacetic acid	79-08-3	40 µg/mL	MtBE	M-552.2A-07
Monochloroacetic acid	79-11-8	60 µg/mL	MtBE	M-552.2A-08
Tribromoacetic acid	75-96-7	200 µg/mL	MtBE	M-552.2A-09
Trichloroacetic acid	76-03-9	20 µg/mL	MtBE	M-552.2A-10

❄ ColdPAK required to maintain integrity of product.

The Consumer Products Safety Commission (CPSC) has proposed banning the use of several phthalates in materials for children's toys. In 2008, a congressional edict banned dibutyl, n-butyl benzyl and di-2-ethylhexyl (DEHP) phthalates as potential health risks.

Diisononyl (DINP), di-n-octyl (DNOP) and diisodecyl (DIDP) phthalates also were banned on an interim basis. CPSC's advisory panel now recommends a permanent ban on DINP, but recommends the ban on DNOP and DIDP should be lifted. In addition, the panel is considering a ban on diisobutyl, di-n-pentyl, di-n-hexyl and dicyclohexyl phthalates.

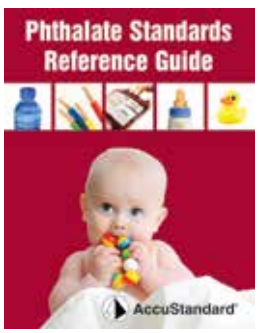
Phthalates EPA Methods: 506, 606, 8060, 8061
Listed in 4 groups, Phthalates, Monophthalates, Deuterated Phthalates and Technical Mixtures

UPDATE

Phthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.
Benzyl butyl phthalate	85-68-7	100 mg	NEAT	ALR-082N
		100 µg/mL	MeOH	ALR-082S
		5 mg/mL	MeOH	AS-E0065
bis(2-n-Butoxyethyl)phthalate	117-83-9	100 mg	NEAT	J-112
bis(2-Ethoxyethyl)phthalate	605-54-9	100 mg	NEAT	J-111
bis(2-Ethylhexyl)phthalate	117-81-7	100 mg	NEAT	ALR-097N
		100 µg/mL	MeOH	ALR-097S
		1 mg/mL	MeOH	APP-9-029-10X
bis(2-Methoxyethyl)phthalate	117-82-8	100 mg	NEAT	J-106
bis(4-Methyl-2-pentyl)phthalate	146-50-9	100 mg	NEAT	J-109
2-Butoxy-2-oxoethyl butyl phthalate	85-70-1	100 mg	NEAT	J-115
Diallyl phthalate	131-17-9	100 mg	NEAT	J-002
Diamyl phthalate	131-18-0	100 mg	NEAT	ALR-098N
		0.1 mg/mL	EtOAc	ALR-098S
Dibenzyl phthalate	523-31-9	100 mg	NEAT	J-104
Dibutyl phthalate	84-74-2	100 mg	NEAT	J-003
		100 µg/mL	MeOH	APP-9-063
		1 mg/mL	MeOH	APP-9-063-10X
		5 mg/mL	MeOH	AS-E0066
Dicyclohexyl phthalate	84-61-7	100 mg	NEAT	J-004
		100 µg/mL	MeOH	ALR-099S
		1 mg/mL	AcCN	AS-E0318
Didodecyl phthalate	2432-90-8	100 mg	NEAT	PHTH-018N
		100 µg/mL	MeOH	PHTH-018S
Diethyl phthalate	84-66-2	100 mg	NEAT	J-005
		100 µg/mL	MeOH	APP-9-081
		1 mg/mL	MeOH	APP-9-081-10X
		5 mg/mL	MeOH	AS-E0068
Dihexyl phthalate	84-75-3	100 mg	NEAT	ALR-100N
		100 µg/mL	MeOH	ALR-100S
Diisobutyl phthalate	84-69-5	100 mg	NEAT	J-113
Diisopentyl phthalate (Diisoamyl phthalate)	605-50-5	100 mg	NEAT	J-127
Diisopropyl phthalate	605-45-8	100 mg	NEAT	PHTH-019N
		100 µg/mL	MeOH	PHTH-019S
Dimethyl phthalate	131-11-3	100 mg	NEAT	J-010
		100 µg/mL	MeOH	APP-9-088
		1 mg/mL	MeOH	APP-9-088-10X
		5 mg/mL	MeOH	AS-E0069
		0.1 mg/mL	EtOAc	M-8032-IS
Di-n-heptyl phthalate	3648-21-3	100 mg	NEAT	PHTH-020N
		100 µg/mL	MeOH	PHTH-020S
Di-n-octyl phthalate	117-84-0	100 mg	NEAT	J-011
		100 µg/mL	MeOH	APP-9-095
		5 mg/mL	MeOH	AS-E0067
Di-n-propyl phthalate	131-16-8	100 mg	NEAT	J-100
Diphenyl phthalate	84-62-8	100 mg	NEAT	J-013
Diundecyl phthalate	3648-20-2	100 mg	NEAT	PHTH-021N
		100 µg/mL	MeOH	PHTH-021S
Isophthalates				
Dimethyl isophthalate	1459-93-4	100 mg	NEAT	J-009
Diphenyl isophthalate	744-45-6	100 mg	NEAT	J-012
Terephthalates				
bis(2-Ethylhexyl) terephthalate	6422-86-2	100 mg	NEAT	J-121
Diethyl terephthalate	636-09-9	100 mg	NEAT	J-123
Dimethyl terephthalate	120-61-6	100 mg	NEAT	J-101

Neats are as stated, Solutions are 1 mL



Guide includes added technical & physical information

Request or download Reference Guide at AccuStandard.com

Phthalates (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.
Monophthalates				
Monobenzyl phthalate (mBzP) NEW	2528-16-7	100 mg	NEAT	ALR-134N
		100 µg/mL	AcCN	ALR-134S-CN
Monobutyl phthalate (mBP)	131-70-4	100 mg	NEAT	ALR-135N
		100 µg/mL	AcCN	ALR-135S-CN
Monocyclohexyl phthalate NEW	7517-36-4	100 mg	NEAT	ALR-178N
		100 µg/mL	AcCN	ALR-178S-CN
Monoethyl phthalate (mEP)	2306-33-4	100 mg	NEAT	ALR-137N
		100 µg/mL	AcCN	ALR-137S-CN
Monoethylhexyl phthalate (mEHP)	4376-20-9	100 mg	NEAT	ALR-138N
		100 µg/mL	AcCN	ALR-138S-CN
Mono-2-heptyl phthalate NEW		100 mg	NEAT	ALR-143N
		100 µg/mL	AcCN	ALR-143S-CN
Monohexyl phthalate NEW	24539-57-9	100 mg	NEAT	ALR-175N
		100 µg/mL	AcCN	ALR-175S-CN
Monoisobutyl phthalate NEW	30833-53-5	100 mg	NEAT	ALR-176N
		100 µg/mL	AcCN	ALR-176S-CN
Monoisononyl phthalate NEW		100 mg	NEAT	ALR-142N
Mixture of C9 Isomers		100 µg/mL	AcCN	ALR-142S-CN
Monoisopropyl phthalate NEW	35118-50-4	100 mg	NEAT	ALR-179N
		100 µg/mL	AcCN	ALR-179S-CN
Monomethyl phthalate	4376-18-5	100 mg	NEAT	ALR-139N
		100 µg/mL	AcCN	ALR-139S-CN
Monooctyl phthalate NEW	5393-19-1	100 mg	NEAT	ALR-141N
		100 µg/mL	AcCN	ALR-141S-CN
Mono-n-pentyl phthalate NEW	24539-56-8	100 mg	NEAT	ALR-177N
		100 µg/mL	AcCN	ALR-177S-CN
Deuterated Phthalates				
Dibenzylphthalate-d_4	1015854-62-2	5 mg	NEAT	PHTH-D4-001N
		100 µg/mL	MeOH	PHTH-D4-001S
Dicyclohexyl phthalate-3,4,5,6-d_4	358731-25-6	5 mg	NEAT	PHTH-D4-004N
		100 µg/mL	MeOH	PHTH-D4-004S
Diethyl phthalate-3,4,5,6-d_4	93952-12-6	5 mg	NEAT	PHTH-D4-005N
		100 µg/mL	MeOH	PHTH-D4-005S
Di-iso-butyl phthalate-3,4,5,6-d_4	358730-88-8	5 mg	NEAT	PHTH-D4-003N
		100 µg/mL	MeOH	PHTH-D4-003S
Dimethyl phthalate-3,4,5,6-d_4	93951-89-4	5 mg	NEAT	PHTH-D4-007N
		100 µg/mL	MeOH	PHTH-D4-007S
Di-n-butyl phthalate-d_4	93952-11-5	5 mg	NEAT	PHTH-D4-002N
		100 µg/mL	MeOH	PHTH-D4-002S
Di-n-hexyl phthalate-3,4,5,6-d_4	1015854-55-3	5 mg	NEAT	PHTH-D4-006N
		100 µg/mL	MeOH	PHTH-D4-006S
Di-n-octyl phthalate-3,4,5,6-d_4	93952-13-7	5 mg	NEAT	PHTH-D4-008N
		100 µg/mL	MeOH	PHTH-D4-008S
Di-n-pentyl phthalate-3,4,5,6-d_4	358730-89-9	5 mg	NEAT	PHTH-D4-009N
		100 µg/mL	MeOH	PHTH-D4-009S
Di-n-propyl phthalate-3,4,5,6-d_4	358731-29-0	5 mg	NEAT	PHTH-D4-010N
		100 µg/mL	MeOH	PHTH-D4-010S
bis(2-Ethylhexyl)phthalate-3,4,5,6-d_4	93951-87-2	5 mg	NEAT	PHTH-D4-011N
		100 µg/mL	MeOH	PHTH-D4-011S
Set includes above 11 Deuterated Phthalates				
	NEAT Set	PHTH-D4N-SET		11 x 5 mg
	SOLUTION Set	PHTH-D4S-SET		11 x 1 mL

Neats are as stated, Solutions are 1 mL

Phthalates continued on next page

Phthalates (continued)

Neats are as stated, Solutions are 1 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
Phthalates - Technical Mixtures				
Benzyl 2-ethylhexyl phthalate	27215-22-1	100 mg	NEAT	ALR-165N
		100 µg/mL	MeOH	ALR-165S
n-Butyl benzyl phthalate NEW	85-68-7	10 mg	NEAT	PHTH-014N
		100 µg/mL	MeOH	PHTH-014S
Butyl cyclohexyl phthalate	84-64-0	100 mg	NEAT	J-122
n-Butyl isobutyl phthalate NEW	17851-53-5	10 mg	NEAT	PHTH-013N
		100 µg/mL	MeOH	PHTH-013S
Butyl octyl phthalate	84-78-6	100 mg	NEAT	J-001
Decyl octyl phthalate NEW	119-07-3	10 mg	NEAT	PHTH-012N
		100 µg/mL	MeOH	PHTH-012S
Didecyl phthalate NEW	84-77-5	100 mg	NEAT	J-120
Diisodecyl phthalate	26761-40-0	100 mg	NEAT	ALR-101N
		100 µg/mL	MeOH	ALR-101S
Diisoheptyl phthalate	71888-89-6	50 mg	NEAT	PHTH-017N
		100 µg/mL	MeOH	PHTH-017S
Diisohexyl phthalate	68515-50-4	100 mg	NEAT	J-007
Diisononyl phthalate (C8 to C10 Isomers)	68515-48-0	100 mg	NEAT	ALR-102N
		100 µg/mL	MeOH	ALR-102S
Diisooctyl phthalate (C8 Isomers)	27554-26-3	100 mg	NEAT	ALR-103N
		100 µg/mL	MeOH	ALR-103S
Dinonyl phthalate NEW	84-76-4	100 mg	NEAT	J-105
Hexyl-2-ethylhexyl phthalate NEW	75673-16-4	100 mg	NEAT	J-016
Isobutyl benzyl phthalate NEW	72170-45-7	10 mg	NEAT	PHTH-015N
		100 µg/mL	MeOH	PHTH-015S
Isobutyl cyclohexyl phthalate	5334-09-8	100 mg	NEAT	J-014
Pentyl isopentyl phthalate NEW	776297-69-9	10 mg	NEAT	PHTH-016N
		100 µg/mL	MeOH	PHTH-016S
n-Octyl n-decyl phthalate	119-07-3	100 mg	NEAT	J-015

Organic Analytes by Application

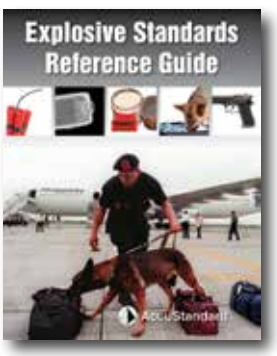
Search by

Functional Group

✔ **Application**

EPA Method

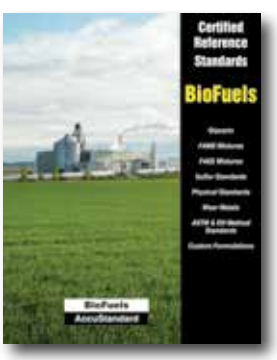
Methods by Application:
Many different industries have specific needs for reference standards. In order to make it easy for chemists to find products applicable to their analyses, AccuStandard has created industry specific listings for these different applications.



Thousands of Standards,

just a click away

AccuStandard.com



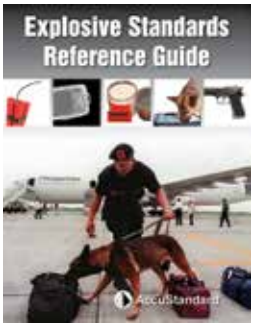
Explosives

Explosive standards are traditionally used for the remediation of soil and water in locations where explosives have been stored. These same standards are now being used to calibrate baggage screening detectors at airports and other secure locations (embassies and other government buildings). They also are used by police departments and the military in K-9 odor recognition training for explosives.

AccuStandard has working relationships with both government and private sector K-9 training facilities and laboratories which provide valuable information and insight into the latest developments in explosives.

To assist in all aspects of explosive detection and analysis, AccuStandard synthesizes an array of explosives as well as metabolites, degradation products and raw materials. AccuStandard is the only U.S. commercial source for TATP, HMTD, HMDD and HNS.

In addition to catalog items, we offer special formulations for EPA method and customer-specific applications.



Guide includes added technical & physical information Available on website.

Widest selection of Explosives and their Metabolites

♦ TNT Metabolites

EXCLUSIVELY from AccuStandard

HMTD, TATP & HNS

Matrix Key

AcCN:MeOH in (50:50 ratio) **DMF** Dimethyl formamide
AcCN Acetonitrile **EtOH** Ethanol
MeOH Methanol

Explosives

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Amino-4,6-dinitrotoluene ♦	35572-78-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-13	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-13-0.1X	
4-Amino-2,6-dinitrotoluene ♦	19406-51-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-14	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-14-0.1X	
Ammonium picrate	131-74-8	0.1 mg/mL	AcCN	M-8330-ADD-27	
DEGDN	693-21-0	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-36	
1,2-Diaminopropane	78-90-0	0.1 mg/mL	MeOH	M-8330-ADD-9	
2,4-Diamino-6-nitrotoluene ♦	6629-29-4	0.1 mg/mL	AcCN	M-8330-ADD-12	
2,6-Diamino-4-nitrotoluene ♦	59229-75-3	0.1 mg/mL	AcCN	M-8330-ADD-13	
Diazodinitrophenol	4682-03-5	0.1 mg/mL	AcCN	M-8330-ADD-48	
		1 mg/mL	AcCN	M-8330-ADD-48-10X	
2,3-Dimethyl-2,3-dinitrobutane (DMNB)	3964-18-9	100 µg/mL	AcCN	M-8330-ADD-21	
3,5-Dinitroaniline	618-87-1	0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-4	
1,2-Dinitrobenzene	528-29-0	1 mg/mL	MeOH	M-8330-SS	
1,3-Dinitrobenzene	99-65-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-01	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-01-0.1X	
1,2-Dinitroglycerin	621-65-8	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-33	
1,3-Dinitroglycerin	623-87-0	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-34	
2,4-Dinitrotoluene ♦	121-14-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-02	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-02-0.1X	
2,6-Dinitrotoluene ♦	606-20-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-03	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-03-0.1X	
3,4-Dinitrotoluene	610-39-9	1 mg/mL	MeOH	M-8330-IS	
3,5-Dinitrotoluene ♦	618-85-9	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-39	
Dipentaerythritol hexanitrate **NEW**	13184-80-0	100 µg/mL	MeOH	M-8330-ADD-43	
EGDN	628-96-6	0.1 mg/mL	AcCN	M-8330-ADD-5	
Erythritol tetranitrate (ETN)	7297-25-8	0.1 mg/mL	AcCN	M-8330-ADD-47	
		1 mg/mL	AcCN	M-8330-ADD-47-10X	
Guanidine nitrate	506-93-4	0.1 mg/mL	MeOH	M-8330-ADD-10	
Hexahydro-1,3-trinitroso-1,3,5-triazine	13980-04-6	0.1 mg/mL	AcCN	M-8330-ADD-46	
		1 mg/mL	AcCN	M-8330-ADD-46-10X	
Hexanitrodiphenylamine	131-73-7	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-37	
Hexanitrostilbene (HNS) ♦	20062-22-0	0.1 mg/mL	AcCN	M-8330-ADD-26 ❄	
Hexamethylene diperoxide diamine (HMDD) **NEW**	112204-35-0	100 µg/mL	AcCN	M-8330-ADD-45	
		1000 µg/mL	AcCN	M-8330-ADD-45-10X	
Hexamethylenetriperoxide diamine (HMTD)	283-66-9	0.1 mg/mL	AcCN	M-8330-ADD-25	
HMX	2691-41-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-04	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-04-0.1X	
Hydrazine	302-01-2	0.1 mg/mL	MeOH	M-8330-ADD-8	
2-Hydroxylamino-4,6-dinitrotoluene ♦ (3 month stability)		0.1 mg/mL	AcCN	M-8330-ADD-18 ❄	
4-Hydroxylamino-2,6-dinitrotoluene ♦ (3 month stability)		0.1 mg/mL	AcCN	M-8330-ADD-20 ❄	
Nitrobenzene ♦	98-95-3	1 mg/mL	AcCN:MeOH (50:50)	M-8330-06	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-06-0.1X	
N-Nitrodimethylamine	4164-28-7	100 µg/mL	AcCN	M-8330-ADD-40	
Nitroglycerin	55-63-0	0.1 mg/mL	EtOH	M-8330-ADD-1	
		1.0 mg/mL	EtOH:MeOH (97:3)	M-8330-ADD-1-10X	
1-Nitroglycerin	624-43-1	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-31	
2-Nitroglycerin	620-12-2	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-32	
Nitroguanidine	556-88-7	0.1 mg/mL	MeOH	M-8330-ADD-6	
Nitromethane	75-52-5	0.1 mg/mL	MeOH	M-8330-ADD-7	
2-Nitrotoluene ♦	88-72-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-07	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-07-0.1X	
3-Nitrotoluene ♦	99-08-1	1 mg/mL	AcCN:MeOH (50:50)	M-8330-08	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-08-0.1X	
4-Nitrotoluene ♦	99-99-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-09	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-09-0.1X	
Pentaerithrityl trinitrate **NEW**	22026-67-1	100 µg/mL	MeOH	M-8330-ADD-44	

❄ ColdPAK required to maintain integrity of product.

Explosives (Continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
PETN	78-11-5	0.1 mg/mL	MeOH	M-8330-ADD-2	
		1 mg/mL	MeOH	M-8330-ADD-2-10X	
Picramic acid	831-52-7	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-22	
Picric acid	88-89-1	0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-3	
Propyleneglycol dinitrate	6423-43-4	100 µg/mL	MeOH	M-8330-ADD-35	
PYX	38082-89-2	0.1 mg/mL	AcCN	M-8330-ADD-11	
RDX	121-82-4	1 mg/mL	AcCN:MeOH (50:50)	M-8330-05	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-05-0.1X	
TATP	17088-37-8	0.1 mg/mL	AcCN	M-8330-ADD-24 ❄	
TEGDN		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-41-R1	
2,2',6,6'-Tetranitro-4,4'-azotoluene ♦		0.1 mg/mL	AcCN	M-8330-ADD-17	
4,4',6,6'-Tetranitro-2,2'-azotoluene ♦		0.1 mg/mL	AcCN	M-8330-ADD-19	
2,2',6,6'-Tetranitro-4,4'-azoxytoluene ♦		0.1 mg/mL	AcCN	M-8330-ADD-15	
Tetryl	479-45-8	1 mg/mL	AcCN:MeOH (50:50)	M-8330-10	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-10-0.1X	
TNT	118-96-7	1 mg/mL	AcCN:MeOH (50:50)	M-8330-11	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-11-0.1X	
1,3,5-Triamino-2,4,6-trinitrobenzene	3058-38-6	40 µg/mL	DMF	M-8330-ADD-14-DMF	
2,4,6-Triaminotoluene trihydrochloride (TNT free)	634-87-7	5 mg	NEAT	M-8330-ADD-23N-5MG	
Trimethylolethane trinitrate	3032-55-1	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-28	
1,3,5-Trinitrobenzene ♦	99-35-4	1 mg/mL	AcCN:MeOH	M-8330-12	
		0.1 mg/mL	AcCN:MeOH	M-8330-12-0.1X	
2,4,6-Trinitroresorcinol	82-71-3	1 mg/mL	AcCN:MeOH	M-8330-ADD-29	

Method 8330 Multi-Component Formulations for Explosive Analysis

The following A and B mixes provide better resolution between possible coeluting analytes, assisting the chemist to optimize the HPLC system. AccuStandard suggest using the high concentration set **M-8330-R-10X-SET** when first performing Method 8330 development..

Mix A

M-8330A ❄ **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50) 7 comps.
M-8330A-10X ❄ **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) 7 comps.

- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- HMX
- Nitrobenzene
- RDX
- 1,3,5-Trinitrobenzene
- TNT

M-8330A-R ❄ **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50) 8 comps.
M-8330A-R-10X ❄ **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) 8 comps.

- 2-Amino-4,6-dinitrotoluene
- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- HMX
- Nitrobenzene
- RDX
- 1,3,5-Trinitrobenzene
- TNT

Composite Explosive Mixture

M-8330-R-0.1X **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330-R-0.5X **1 x 1 mL**
0.5 mg/mL each in AcCN:MeOH (50:50)

- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- HMX
- RDX
- Nitrobenzene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene
- Tetryl
- TNT
- 1,3,5-Trinitrobenzene
- 2-Amino-4,6-dinitrotoluene
- 4-Amino-2,6-dinitrotoluene

Internal Standard

M-8330-IS **1 x 1 mL**
M-8330-IS-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL in MeOH

- 3,4-Dinitrotoluene

❄ ColdPAK required to maintain integrity of product.

Mix B

M-8330B ❄ **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50) 5 comps.
M-8330B-10X ❄ **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) 5 comps.

- Tetryl
- 2,6-Dinitrotoluene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene

M-8330B-R ❄ **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50) 7 comps.
M-8330B-R-10X ❄ **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) 7 comps.

- 2-Amino-4,6-dinitrotoluene
- 4-Amino-2,6-dinitrotoluene
- Tetryl
- 2,6-Dinitrotoluene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene

M-8330B-R2 ❄ **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50) 6 comps.
M-8330B-R2-10X ❄ **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) 6 comps.

- 4-Amino-2,6-dinitrotoluene
- Tetryl
- 2,6-Dinitrotoluene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene

Surrogate Standard

M-8330-SS **1 x 1 mL**
1.0 mg/mL in MeOH

- 1,2-Dinitrobenzene

Explosives by HPLC Set

M-8330-R-SET ❄ **14 x 1 mL**
Each at 100 µg/mL in AcCN:MeOH (50:50)
M-8330-R-10X-SET ❄ **14 x 1 mL**
Each at 1000 µg/mL in AcCN:MeOH (50:50)

- 1,3-Dinitrobenzene (01)
- 2,4-Dinitrotoluene (02)
- 2,6-Dinitrotoluene (03)
- HMX (04)
- RDX (05)
- Nitrobenzene (06)
- 2-Nitrotoluene (07)
- 3-Nitrotoluene (08)
- 4-Nitrotoluene (09)
- Tetryl (10)
- TNT (11)
- 1,3,5-Trinitrobenzene (12)
- 2-Amino-4,6-dinitrotoluene (13)
- 4-Amino-2,6-dinitrotoluene (14)

Method 529 Explosive & Related Compounds by SPE & Capillary Column GC/MS

Method 529 Calibration Curve

All in µg/mL in Ethyl acetate

M-529-	01	02	03	04	05	06	07	08	09
2-Amino-4,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Amino-2,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3,5-Dinitroaniline	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3-Dinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,4-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,6-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
RDX	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Nitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3,5-Trinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Tetryl	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
TNT	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10

Full Scan MS Calibration Set

M-529-MS-SET **6 x 1 mL**
M-529-03, M-529-05, M-529-06, M-529-07, M-529-08, M-529-09

SIM Calibration Set

M-529-SIM-SET **7 x 1 mL**
M-529-01, M-529-02, M-529-03, M-529-04, M-529-05, M-529-06, M-529-07

Storage Condition.: Freeze (<-10°C)

Internal Standard Stock Solution

M-529-IS **1 x 1 mL**
2.0 mg/mL Ethyl acetate

3,4-Dinitrotoluene

Internal Standard Fortification Solution

M-529-ISFS **1 x 1 mL**
200 µg/mL each in Ethyl acetate:AcCN (96:4) 14 comps.

2-Amino-4,6-dinitrotoluene
4-Amino-2,6-dinitrotoluene
3,5-Dinitroaniline
1,3-Dinitrobenzene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
RDX
Nitrobenzene
2-Nitrotoluene
3-Nitrotoluene
4-Nitrotoluene
1,3,5-Trinitrobenzene
Tetryl
TNT

Surrogate Analyte Stock Solutions

M-529-SS1 **1 x 1 mL**
M-529-SS1-PAK ***SAVE*** **5 x 1 mL**
1000 µg/mL each in MeOH 2 comps.

1,3,5-Trimethyl-2-nitrobenzene
1,2,4-Trimethyl-5-nitrobenzene

M-529-SS2 **1 x 1 mL**
M-529-SS2-PAK ***SAVE*** **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

Nitrobenzene-d_5

Surrogate Analyte Fortification Solution

M-529-SAFS **1 x 1 mL**
100 µg/mL each in MeOH 3 comps.

1,3,5-Trimethyl-2-nitrobenzene
1,2,4-Trimethyl-5-nitrobenzene
Nitrobenzene-d_5

Method 8095 Explosives by GC/ECD

This method is a companion to EPA Method 8330, utilizing the sensitivity and selectivity of the ECD.

Explosive Stock Solution A

M-8095-SSA-100X **1 x 1 mL**
M-8095-SSA-100X-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL each in AcCN:MeOH (50:50) 10 comps.

2-Amino-4,6-dinitrotoluene
4-Amino-2,6-dinitrotoluene
1,3-Dinitrobenzene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
1,3,5-Trinitrobenzene
TNT
RDX
Tetryl
HMX

Explosive Stock Solution B

M-8095-SSB-100X **1 x 1 mL**
M-8095-SSB-100X-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in AcCN:MeOH (50:50) 7 comps.

Nitrobenzene	(500 µg/mL)	Nitroglycerin	(500 µg/mL)
3-Nitrotoluene	(500 µg/mL)	PETN	(500 µg/mL)
2-Nitrotoluene	(500 µg/mL)	3,5-Dinitroaniline	(100 µg/mL)
4-Nitrotoluene	(500 µg/mL)		

Explosive Surrogate Standards

M-8095-SS-01 **1 x 1 mL**
M-8095-SS-01-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL in AcCN

3,4-Dinitrotoluene

M-8095-SS-02 **1 x 1 mL**
M-8095-SS-02-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL in AcCN

2-Methyl-4-nitroaniline

M-8095-SS-03 **1 x 1 mL**
M-8095-SS-03-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL in AcCN

2,5-Dinitrotoluene

DIN Explosive Standards

DIN 38407-21 Explosives

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection

DIN38407-21-A **1 x 1 mL**

10 µg/mL each in MeOH 12 comps.

Picric acid	Nitroglycerin
HMX	TNT
RDX	2-Nitrotoluene
Tetryl	PETN
EGDN	4-Nitrotoluene
DEGDN	3-Nitrotoluene

DIN 38407-21 Related Compounds

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection

DIN38407-21-B **1 x 1 mL**

10 µg/mL each in MeOH:AcCN (98:2) 8 comps.

1,3,5-Trinitrobenzene
1,3-Dinitrobenzene
4-Amino-2,6-dinitrotoluene
2,2',4,4',6,6'-Hexanitrodiphenylamine
2-Amino-4,6-dinitrotoluene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
Diphenylamine

Gun Surveillance Standards

Inorganic ICP Standards for Gun Shot Residue

NEW

Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Antimony	50 mL	---------	ICP-02N-10X-0.5
Sb Dilute HNO_3 tr.	100 mL	ICP-02N-1	ICP-02N-10X-1
Tartaric acid	500 mL	ICP-02N-5	ICP-02N-10X-5
Barium	50 mL	---------	ICP-04N-10X-0.5
$Ba(NO_3)_2$	100 mL	ICP-04N-1	ICP-04N-10X-1
2-5% Nitric acid	500 mL	ICP-04N-5	ICP-04N-10X-5
Lead	50 mL	---------	ICP-29N-10X-0.5
$Pb(NO_3)_2$	100 mL	ICP-29N-1	ICP-29N-10X-1
2-5% Nitric acid	500 mL	ICP-29N-5	ICP-29N-10X-5

Organic Compounds for Firearm Discharge Analysis

NEW

Compound	Conc.	Matrix	Cat. No. 1 mL
2,4-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-02-0.1X
$C_7H_6N_2O_4$	1000 µg/mL	AcCN:MeOH	M-8330-02
2,6-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-03-0.1X
$C_7H_6N_2O_4$	1000 µg/mL	AcCN:MeOH	M-8330-03
3,4-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-04-0.1X
$C_7H_6N_2O_4$	1000 µg/mL	AcCN:MeOH	M-8330-04
Diphenylamine NEW	100 µg/mL	DCM	APP-9-097
$C_{12}H_{11}N$			
Ethylcentralite NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-50
$C_{17}H_{20}N_2O$			
Methylcentralite NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-49
$C_{15}H_{16}N_2O$			
2-Nitrodiphenylamine NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-51
$C_{12}H_{10}N_2O_2$			
4-Nitrodiphenylamine NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-52
$C_{12}H_{10}N_2O_2$			
1-Nitroglycerine ◗	100 µg/mL	AcCN:MeOH	M-8330-ADD-31
$C_3H_5N_3O_9$			
2-Nitroglycerine ◗	100 µg/mL	AcCN:MeOH	M-8330-ADD-32
$C_3H_5N_3O_9$			
N-Nitrosodiphenylamine	100 µg/mL	MeOH	APP-9-150
$C_{12}H_{10}N_2O$			
2-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-07
$C_7H_7NO_3$			
3-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-08
$C_7H_7NO_3$			
4-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-09
$C_7H_7NO_3$			

Any compound without ◗ could contain possible isomers

Gun Surveillance Standard

EXP-GSS **1 x 1 mL**

At stated conc. (µg/mL) in AcCN 9 comps.

Dimethyl phthalate	200
2,4'-Dinitrodiphenylamine	50
2,4-Dinitrodiphenylamine	50
2-Nitrodiphenylamine	50
4-Nitrodiphenylamine	50
2,2'-Dinitrodiphenylamine	50
4,4'-Dinitrodiphenylamine	50
Diphenylamine	200
N-Nitrosodiphenylamine	75

Technical Note

We offer gunshot residue standards through our "AccuTrace™" inorganic products. Custom solutions of Antimony, Barium and Lead are available for use with ICP instrumentation. Organic compounds identified in the discharge of a firearm are also available.

Plastic Additives

Plastics and other polymeric materials have become indispensable in our everyday lives. Although they offer many benefits, hazardous chemicals may be present in these materials. These hazardous materials can be introduced either intentionally as additives, or unintentionally as pollutants.

AccuStandard has collected or synthesized many of these polymer adjuncts and is pleased to present them in this newest unique product line as certified reference materials for monitoring these chemicals.

The occurrence, toxicity and analytical methods used in the detection, monitoring (for both presence and levels) of these chemical classes and individual compounds within these classes are more thoroughly described in the book the "Handbook for the Chemical Analysis of Plastic and Polymer Additives" 2nd Ed. (published in 2015 by CRC Press). Both manufacturers and analytical laboratories will find the CRC book to be an authoritative source of information that compliments this catalog.

Calibrating with Certified Standards adds an additional layer of confidence in the analysis that can aid in meeting regulations, assisting in challenges from governmental regulations, and providing protection from legal issues that could be raised by consumers.

Below find a list of regulations that require analysis of many of these additives:

- EU Directives 2002/96/EC and 2002/95/EC WEEE (Waste Electrical and Electronic Equipment) that establishes limits for the content of a product that must be recyclable or reusable.
- EU Directive 2003/11/EC RoHS (restriction of the use of certain hazardous substances) restricting the use of six toxins from most electronic & electrical equipment.
- EU Directive 2002/72/EC relating to plastic materials and articles intended to come in contact with foodstuffs.
- EU Directive 2002/61/EC aryl amine breakdown products in azo dyes.
- EU Directive 67/548/EEC relating to the packaging of dangerous substances.
- FDA and The United States Code of Federal Regulations (CFR) - 21 CFR Parts 175-178 that regulate adhesives, components of coatings, paper and paperboard components, polymers and adjuvants and production aids.
- United States Environmental Protection Agency (USEPA) - Methods 606, 506-1 and 8061 regulating phthalates and adipates.

PolyAdd ✔ Check™

The perfect companion for your analysis!

The Handbook for Chemical Analysis of Plastic and Polymer Additives, 2nd Edition

NEW

This reference handbook contains the compounds in this catalog, with important reference data to aid in testing and compliance. There is also information to help with real world examples, tips for analysis in challenging matrices, and much, much more!

The new book will be available Spring 2015

Cat. No: PLAS-CRC-BOOK2

Each Compound has:

Chemical Information
- Structure
- CAS Number (where applicable)
- RTECS Number (where available)
- Formula
- Molecular Weight
- IUPAC Name, other common names and some popular brand names (where available)

Physical Properties
- Appearance
- Melting and Boiling Points
- Stability
- Solubilities in several common solvents

Other Important Information
- Application
- Regulatory
- Environmental Impact
- Point of Release
- Toxicological Data

Analytical Data
- Mass Spectrum with key Ions tabulated
- Chromatogram with conditions

Plastic Additive Standards Guide

For chemical structure, formula and molecular weight, visit our website, to download our catalog.

Both the Handbook and Guide are organized into classes by additive type. Manufacturers can easily find Standards that match their particular application and product formulation for the following product categories:

- Medical Devices
- Food Packaging
- Pharmaceutical Packaging
- Toys
- Wire and Cable
- etc.

Plastic Additives

Trade-named products are usually technical mixtures.

Solutions at 1000 µg/mL in Hexane, except where indicated
☆ Hexane:Acetone, -A Acetone, -T Toluene, -M Methanol, - DMSO

Accelerants

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Accelerator BBTS	N-(1,1-dimethylethyl)-2-benzo thiazolesulfenamide	95-31-8	PLAS-AC-003N	PLAS-AC-003S
Accelerator CBTS	N-cyclohexyl-2-benzothioazole sulfenamide	95-33-0	PLAS-AC-007N	----------
Accelerator EZ & EZ-SP	Zinc diethyldithiocarbamate	14324-55-1	PLAS-AC-006N	PLAS-AC-006S
Accelerator MBT, MBT/MG	2-Mercaptobenzothiazole	149-30-4	PLAS-AC-001N	PLAS-AC-001S
Activator OT Urea	Urea	57-13-6	PLAS-AC-005N	PLAS-AC-005S-A
Akroform ETU-22 PM	Ethylene thiourea	96-45-7	PLAS-AC-002N	PLAS-AC-002S ☆
Cure-Rite® IBT	Tetraisobutylthiuram disulfide	3064-73-1	PLAS-AC-004N	PLAS-AC-004S
Dipentamethylenethiuram tetrasulfide		120-54-7	PLAS-AC-009N	----------
1,3-Diphenyl-2-thiourea		102-08-9	PLAS-AC-108N	----------
1,3-Di-o-tolylguanidine		97-39-2	PLAS-AC-010N	----------

Antidegradants

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Akrochem® Antiox 12	Butylated reaction product of p-cresol and dicyclopentadiene	68610-51-5	PLAS-AD-001N	PLAS-AD-001S
Ethanox® 314	1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	27676-62-6	PLAS-AX-084N	PLAS-AX-084S
Ethanox® 703	2-,6-Di-tert-butyl-N-N-dimethylamino-p-cresol	88-27-7	PLAS-AX-085N	PLAS-AX-085S
Santoflex® IPPD	N-phenyl-N'-propan-2-yl-benzene-1,4-diamine	101-72-4	PLAS-AD-003N	PLAS-AD-003S ☆
Santoflex® 77PD	N,N'-bis(1,4-dimethylpentyl)-p-phenylenediamine	3081-14-9	PLAS-AD-002N	PLAS-AD-002S

Antifoams

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
SF100	Dimethyl silicone fluid	9016-00-6	PLAS-AF-001N	PLAS-AF-001S

Antioxidants

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Alkanox® P27	bis(2,4-Di-tert-butylphenyl)pentaerythritol diphosphate and magnesium aluminum hydroxy carbonate hydrate	26741-53-7 / 11097-59-9	PLAS-AX-032N	----------
Alkanox® TNPP	Tris(mono-nonylphenyl) phosphite with up to 1% triisopropanol amine	26523-78-4	PLAS-AX-077N	PLAS-AX-077S
Anox® PP18	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propanoate	2082-79-3	PLAS-AX-114N	----------
Antioxidant 60	2H-benzimidazole-2-thione, 1,3-di-hydro-4(or 5)-methyl	53988-10-6	PLAS-AX-019N	PLAS-AX-019S-M
Antioxidant S	Benzenamine, N-phenyl, reaction products with 2,4,4-trimethylpentene	68411-46-1	PLAS-AX-057N	PLAS-AX-057S
2-(2H-Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol		3147-75-9	PLAS-AX-094N	----------
BLS® 234	2-[2-Hydroxy-3,5-di-(1,1-dimethylbenzyl)]-2H-benzotriazole	70321-86-7	PLAS-AX-088N	----------
BLS® 292	bis(1,2,2,6,6-pentamethyl-4-piperidinyl)sebacate and Methyl(1,2,2,6,6-pentamethyl-4-piperidinyl)sebacate	41556-26-7 / 8219-37-7	PLAS-AX-089N	----------
BLS® 1622	Dimethyl succinate polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidine ethanol	65447-77-0	PLAS-AX-096N	----------
BLS® 1944	Poly[[6-[(1,1,3,3-tetramethylbutyl)amino]-s-triazine-2,4-diyl][(2,2,6,6-tetramethyl-4-piperidyl)imino]]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]	70624-18-9	PLAS-AX-090N	----------
BNX 1077	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, isotridecyl ester	847488-62-4	PLAS-AX-087N	----------
BNX 1225TPR	Blend of BNX® 1010, Benefos® 1680 and SIS Block Copolymer	6683-19-8/31570-04-4/ 25038-32-8	PLAS-AX-091N	----------
2-tert-Butyl-6-(5-chloro-2H-benzotriazol-2-yl)-4-methylphenol		3896-11-5	PLAS-AX-093N	----------
4,4'-Butylidenebis(6-tert-butyl-m-cresol)		85-60-9	PLAS-AX-105N	
Cyanox® 1212	Lauryl stearylthiopropionate	13103-52-1	PLAS-AX-047N	PLAS-AX-047S
Cyanox® 1790	1,3,5-Tris(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)-1,3,5-triazine-2,4,6-(1h, 3h,5h)-trione	40601-76-1	PLAS-AX-005N	PLAS-AX-005S
Cyanox® 2246	2,2'-Methylene-bis-(4-methyl-6-tert-butyl-phenol)	119-47-1	PLAS-AX-013N	PLAS-AX-013S
Cyanox® 425	2,2'-Methylene-bis-(4-ethyl-6-tert-butyl-phenol)	88-24-4	PLAS-AX-012N	PLAS-AX-012S
Cyanox® LTDP	Dilaurylthiopropionate	123-28-4	PLAS-AX-041N	PLAS-AX-041S
Cyanox® STDP	Distearylthiopropionate	693-36-7	PLAS-AX-044N	PLAS-AX-044S
Dibenzylhydroxylamine		621-07-8	PLAS-AX-092N	----------
3,9-Bis(2,4-dicumylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5,5]undecane		154862-43-8	PLAS-AX-111N	----------
Diethyl 3,5-Di-tert-butyl-4-hydroxybenzyl phosphonate		976-56-7	PLAS-AX-110N	----------
N,N'-Diethylthiourea	1,3-Diethyl-2-thiourea	105-55-5	PLAS-AX-103N	----------
O,O'-Dioctadecylpentaerythritol bis(phosphite)		3806-34-6	PLAS-AX-108N	----------
Distyryl biphenyl		27344-41-8	PLAS-AX-099N	----------
2,6-Di-tert-butyl-4-ethylphenol		4130-42-1	PLAS-AX-107N	----------
2,6-Di-tert-butylphenol		128-39-2	PLAS-AX-112N	----------
Ethanox® 310	Pentaerythritol tetrakis (3-(3,5-di-t-butyl-4-hydroxyphenyl)propionate	6683-19-8	PLAS-AX-086N	PLAS-AX-086S
Ethanox® 323	Nonylphenol disulfide oligomer		PLAS-AX-082N	PLAS-AX-082S
Ethanox® 330	1,3,5-Trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl) benzene	1709-70-2	PLAS-AX-021N	PLAS-AX-021S
Ethanox® 376	3,5-Di-tert-butyl-4-hydroxyhydrocinnamic acid, octadecyl ester	2082-79-3	PLAS-AX-054N	PLAS-AX-054S

Antioxidants continued on next page

Trade-named products are usually technical mixtures.

Solutions at 1000 µg/mL in Hexane, except where indicated
☆ Hexane:Acetone, -A Acetone, -T Toluene, -M Methanol, - DMSO

Antioxidants (Continued)

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Ethanox® 702	4,4'-Methylenebis(2,6-di-tert-butylphenol)	118-82-1	PLAS-AX-025N	PLAS-AX-025S
Ethanox® 703	2,6-di-tert-butyl-N,N-dimethylamino-p-cresol	88-27-7	PLAS-AX-085N	PLAS-AX-085S
Ethaphos® 368	Tris(2,4-di-tert-butylphenyl) phosphite	31570-04-4	PLAS-AX-074N	PLAS-AX-074S
2,2'-Ethylidene-bis(4,6-di-tert-butylphenol)		35958-30-6	PLAS-AX-106N	----------
2-(2'-Hydroxy-3',5'-di-tert-amylphenyl) benzotriazole		25973-55-1	PLAS-AX-095N	----------
Irganox® 245	Triethyleneglycol bis[3-(3'-tert-butyl-4'hydroxy-5'-methylphenol)propionate]	36443-68-2	PLAS-AX-070N	PLAS-AX-070S
Irganox 259	Hexamethylene bis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)	35074-77-2	PLAS-AX-045N	PLAS-AX-045S
Irganox 565	2,4-bis(n-Octylthio)-6-(4-hydroxy-3,5-di-tert-butylanilino)-1,3,5-triazine	991-84-4	PLAS-AX-014N	PLAS-AX-014S
Irganox 1035	Thiodiethylene bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamate)	41484-35-9	PLAS-AX-069N	PLAS-AX-069S
Irganox 1081	6,6'-Di-tert-butyl-2,2'-thiodi-p-cresol	90-66-4	PLAS-AX-080N	PLAS-AX-080S
Irganox 1098	N,N'-1,6-Hexanediyl bis[3,5-bis(1,1-dimethylethyl)-4-hydroxy-benzenepropanamide]	23128-74-7	PLAS-AX-050N	PLAS-AX-050S ☆
Irganox 1425 WL	Ethyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate, calcium salt and polyethylene-wax mixture	65140-91-2 / 9002-88-4	PLAS-AX-079N	----------
Irganox 3125	3,5-Di-tert-butyl-4-hydroxyhydrocinnamic ester with 1,3,5-tris[2-hydroxyethyl]-s-triazine-2,4,6[1H,3H,5H]-trione	34137-09-2	PLAS-AX-020N	PLAS-AX-020S ☆
Irganox 3144 FF	1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	27676-62-6	PLAS-AX-078N	PLAS-AX-078S
Irganox E 201	alpha-Tocopherol	10191-41-0	PLAS-AX-027N	PLAS-AX-027S
Irganox MD 1024	1,2-bis(3,5-Di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazide	32687-78-8	PLAS-AX-001N	PLAS-AX-001S ☆
Isonox® 132	2,6-Di-tert-butyl-4-sec-butylphenol	17540-75-9	PLAS-AX-018N	PLAS-AX-018S
Isonox 232	2,6-Di-tert-butyl-4-nonylphenol	4306-88-1	PLAS-AX-063N	PLAS-AX-063S
Lowinox® AH25	2,5-bis(1,1-Dimethylpropyl)-1,4-benzenediol	79-74-3	PLAS-AX-016N	PLAS-AX-016S
Lowinox CPL	Polymeric sterically hindered phenol	68610-51-5	PLAS-AX-059N	PLAS-AX-059S
Lowinox TBM-6	4,4'-Thiobis(2-tert-butyl-5-methylphenol)	96-69-5	PLAS-AX-024N	PLAS-AX-024S
Markstat® 60	Polyethylene glycol ether (<20% $NaClO_4$)		PLAS-AX-028N	PLAS-AX-028S
Naugard® 412S	beta-Laurylthiopropionate	29598-76-3	PLAS-AX-030N	PLAS-AX-030S
Naugard 445	4,4'-bis(alpha,alpha-Dimethylbenzyl)diphenylamine	10081-67-1	PLAS-AX-022N	PLAS-AX-022S
Naugard 635	4-(1-phenylethyl)-N-[4-(1-phenylethyl)phenyl]aniline	68442-68-2	PLAS-AX-113N	---------- ---
Naugard 956	Proprietary blend of primary and secondary antioxidants		PLAS-AX-060N	PLAS-AX-060S-T
Naugard A	Acetone diphenylamine condensation products	68412-48-6	PLAS-AX-026N	PLAS-AX-026S
Naugard B-25	1:1 blend of Naugard® 10 and Naugard® 524	6683-19-8 / 31570-04-4	PLAS-AX-061N	PLAS-AX-061S
Naugard BHT	2,6-Di-tert-butyl-4-methylphenol	128-37-0	PLAS-AX-017N	PLAS-AX-017S
Naugard HM-22	Blend of phenolic primary and diphenylamine secondary antioxidants (Naugards 76 and 445)	10081-67-1 / 2082-79-3	PLAS-AX-033N	PLAS-AX-033S
Naugard J	N,N'-Diphenyl-p-phenylenediamine	74-31-7	PLAS-AX-048N	PLAS-AX-048S ☆
Naugard NBC	Nickel dibutyl dithiocarbamate	13927-77-0	PLAS-AX-051N	PLAS-AX-051S
Naugard PANA	N-Phenyl-1-naphthylamine	90-30-2	PLAS-AX-058N	PLAS-AX-058S
Naugard PHR	Tris(mono-nonylphenyl) phosphite with up to 1% triisopropanol amine	26523-78-4	PLAS-AX-076N	PLAS-AX-076S
Naugard PS-30	Benzenamine, N-phenyl, reaction products with 2,4,4-trimethylpentene	68411-46-1	PLAS-AX-038N	PLAS-AX-038S
Naugard PS-35	Butylated, octylated diphenylamine 2,6 di-tert-butyl-4-sec-butyl phenol		PLAS-AX-046N	PLAS-AX-046S
Naugard Q Extra	1,2-Dihydro-2,2,4-trimethylquinoline (polymerized)	26780-96-1	PLAS-AX-002N	PLAS-AX-002S
Naugard RM-51	Tris(mono-nonylphenyl)phosphite,2,2'-methylene bis (4-methyl-6-nonyl phenol)	26523-78-4	PLAS-AX-034N	PLAS-AX-034S
Naugard Super Q	1,2-Dihydro-2,2,4-trimethylquinoline (polymerized)	147-47-7	PLAS-AX-003N	PLAS-AX-003S
Naugard XL-1	2,2'-Oxamidobis[ethyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]	70331-94-1	PLAS-AX-008N	PLAS-AX-008S ☆
Propyl gallate	propyl 3,4,5-trihydroxybenzoate	121-79-9	PLAS-AX-109N	----------
bis(2,2,6,6-Tetramethyl-4-piperidyl) sebacate **NEW**		52829-07-9	PLAS-AX-097N	----------
2,2'-(2,5-thiophenediyl)bis(5-tert-butylbenzoxazole) **NEW**		7128-64-5	PLAS-AX-098N	----------
Ultranox® 626	bis(2,4-Di-tert-butylphenyl)pentaerythritol diphosphite	26741-53-7	PLAS-AX-031N	PLAS-AX-031S

Antiozonants

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Antiozonant NIBUD	Nickel dibutyl dithiocarbamate	13927-77-0	PLAS-AZ-001N	PLAS-AZ-001S
Akrowax™ 195	Petroleum Wax	121-79-9	PLAS-AZ-002N	----------

Blowing Agents, Plasticizers

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
CPW-100	Chlorinated paraffin wax	63449-39-8	PLAS-BA-001N	PLAS-BA-001S
Celogen® AZ	Carbamoyliminourea	123-77-3	PLAS-BA-002N **	PLAS-BA-002S-DMSO
Celogen® RA	[(4-methylphenyl)sulfonylamino]urea	10396-10-8	PLAS-BA-003N	----------

** This product can not ship by air.

Coupling Agents

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Silquest® A-187	gamma-Glycidoxypropyltrimethoxysilane	2530-83-8	PLAS-CA-004N	PLAS-CA-004S
Silquest A-1100	gamma-Aminopropyltriethoxysilane	919-30-2	PLAS-CA-002N	PLAS-CA-002S
Silquest A-1102	gamma-Aminopropyltriethoxysilane (Tech grade)	919-30-2	PLAS-CA-003N	PLAS-CA-003S
Silquest A-1289	bis-(Triethoxysilypropyl)tetrasulfane	211519-85-6	PLAS-CA-001N	PLAS-CA-001S
Silquest A-137	Octyltriethoxysilane	2943-75-1	PLAS-CA-005N	PLAS-CA-005S
Silquest A-2171	Vinylmethyldimethoxysilane	16753-62-1	PLAS-CA-006N	PLAS-CA-006S

Cross-Linking Agents

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
F-300, F-1000, F-1500, F-2000, F-3000	Stearic acid	57-11-4	PLAS-CL-006N	PLAS-CL-006S-D
Perkacit® DPG	N,N'-Diphenylguanidine	102-06-7	PLAS-CL-004N	PLAS-CL-004S ☆
Perkacit MBT	2-Mercaptobenzothiazole	149-30-4	PLAS-CL-002N	PLAS-CL-002S
Perkacit MBTS	2,2'-Dithiobis(benzothiazole)	120-78-5	PLAS-CL-001N	PLAS-CL-001S
Perkacit NDBC	Nickel dibutyl dithiocarbamate	13927-77-0	PLAS-CL-005N	PLAS-CL-005S
Perkacit ZDEC	Zinc diethyldithiocarbamate	14324-55-1	PLAS-CL-007N	PLAS-CL-007S
Resimene® 3520	Hexamethoxy methyl melamine	3089-11-0	PLAS-CL-003N	PLAS-CL-003S

Flame Retardants (see PCB and PBDE section for complete listings)

Chemical Name	CAS No.	Matrix	Solution (1 mL)
Aroclor® 1016 (Tech Mix)	12674-11-2	1000 µg/mL in Hexane	C-216S-H-10X
		50 mg	C-216N-50MG
Aroclor 1221 (Tech Mix)	11104-28-2	1000 µg/mL in Hexane	C-221S-H-10X
		50 mg	C-221N-50MG
Aroclor 1232 (Tech Mix)	11141-16-5	1000 µg/mL in Hexane	C-232S-H-10X
Aroclor 1242 (Tech Mix)	53469-21-9	1000 µg/mL in Hexane	C-242S-H-10X
		50 mg	C-242N-50MG
Aroclor 1248 (Tech Mix)	12672-29-6	1000 µg/mL in Hexane	C-248S-H-10X
		50 mg	C-248N-50MG
Aroclor 1254 (Tech Mix)	11097-69-1	1000 µg/mL in Hexane	C-254S-H-10X
		50 mg	C-254N-50MG
Aroclor 1260 (Tech Mix)	11096-82-5	1000 µg/mL in Hexane	C-260S-H-10X
		50 mg	C-260N-50MG
Aroclor 1262 (Tech Mix)	37324-23-5	1000 µg/mL in Hexane	C-262S-H-10X
		50 mg	C-262N-50MG
Aroclor 1268 (Tech Mix)	11100-14-4	1000 µg/mL in Hexane	C-298S-H-10X
Aroclor 5432 (Tech Mix)	63496-31-1	35 µg/mL in Toluene	T-432S
Aroclor 5442 (Tech Mix)	12642-23-8	35 µg/mL in Toluene	T-442S
Aroclor 5460 (Tech Mix)	11126-42-4	35 µg/mL in Toluene	T-440S
Aroclor 6050 (Tech Mix)		35 µg/mL in Toluene	T-6050S
Decabromodiphenyl ether	1163-19-5	50 µg/mL in Isooctane:Toluene	BDE-209S
Firemaster BP4A (4,4'-(1-methylethylidene) bis (2,6-dibromophenol))	79-94-7	100 µg/mL in Toluene	FRS-006S
Halowax 1013 (56 %Cl)	1321-64-8	100 µg/mL in Methanol	N-1013S
Halowax 1014 (62 %Cl)	1335-87-1	100 µg/mL in Methanol	N-1014S
Halowax 1051 (70 %Cl)	2234-13-1	100 µg/mL in Methanol	N-1051S
Halowax 1099 (52 %Cl)	39450-05-0	100 µg/mL in Methanol	N-1099S
2,2',3,4,4',5',6-Heptabromodiphenyl ether	207122-16-5	50 µg/mL in Isooctane	BDE-183S
2,2',4,4'-Tetrabromodiphenyl ether	40088-47-9	50 µg/mL in Isooctane	BDE-047S
2,2',4,4',5-Pentabromodiphenyl ether	60348-60-9	50 µg/mL in Isooctane	BDE-099S
2,2',4,4',5,5'-Hexabromodiphenyl ether	36483-60-0	50 µg/mL in Isooctane	BDE-153S
2,2',4,4',5,6'-Hexabromodiphenyl ether	207122-15-4	50 µg/mL in Isooctane	BDE-154S
2,2',4,4',6-Pentabromodiphenyl ether	189084-64-8	50 µg/mL in Isooctane	BDE-100S
m-Terphenyl	92-06-8	100 mg	T-002N
o-Terphenyl	84-15-1	100 mg	T-001N
p-Terphenyl	92-94-4	100 mg	T-003N
Tetradecachloro-*m*-terphenyl	42429-88-9	35 µg/mL in Toluene	T-005S
Tetradecachloro-*o*-terphenyl		35 µg/mL in Toluene	T-004S
Tetradecachloro-*p*-terphenyl		35 µg/mL in Toluene	T-006S
Triethylphosphate	78-40-0	50 mg	PLAS-PL-067N

PolyAdd ✔ Check™

Plastic Additives

Trade-named products are usually technical mixtures.

Plasticizers

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Benzoflex® 2-45	Diethylene glycol dibenzoate	120-55-8	PLAS-PL-015N	PLAS-PL-015S
Bisphenol A (BPA)	4,4'-Dihydroxy-2,2'-diphenylpropane	80-05-7		M-1626-01S
Celogen® SD-125	50% Azodicarbonamide in a phthalate plasticizer		PLAS-PL-009N	PLAS-PL-009S
Citroflex® 2	2-Hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester	77-93-0	PLAS-PL-028N	PLAS-PL-028S
Citroflex 4	2-Hydroxy-1,2,3-propanetricarboxylic acid, tributyl ester	77-94-1	PLAS-PL-030N	PLAS-PL-030S
Citroflex A-2	2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, triethyl ester	77-89-4	PLAS-PL-001N	PLAS-PL-001S
Citroflex A-4	2-Acetoxy-1,2,3-propanetricarboxylic acid, tributyl ester	77-90-7	PLAS-PL-002N	PLAS-PL-002S
Citroflex B-6	n-Butyltri-n-hexyl citrate	82469-79-2	PLAS-PL-025N	PLAS-PL-025S
Cresyl diphenyl phosphate	(4-Methylphenyl) diphenyl phosphate	26444-49-5	PLAS-PL-059N	----------
Dibutyl phthalate		84-74-2	PLAS-PL-013N	PLAS-PL-013S
Dibutyl sebacate	Dimethyl decanedioate	109-43-3	PLAS-PL-062N	----------
Diisooctyl phthalate	bis(6-Methylheptyl)benzene-1,2-dicarboxylate	27554-26-3	PLAS-PL-071N	----------
Dimethyl adipate	Dimethyl hexanedioate	627-93-0	PLAS-PL-070N	----------
Dimethyl sebacate	Dimethyl decanedioate	106-79-6	PLAS-PL-061N	----------
Dioctyl phthalate (DOP)		117-81-7	PLAS-PL-019N	PLAS-PL-019S
Disflamoll® TKP	Tricresyl phosphate	1330-78-5	PLAS-PL-053N	----------
Disflamoll® TP	Triphenyl phosphate	115-86-6	PLAS-PL-069N	----------
2-Ethylhexyl sebacate	bis(2-Ethylhexyl) decanedioate	122-62-3	PLAS-PL-064N	----------
Bis(2-Ethylhexyl) terephthalate	bis(2-Ethylhexyl) benzene-1,4-dicarboxylate	6422-86-2	PLAS-PL-065N	----------
Hercoflex® 900	1,3-Isobenzofurandione, polymer with 2,2'-(1,2-ethanediylbis(oxy)) bis(ethanol), benzoate	68186-30-1	PLAS-PL-038N	PLAS-PL-038S
Hi-Point® PD-1	Methyl ethyl ketone peroxide solution	1338-23-4	PLAS-PL-024N	PLAS-PL-024S
Jayflex® 77	Diisoheptyl phthalate	71888-89-6	PLAS-PL-017N	PLAS-PL-017S
Jayflex DIDP	Diisodecyl phthalate	68515-49-1	PLAS-PL-016N	PLAS-PL-016S
Jayflex DINP	Diisononyl phthalate	68515-48-0	PLAS-PL-018N	PLAS-PL-018S
Jayflex DTDP	Diisotridecyl phthalate	68515-47-9	PLAS-PL-020N	PLAS-PL-020S
Jayflex L11P-E	Diundecyl phthalate	3648-20-2	PLAS-PL-021N	PLAS-PL-021S
Jayflex TINTM	Triisononyl trimellitate	53894-23-8	PLAS-PL-029N	PLAS-PL-029S
Laurex®	Zinc salt of lauric and related fatty acids		PLAS-PL-032N	PLAS-PL-032S
Markstat® 51	Poly(ethylene glycol) monolaurate	9004-81-3	PLAS-PL-003N	PLAS-PL-003S
Methyl O-Acetylricinoleate	Methyl (Z)-12-acetyloxyoctadec-9-enoate	140-03-4	PLAS-PL-063N	----------
Morflex® 150	Dicyclohexyl phthalate	84-61-7	PLAS-PL-014N	PLAS-PL-014S
Morflex 190	Butylphthalyl butyl glycolate	85-70-1	PLAS-PL-008N	PLAS-PL-008S
Morflex 560	Tri-n-hexyl trimellitate	1528-49-0	PLAS-PL-031N	PLAS-PL-031S
Morflex x-1125	Di(tridecyl) phthalate	119-06-2	PLAS-PL-033N	PLAS-PL-033S
Paraplex® G-30	Proprietary dibasic acid polyester mixture		PLAS-PL-027N	PLAS-PL-027S
Plasthall® DINP	Diisononyl phthalate	28553-12-0	PLAS-PL-072N	----------
Plasthall® ESO	Epoxidized soybean oil	8013-07-8	PLAS-PL-035N	----------
Polycizer® butyl oleate	Butyl oleate	142-77-8	PLAS-PL-007N	PLAS-PL-007S
Polycizer DP 500	Dipropylene glycol dibenzoate	27138-31-4	PLAS-PL-011N	PLAS-PL-011S
Santicizer® 141	2-Ethylhexyldiphenyl phosphate	1241-94-7	PLAS-PL-026N	PLAS-PL-026S
Santicizer 148	Mixture: isodecyldiphenyl phosphate (80-90%) / diisodecyl phenyl phosphate / triphenyl phosphate	29761-21-5	PLAS-PL-022N	PLAS-PL-022S
Santicizer 160	Benzyl butyl phthalate	85-68-7	PLAS-PL-004N	PLAS-PL-004S
Santicizer 261	Benzyl octyl phthalate	68515-40-2	PLAS-PL-005N	PLAS-PL-005S
Santicizer® 278	Benzyl 3-isobutyryloxy-1-isopropyl-2,2-dimethylpropyl phthalate	16883-83-3	PLAS-PL-074N	PLAS-PL-074S
Tributylphosphate	Tributyl phosphate	126-73-8	PLAS-PL-068N	----------
2,2,4-Trimethyl-1,3-pentanediol-isobutyrate		25265-77-4	PLAS-PL-066N	----------
Trimellitate	1,2,4-Benzenetricarboxylic acid, tris(2-ethylhexyl) ester	3319-31-1	PLAS-PL-060N	----------
Vinsol® powder	Gum rosin	8050-09-7	PLAS-PL-037N	PLAS-PL-037S-D
Vinsol® resin	Gum rosin	8050-09-7	PLAS-PL-036N	PLAS-PL-036S-D

Processing Aids

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Akrochem® Ceresin Wax		8001-75-0	PLAS-PA-002N	---------- ---
Kemamide® E ultra	Erucamide	112-84-5	PLAS-PA-001N	PLAS-PA-001S

Retarders

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Akrochem® Retarder BAX		65-85-0	PLAS-RT-011N	----------
2-Cyano-2-propyl benzodithioate		201611-85-0	PLAS-RT-002N	PLAS-RT-002S ☆
2-Cyano-2-propyl dodecyl trithiocarbomate		870196-83-1	PLAS-RT-004N	PLAS-RT-004S
4-Cyano-4-[(dodecylsulfanylthiocarbonyl)sulfanyl]pentanoic acid		870196-80-8	PLAS-RT-005N	PLAS-RT-005S
4-Cyano-4-(phenylcarbonothioylthio)pentanoic acid		201611-92-9	PLAS-RT-003N	PLAS-RT-003N
Cyanomethyl dodecyl trithiocarbonate		796045-97-1	PLAS-RT-006N	PLAS-RT-006S
Cyanomethyl methyl(phenyl)carbamodithioate		76926-16-4	PLAS-RT-009N	----------
2-(Dodecylthiocarbonothioylthio)-2-methylpropionic acid		461642-78-4	PLAS-RT-010N	PLAS-RT-010S
bis(dodecylsulfanylthiocarbonyl) disulfide		870532-86-8	PLAS-RT-008N	PLAS-RT-008S
Retarder AK	Phthalic anhydride	85-44-9	PLAS-RT-001N	PLAS-RT-001S ☆
bis(thiobenzoyl) disulfide		5873-93-8	PLAS-RT-007N	PLAS-RT-007S

Plastic Additives

Solutions at 1000 µg/mL in Hexane, except where indicated
☆ Hexane:Acetone, -A Acetone, -T Toluene, -M Methanol, - DMSO, -D Dichloromethane -CN Acetonitrile

Stearates

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Stearic acid RG (rubber grade)	Stearic acid	57-11-4	PLAS-ST-001N	PLAS-ST-001S
Stearic acid TP	Stearic acid	57-11-4	PLAS-ST-002N	PLAS-ST-002S

UV Stabilizers

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
2-(2-Hydroxy-5-methylphenyl)benzotriazole		2440-22-4???	PLAS-UV-006N	PLAS-UV-006S-CN
2-(5-tert-Butyl-2-hydroxyphenyl)benzotriazole		3147-76-0	PLAS-UV-007N	PLAS-UV-007S-CN
2-(2H-Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol		70321-86-7	PLAS-UV-008N	PLAS-UV-008S-CN
2-tert-Butyl-6(5-chloro-2H-benzotriazol-2-yl)-4-methylphenol		3896-11-5	PLAS-UV-009N	PLAS-UV-009S-CN
2-(3,5-Di-tert-butyl-2-hydroxyphenyl)2H-benzotriazole		3846-71-7	PLAS-UV-010N	PLAS-UV-010S-CN
2,4-Di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)phenol		3864-99-1	PLAS-UV-011N	PLAS-UV-011S-CN
2-(2H-Benzotriazol-2-yl)-4,6-di-tert-pentylphenol		25973-55-1	PLAS-UV-012N	PLAS-UV-012S-CN
2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole		3147-75-9	PLAS-UV-013N	PLAS-UV-013S-CN
2-(3-sec-Butyl-5-tert-butyl-2-hyfroxyphenyl)benzotriazole		36437-37-3	PLAS-UV-014N	PLAS-UV-014S-CN
2-(2H-Benzotriazol-2yl)-4-methyl,-6-(2-propenyl)phenol		2170-39-0	PLAS-UV-015N	PLAS-UV-015S-CN
UV Stabilizers Solution Set		**Set of the above**	**PLAS-UV-STAB-SET**	**10 x 1 mL**
Tinuvin® PED	2-(2-Hydroxy-5-methylphenyl)benzo triazole	2440-22-4	PLAS-UV-005N	PLAS-UV-005S
Uvinul® 3000	2,4-Dihydroxybenzophenone	131-56-6	PLAS-UV-001N	PLAS-UV-001S
Uvinul 3008	2-Hydroxy-4-octyloxybenzophenone	1843-05-6	PLAS-UV-002N	PLAS-UV-002S
Uvinul 3040	2-Hydroxy-4-methoxybenzophenone	131-57-7	PLAS-UV-003N	PLAS-UV-003S
Uvinul 3049	2,2-Dihydroxy-4,4-dimethoxybenzophenone	131-54-4	PLAS-UV-004N	PLAS-UV-004S

Vegetable Oils

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)	
Akrofax™A	Vulcanized vegetable oil		PLAS-VA-001N	----------	---
Akrofax B	Vulcanized vegetable oil		PLAS-VA-002N	----------	---

Deuterated Phthalates

Trade Name	Chemical Name	CAS No.	Neat 5 mg	Solution (1 mL)
Dibenzyl phthalate-d_4			PHTH-D4-001N	PHTH-D4-001S
Di-n-butyl phthalate-d_4		93952-11-5	PHTH-D4-002N	PHTH-D4-002S
Di-iso-butyl phthalate-3,4,5,6-d_4		358730-88-8	PHTH-D4-003N	PHTH-D4-003S
Dicyclohexyl phthalate-3,4,5,6-d_4		358731-25-6	PHTH-D4-004N	PHTH-D4-004S
Diethyl phthalate-3,4,5,6-d_4		93952-12-6	PHTH-D4-005N	PHTH-D4-005S
Di-n-hexyl phthalate-3,4,5,6-d_4			PHTH-D4-006N	PHTH-D4-006S
Dimethyl phthalate-3,4,5,6-d_4		93951-89-4	PHTH-D4-007N	PHTH-D4-007S
Di-n-octyl phthalate-3,4,5,6-d_4		93952-13-7	PHTH-D4-008N	PHTH-D4-008S
Di-n-pentyl phthalate-3,4,5,6-d_4		358730-89-9	PHTH-D4-009N	PHTH-D4-009S
Di-n-propyl phthalate-3,4,5,6-d_4		358731-29-0	PHTH-D4-010N	PHTH-D4-010S
bis(2-Ethylhexyl) phthalate-3,4,5,6-d_4		93951-87-2	PHTH-D4-011N	PHTH-D4-011S
Sets of Deuterated Phthalates			**PHTH-D4N-SET**	**PHTH-D4S-SET**
			11 x 5 mg	**11 x 1 mL**

Deuterated Phthalate Solutions in MeOH

ASTM Method D6042-92 Plastic Packaging Testing Standards

This method is used by both pharmaceutical companies and plastics manufacturers. The test ensures the quality of the plastic product during the manufacturing process, and as delivered to the pharmaceutical customer. Compounds are often added to the method's analyte list by pharmaceutical companies.

Calibration Mix

PLAS-CAL-001 **1 x 1 mL**
PLAS-CAL-001-PAK *SAVE* **5 x 1 mL**
50 µg/mL each in Isopropanol 7 comps.

BHT	Irganox 3114
Erucamide Slip	Irganox 1010
Vitamin E	Irganox 1076
Irgafos 168	

Internal Standard Mix

PLAS-IS-001 **1 x 1 mL**
PLAS-IS-001-PAK *SAVE* **5 x 1 mL**
51.8 µg/mL in Isopropanol

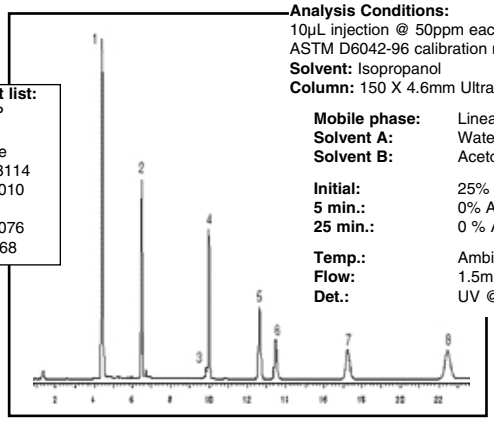
Tinuvin P

Expanded List of Additives

Each at 50 µg/mL in Isopropanol

Ultranox 626	PLAS-CAL-002-1	1 mL	Ethanox 702	PLAS-CAL-002-5	1 mL
Santanox R	PLAS-CAL-002-2	1 mL	Ethanox 703	PLAS-CAL-002-6	1 mL
Ethanox 330	PLAS-CAL-002-3	1 mL	Irganox 1035	PLAS-CAL-002-7	1 mL
Ethanox 323	PLAS-CAL-002-4	1 mL			

Component list:
1. Tinuvin® P
2. BHT
3. Erucamide
4. Irganox® 3114
5. Irganox 1010
6. Vitamin E
7. Irganox 1076
8. Irgafos® 168



Analysis Conditions:
10µL injection @ 50ppm each component, ASTM D6042-96 calibration mix and IS mix
Solvent: Isopropanol
Column: 150 X 4.6mm Ultra C8, 5µm, 100Å

Mobile phase:	Linear gradient
Solvent A:	Water
Solvent B:	Acetonitrile
Initial:	25% A 75% B
5 min.:	0% A 100% B
25 min.:	0 % A 100% B
Temp.:	Ambient
Flow:	1.5mL/min.
Det.:	UV @ 200nm

The figure shows the separation of the compounds on the method's analyte list, as analyzed by our HPLC specialists. The primary calibration standard mixture contains the common antioxidants and slips listed in ASTM D6042-96.

Bisphenol Analog, Imidazole, Melamine, EFSA

Bisphenol Analog Standards NEW

Bisphenol A (2,2'-bis(4-hydroxyphenyl)propane, BPA) has been used in commercial and industrial applications since the 1970's. It has been the subject of numerous toxicological studies due to human exposure from leachate originating from polycarbonate plastics and epoxy-lined food and drink containers. Analogs of BPA have been the subject of recent health-related studies.

Compound	CAS	NEAT Cat. No.	Unit	SOLUTION 10 µg/mL in MeOH Cat. No.	Unit
Bisphenol A diglycidyl ether (BADGE)	1675-54-3	BADGE-001N	50 mg	BADGE-001S	1 mL
Bisphenol A (BPA)	80-05-7	BPA-A-N	50 mg	BPA-A-S	1 mL
Bisphenol AF	1478-61-1	BPA-AF-N	50 mg	BPA-AF-S	1 mL
Bisphenol AP	1571-75-1	BPA-AP-N	50 mg	BPA-AP-S	1 mL
Bisphenol B	77-40-7	BPA-B-N-10MG	10 mg	BPA-B-S	1 mL
Bisphenol BP NEW	1844-01-5	BPA-BP-N	50 mg	BPA-BP-S	1 mL
Bisphenol C NEW	79-97-0	BPA-C-N	50 mg	BPA-C-S	1 mL
Bisphenol C-dichloride NEW	14868-03-2	BPA-C2-N	20 mg	BPA-C2-S	1 mL
Bisphenol E NEW	2081-08-5	BPA-E-N	50 mg	BPA-E-S	1 mL
Bisphenol F	620-92-8	BPA-F-N-10MG	10 mg	BPA-F-S	1 mL
Bisphenol G NEW	127-54-8	BPA-G-N	20 mg	BPA-G-S	1 mL
Bisphenol M NEW	13595-25-0	BPA-M-N	20 mg	BPA-M-S	1 mL
Bisphenol P	2167-51-3	BPA-P-N	50 mg	BPA-P-S	1 mL
Bisphenol PH NEW	24038-68-4	BPA-PH-N	20 mg	BPA-PH-S	1 mL
Bisphenol S	80-09-1	BPA-S-N	50 mg	BPA-S-S	1 mL
Bisphenol TMC NEW	129188-99-4	BPA-TMC-N-10MG	10 mg	BPA-TMC-S	1 mL
Bisphenol Z	843-55-0	BPA-Z-N	50 mg	BPA-Z-S	1 mL

Imidazole Standards (caramel coloring) NEW

Over the past several years, there has been increased scrutiny of the caramel coloring used in food products, particularly cola-type soft drinks. There is concern for 4-methyl imidazole (4-MEI) that is created during the caramel coloring synthesis process. The concern arises because 4-MEI has been reported to be carcinogenic in high doses.

Compound	CAS	NEAT Cat. No.	Unit	SOLUTION 100 µg/mL in Toluene Cat. No.	Unit
4-Methylimidazole (4-MEI)	822-36-6	FAC-001N	100 mg	FAC-001S-T	1 mL
1-Methylimidazole	616-47-7	FAC-002N	100 mg	FAC-002S-T	1 mL
2-Ethylimidazole	1072-62-4	FAC-003N	100 mg	FAC-003S-T	1 mL
2-Methylimidazole	693-98-1	FAC-004N	100 mg	FAC-004S-T	1 mL
4(5)-(Hydroxymethyl)imidazole	822-55-9	FAC-005N-25MG	25 mg	FAC-005S-T	1 mL
Quinoline	91-22-5	-----	--------	FAC-IS-T 50 µg/mL in Toluene	1 mL
Imidazole Solution Set				**FAC-SET**	**6 x 1 mL**

Melamine Kit

Analysis for Melamine in pet food, formula milk, and other foodstuffs can now be more accurate and reliable with the Melamine Reference Standards Set: Melamine, Ammeline, Ammelide, Cyanuric acid, the method recommended Internal Standard, a column clean-up solution, and a Silylating Reagent.
Storage Cond. (0-5°C)

FDA-PROP-001-SET **5 x 1 mL, 2 x 5 mL**

		Cat. No.	1 mL
Melamine	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001A	
Ammeline	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001B	
Ammelide	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001C	
Cyanuric acid	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001D	

Internal Standard

FDA-PROP-001-IS **1 x 1 mL**
1000 µg/mL in Pyridine

2,6-Diamino-4-chloropyrimidine

Silylating Reagent

FDA-PROP-001-DER **1 x 5 mL**

	vol/vol%
BSTFA [bis(trimethylsilyl)trifluoroacetamide]	99
TMCS	1

Column Clean-up Check

FDA-PROP-001-CHK **1 x 5 mL**

	vol/vol%
Sylon BFT	50
Pyidine	50

EFSA for Isopropylthioxanthone (ITX)

Responding to the hazard found in Italy, France, Spain, and Portugal, we have formulated Isopropylthioxanth-9-one (a photographical chemical) found in baby milk in Italy. The 2-isomer as well as the technical mixture also contains the 4-isomer.

2-Isopropylthioxanthone (ITX)

EFSA-ITX-01 **1 x 1 mL**
1.0 mg/mL in Isooctane

2-Isopropylthioxanth-9-one

Isopropylthioxanthone (ITX) mixed isomers

EFSA-ITX-02 **1 x 1 mL**
1.0 mg/mL in Isooctane

2-and 4-Isopropylthioxanth-9-one

Food Analysis
Food Constituents, Lipid Standards

Food chemists routinely use AccuStandard's analytical reference standards for their food analysis. These include lipid, vitamin, preservative and antimicrobial standards. Each standard is methodically prepared, undergoes various quality control analyses and procedures and is then packaged under the strict guidelines of our ISO Guide 34, 17025 and 9001 Quality System.

- High Purity confirmed by GLC & TLC
- Packaged in Sealed Ampules under Nitrogen Blanket
- Certificate of Analysis

Unsaturated Methyl Esters

99% minimum purity **(Storage: -20°C, protect from light)**

Compound	CAS No.	Neat 100 mg	Each 10 mg/mL in Heptane Solution 1 mL
Methyl cis-9-hexadecenoate *(Palmitoleate)* C16:1	1120-25-8	UFA-001N	UFA-001S
Methyl trans-9-hexadecenoate C16:1	10030-74-7	UFA-002N	UFA-002S
Methyl cis-6-octadecenoate *(Petroselinate)* C18:1	2777-58-4	UFA-003N	UFA-003S
Methyl trans-6-octadecenoate *(Petroselaidate)* C18:1		UFA-004N	UFA-004S
Methyl cis-9-octadecenoate *(Oleate)* C18:1	112-62-9	UFA-005N	UFA-005S
Methyl trans-9-octadecenoate *(Elaidate)* C18:1	2462-84-2	UFA-006N	UFA-006S
Methyl cis-11-octadecenoate *(Vaccenate)* C18:1	1937-63-9	UFA-007N	UFA-007S
Methyl 12-hydroxy-cis-9-octadecenoate *(Ricinoleate)* C18:1	141-24-2	UFA-008N	UFA-008S
Methyl linoleate *(Linoleate)* C18:2	112-63-0	UFA-010N	UFA-010S
Methyl linolelaidate *(Linoelaidate)* C18:2	2566-97-4	UFA-011N	UFA-011S
Methyl octadecadienoate *(Conjugated)* C18:2		UFA-012N ❄	UFA-012S
Methyl linolenate *(Linolenate)* C18:3	301-00-8	UFA-014N ❄	UFA-014S
Methyl g-linolenate *(Gamma Linolenate)* C18:3	16326-32-2	UFA-015N ❄	UFA-015S
Methyl trans-11-eicosenoate C20:1	69119-90-0	UFA-016N	UFA-016S
Methyl cis-8-eicosenoate C20:1	69119-99-9	UFA-017N	UFA-017S
Methyl cis-11-eicosenoate C20:1	2390-09-2	UFA-018N	UFA-018S
Methyl cis-5-eicosenoate C20:1	20839-34-3	UFA-019N	UFA-019S
Methyl cis-11,14-eicosadienoate C20:2	2463-02-7	UFA-020N ❄	UFA-020S
Methyl cis-8,11,14-eicosatrienoate *(Homogamma linolenate)* C20:3	21061-10-9	UFA-022N ❄	UFA-022S ❄
Methyl cis-11,14,17-eicosatrienoate C20:3	55682-88-7	UFA-023N ❄	UFA-023S ❄
Methyl arachidonate *(Arachidonate)* C20:4	2566-89-4	UFA-024N ❄	UFA-024S
Methyl 5,8,11,14,17-Eicosapentaenoate C20:5	2734-47-6	UFA-025N ❄	UFA-025S ❄
Methyl cis-7,10,13,16,19-Docosapentaenoate (DPA) C22:5	108698-02-8	UFA-026N ❄	UFA-026S ❄
Methyl cis-13-docosenoate *(Erucate)* C22:1	1120-34-9	UFA-027N	UFA-027S
Methyl trans-13-docosenoate *(Brassidate)* C22:1	7439-44-3	UFA-028N	UFA-028S
Methyl cis-13,16-docosadienoate C22:2	61012-47-3	UFA-029N ❄	UFA-029S
Methyl cis-13,16,19-docosatrienoate C22:3	108698-01-7	UFA-030N ❄	UFA-030S ❄
Methyl cis-7,10,13,16-Docosatetraenoate C22:4	13487-42-8	UFA-031N ❄	UFA-031S ❄
Methyl cis-4,7,10,13,16,19-Docosahexenoate C22:6	301-01-9	UFA-032N ❄	UFA-032S ❄
Methyl cis-15-tetracosenoate *(Nervonate)* C24:1	2733-88-2	UFA-033N	UFA-033S
Set of Unsaturated Fatty Acid Methyl Ester (UFA-001 to UFA-033)	**1 x 30 units**	**UFA-N-SET ❄**	**UFA-S-SET ❄**

❄ ColdPAK required to maintain integrity of product.

Lipid Standards analyzed by both GLC and TLC are supplied with complete analytical documentation.

Saturated Methyl Esters

Compound	CAS No.	Neat 100 mg	10 mg/mL in Hexane Solution 1 mL
Methyloctanoate *(Caprylate)* C8:0	111-11-5	SFA-001N	SFA-001S
Methylnonoate *(Pelargonate)* C9:0	1731-84-6	SFA-002N	SFA-002S
Methyldecanoate *(Caprate)* C10:0	110-42-9	SFA-003N	SFA-003S
Methylundecanoate C11:0	1731-86-8	SFA-004N	SFA-004S
Methyldodecanoate *(Laurate)* C12:0	111-82-0	SFA-005N	SFA-005S
Methyltridecanoate C13:0	1731-88-0	SFA-006N	SFA-006S
Methyltetradecanoate *(Myristate)* C14:0	124-10-7	SFA-007N	SFA-007S
Methylpentadecanoate C15:0	7132-64-1	SFA-008N	SFA-008S
Methylhexadecanoate *(Palmitate)* C16:0	112-39-0	SFA-009N	SFA-009S
Methylheptadecanoate *(Margarate)* C17:0	1731-92-6	SFA-010N	SFA-010S
Methyloctadecanoate *(Stearate)* C18:0	112-61-8	SFA-011N	SFA-011S
Methyl 12-hydroxystearate C18:0	141-23-1	SFA-012N	SFA-012S
Methylnonadecanoate C19:0	1731-94-8	SFA-013N	SFA-013S
Methyleicosanoate *(Arachidate)* C20:0	1120-28-1	SFA-014N	SFA-014S
Methylheneicosanoate C21:0	6064-90-0	SFA-015N	SFA-015S
Methyldocosanoate *(Behenate)* C22:0	929-77-1	SFA-016N	SFA-016S
Methyltricosanoate C23:0	2433-97-8	SFA-017N	SFA-017S
Methyltetracosanoate *(Lignocerate)* C24:0	2442-49-1	SFA-018N	SFA-018S
Set of Saturated Fatty Acid Methyl esters (SFA-001 to SFA-018)	**1 x 18 units**	**SFA-N-SET**	**SFA-S-SET**

Technical Note

ColdPAKs may be recommended or required with certain temperature sensitive products. Some standards are susceptible to change at room temperature or higher. In some of these cases, we may recommend or require that these products ship in a "ColdPAK" (a styrofoam container that has an ice pack in it). The purpose is to delay the exposure of the product to higher temperatures, and NOT to keep the product frozen. The product will not immediately go out of specifications when the ColdPAK melts or when the product reaches room temperature. It simply delays exposure to higher temperatures. When a product is shipped with a ColdPAK, the customer should also consider requesting next-day delivery and should avoid having the shipment sent on a Friday unless it is approved for Saturday Delivery.

Glycerides

Saturated Glycerides

Compound	CAS No.	Neat 100 mg
Trioctanoin *(Caprylin)* C8:0	538-23-8	GS-001N
Dicaprylin C8:0	36354-80-0	GS-002N
Monocaprylin C8:0	19670-49-6	GS-003N
Tridecanoin *(Caprin)* C10:0	621-71-6	GS-004N
Dicaprin C10:0	53988-07-1	GS-005N
Monocaprin C10:0	26402-22-2	GS-006N
Tridodecanoin *(Laurin)* C12:0	538-24-9	GS-007N
Dilaurin C12:0	27638-00-2	GS-008N
Monolaurin C12:0	142-18-7	GS-009N
Tritetradecanoin *(Myristin)* C14:0	555-45-3	GS-010N
Dimyristin C14:0	53563-63-6	GS-011N
Monomyristin C14:0	589-68-4	GS-012N
Trihexadecanoin *(Palmitin)* C16:0	555-44-2	GS-013N
Dipalmitin C16:0	26657-95-4	GS-014N
Monopalmitin C16:0	542-44-9	GS-015N
Trioctadecanoin *(Stearin)* C18:0	555-43-1	GS-016N
Distearin C18:0)	1323-83-7	GS-017N
Monostearin C18:0	22610-63-5	GS-018N
Trieicosanoin *(Arachidin)* C20:0	620-64-4	GS-019N
Diarachidin C20:0	60586-60-9	GS-020N
Monoarachidin C20:0		GS-021N
Tridocosanoin *(Behenin)* C22:0	18641-57-1	GS-022N
Dibehenin C22:0		GS-023N
Monobehenin C22:0	6916-74-1	GS-024N
Set of Saturated glyceride (GS-001 to GS-024)	**1 x 24 units**	**GS-SET**

Unsaturated Glycerides

Compound	CAS No.	Neat 10 mg
Myristolein C14:1 cis		UG-001N
Dimyristolein C14:1		UG-002N
Monomyristolein C14:1	56399-71-4	UG-003N
Palmitolein C16:1 cis	20246-55-3	UG-004N
Dipalmitolein C16:1	113728-10-2	UG-005N
Monopalmitolein C16:1	37515-61-0	UG-006N
Petroselinin 6 C18:1 cis	3296-43-3	UG-007N
Dipetroselinin 6 C18:1		UG-008N
Monopetroselinin 6 C18:1		UG-009N
Olein 9 C18:1 cis	122-32-7	UG-010N
Diolein 9 C18:1	25637-84-7	UG-011N
Monoolein 9 C18:1	111-03-5	UG-012N
Trielaidin 9 C18:1 trans	537-39-3	UG-013N
Dielaidin 9 C18:1 trans	98168-52-6	UG-014N
Monoelaidin 9 C18:1 trans	2716-53-2	UG-015N
Vaccenin 11 C18:1 cis		UG-016N
Divaccenin 11 C18:1		UG-017N
Monovaccenin 11 C18:1		UG-018N
Linolein C18:2 cis,cis	537-40-6	UG-019N ❄
Dilinolein C18:2	30606-27-0	UG-020N ❄
Monolinolein C18:2	2277-28-3	UG-021N ❄
Linolenin C18:3 cis,cis,cis	14465-68-0	UG-022N ❄
Dilinolenin C18:3		UG-023N ❄
Monolinolenin C18:3	75685-75-5	UG-024N ❄
Gamma linolenin C18:3 cis,cis,cis		UG-025N ❄
Gamma di-linolenin C18:3		UG-026N ❄
Gamma mono-linolenin C18:3		UG-027N ❄
Trieicosenoin C20:1 cis	80380-39-8	UG-028N
Dieicosenoin C20:1	102783-82-4	UG-029N
Monoeicosenoin C20:1		UG-030N
11-14 cis Trieicosadienoin C20:2 cis,cis		UG-031N ❄
Dieicosadienoin C20:2		UG-032N ❄
Monoeicosadienoin C20:2		UG-033N ❄
Set of Unsaturated Glyceride (UFA-001 to UFA-033)	**1 x 33 units**	**UG-N-SET ❄**

(Storage: -20°C, protect from light)

Lipid Standards analyzed by both GLC and TLC are supplied with complete analytical documentation.

❄ ColdPAK required to maintain integrity of product.

AOCS, Method Ce1-62 Animal & Vegetable Reference Mixes

AOCS Animal & Vegetable Reference Neat Mixtures	Cat. No.	Unit
Mix 1: Suitable standard for corn, cottonseed, kapok, poppyseed, rice, safflower, sesame, soybean, sunflower and walnut oils	AOCS-001N ❄	100 mg
Mix 2: Suitable standard for hempseed, linseed, perrilla & rubberseed oils	AOCS-002N ❄	100 mg
Mix 3: Suitable standard for mustard seed, peanut and rapeseed oil	AOCS-003N ❄	100 mg
Mix 4: Suitable standard for neatsfoot, olive and teaseed oils	AOCS-004N ❄	100 mg
Mix 5: Suitable standard for babassu, coconut, ouri-curi & palm kernel oils	AOCS-005N ❄	100 mg
Mix 6: Suitable standard for lard, beef tallow, mutton tallow and palm oil	AOCS-006N ❄	100 mg
AOCS Rapeseed Mix, Suitable standard for modern low erucic acid oils	AOCS-007N ❄	100 mg
AOCS Animal & Vegetable Reference Mix Set (AOCS-001N to AOCS-007N)	**AOCS-SET ❄**	**7 x 100 mg**

AOCS Reference Mix	Cat. No.	Methyl Ester (% Composition by Weight) C8:0 Caprylate	C10:0 Caprate	C12:0 Laurate	C14:0 Myristate	C16:0 Palmitate	C16:1 Palmitoleate	C18:0 Stearate	C18:1 Oleate	C18:2 Linoleate	C18:3 Linolenate	C20:0 Arachidate	C20:1 Eicosenoate	C22:0 Behenate	C22:1 Erucate	C24:0 Lignocerate
RM-1 ❄	AOCS-001N					6.0		3.0	35.0	50.0	3.0	3.0				
RM-2 ❄	AOCS-002N					7.0		5.0	18.0	36.0	34.0					
RM-3 ❄	AOCS-003N				1.0	4.0		3.0	45.0	15.0	3.0	3.0		3.0	20.0	3.0
RM-4 ❄	AOCS-004N					11.0		3.0	80.0	6.0						
RM-5 ❄	AOCS-005N	7.0	5.0	48.0	15.0	7.0		3.0	12.0	3.0						
RM-6 ❄	AOCS-006N				2.0	30.0	3.0	14.0	41.0	7.0	3.0					
Rapeseed ❄	AOCS-007N				1.0	4.0		3.0	60.0	12.0	5.0	3.0	1.0	3.0	5.0	3.0

NHI/NIH Fatty Acid Methyl Ester Profiling Mixes

Designed to test reliability of chromatographic system when performing quantitative analysis of Fatty Acids.

NHI/NIH Reference Mix	Cat. No.	Methyl Ester (% Composition by Weight) C8:0 Caprylate 100 mg	C10:0 Caprate	C12:0 Laurate	C14:0 Myristate	C16:0 Palmitate	C16:1 Palmitoleate	C18:0 Stearate	C18:1 Oleate	C20:0 Arachidate	C22:0 Behenate	C24:0 Lignocerate
NHI-A	NHI-001N					25.0	10.0		65.0			
NHI-B	NHI-002N					4.0	40.0		56.0			
NHI-C ❄	NHI-003N		1.5	3.0	6.0	12	19.4		24.9		33.2	
NHI-D	NHI-004N					11.8	23.6	6.9	13.1	44.6		
NHI-E	NHI-005N		6.3	9.1	12.0	23.3	49.2					
NHI-F ❄	NHI-006N					2.5	4.2		7.3		13.6	25.4	47.0
NHI-SET ❄	**6 x 100 mg (NHI-001N to NHI-006N)**											

❄ ColdPAK required to maintain integrity of product.

Fatty Acid Methyl Esters (FAMEs)

These mixes and kits are suitable for determining peak identification & establishing chromatographic retention times.

Saturated Straight Chain Kit
FAME-001-R1-KIT **10 units**
Methyl esters, purity 99%, 100 mg each

- Me Caproic acid (C6:0)
- Me Caprylic acid (C8:0)
- Me Capric acid (C10:0)
- Me Lauric acid (C12:0)
- Me Myristic acid (C14:0)
- Me Palmitic acid (C16:0)
- Me Stearic acid (C18:0)
- Me Arachidic acid (C20:0)
- Me Behenic acid (C22:0)
- Me Lignoceric acid (C24:0)

Unsaturated Straight Chain Kit
FAME-003-R1-KIT ❄ **14 units**
Storage -20°C, Protect from light
Saturated methyl esters, purity 99%, 10 mg each

- Me Myristoleic acid (14:1)
- Me Palmitoleic acid (16:1)
- Me Petroselinic acid (18:1)
- Me Elaidic acid (18:1)
- Me cis-Vaccenic acid (18:1, cis)
- Me Linoleic acid (18:2, cis)
- Me Linolelaidic acid (18:2, trans)
- Me Linolenic acid (18:3)
- Me cis-11-Eicosenoic acid (20:1)
- Me Arachidonic acid (20:4)
- Me Erucic acid (22:1)
- Me cis-4,7,10,13,16,19-Docosahexaenoic acid (22:6)
- Me Nervonic acid (24:1)
- Me Oleic acid (18:1)

Saturated Straight Chain Kit
FAME-002-R1-KIT **19 units**
Methyl esters, 99% purity, 100 mg each

- Me Caproic acid (6:0)
- Me Heptanoic acid (7:0)
- Me Caprylic acid (8:0)
- Me Nonanoic acid (9:0)
- Me Capric acid (10:0)
- Me Undecanoic acid (11:0)
- Me Lauric Acid (12:0)
- Me Tridecanoic acid (13:0)
- Me Myristic acid (14:0)
- Me Pentadecanoic acid (15:0)
- Me Palmitic acid (16:0)
- Me Heptadecanoic acid (17:0)
- Me Stearic acid (18:0)
- Me Nonadecanoic acid (19:0)
- Me Arachidic acid (20:0)
- Me Heneicosanoic acid (21:0)
- Me Behenic acid (22:0)
- Me Tricosanoic acid (23:0)
- Me Lignoceric acid (24:0)

Odd Carbon Straight Chain Kit
FAME-005-R1-KIT **9 units**
Methyl esters, 99+% purity, 100 mg each

- Me Heptanoic acid (C7:0)
- Me Nonanoic acid (C9:0)
- Me Undecanoic acid (C11:0)
- Me Tridecanoic acid (C13:0)
- Me Pentadecanoic acid (C15:0)
- Me Heptadecanoic acid (C17:0)
- Me Nonadecanoic acid (C19:0)
- Me Heneicosanoic acid (C21:0)
- Me Tricosanoic acid (C23:0)

Standards of Interest

For FAEE standards refer to BioFuels in the Petrochemical section.

Methyl Ester Mix #1
FAMQ-001 ❄ **40 mg**
Storage: -20°C, Protect from light 4 comps.
Approximately 10 mg of each in a qualitative mix

- 11-Eicosenoic acid methyl ester (20:1)
- 11,14-Eicosadienoic acid methyl ester (20:2)
- Arachidonic acid methyl ester (20:4)
- 5,8,11,14,17-Eicosapentaenoic acid methyl ester (20:5)

Fatty Acid Methyl Ester Mix #2
FAMQ-002 ❄ **50 mg**
Storage: -20°C, Protect from light 5 comps.
Approximately 10 mg of each in a qualitative mix

- 11-Eicosenoic acid methyl ester (20:1)
- 11,14-Eicosadienoic acid methyl ester (20:2)
- 11,14,17-Eicosatriaenoic acid methyl ester (20:3)
- Arachidonic acid methyl ester (20:4)
- 5,8,11,14,17-Eicosapentaenoic acid methyl ester (20:5)

Volatile Acid Standard Solution
FAMQ-004 **1 x 100 mL**
Storage: Refrigerate 10 comps.
10mM of each component in deionized H_2O.

- Formic acid
- Acetic acid
- Propionic acid
- Isobutyric acid
- Butyric acid
- Isovaleric acid
- *n*-Valeric acid
- Isocaproic acid *(4-Methyl valeric acid)*
- Hexanoic acid *(n-Caproic acid)*
- Heptanoic acid

FAME Quantitative Standard Mix
FAMQ-005 ❄ **1 x 1 mL**
Storage: -20°C, Protect from light
At stated conc. in CH_2Cl_2 (total of 10 mg/mL) 37 comps.

	mg/mL
Me Butyric acid (C4:0)	0.4
Me Caproic acid (C6:0)	0.4
Me Caprylic acid (C8:0)	0.4
Me Capric acid (C10:0)	0.4
Me Undecanoic acid (C11:0)	0.2
Me Lauric acid (C12:0)	0.4
Me Tridecanoic acid (C13:0)	0.2
Me Myristic acid (C14:0)	0.4
Me Myristoleic acid (C14:1)	0.2
Me Pentadecanoic acid (C15:0)	0.2
Me cis-10-Pentadecenoic acid (C15:1)	0.2
Me Palmitic acid (C16:0)	0.6
Me Palmitoleic acid (C16:1)	0.2
Me Heptadecanoic acid (C17:0)	0.2
Me cis-10-Heptadecenoic acid (C17:1)	0.2
Me Stearic acid (C18:0)	0.4
Me Elaidic acid (C18:1n9t)	0.2
Me Oleic acid (C18:1n9c)	0.4
Me Linolelaidic acid (C18:2n6t)	0.2
Me Linoleic acid (C18:2n6c)	0.2
Me Arachidic acid (C20:0)	0.4
Me g-Linolenic acid (C18:3n6)	0.2
Me cis-11-Eicosenoic acid (C20:1)	0.2
Me Linolenic acid (C18:3n3)	0.2
Me Heneicosanoic acid (C21:0)	0.2
Me cis-11,14-Eicosadienoic acid (C20:2)	0.2
Me Behenic acid (C22:0)	0.4
Me cis-8,11,14-Eicosatrienoic acid (C20:3n6)	0.2
Me Erucic acid (C22:1n9)	0.2
Me cis-11,14,17-Eicosatrienoic acid (C20:3n3)	0.2
Me Arachidonic acid (C20:4n6)	0.2
Me Tricosanoic acid (C23:0)	0.2
Me cis-13,16-Docosadienoic acid (C22:2)	0.2
Me Lignoceric acid (C24:0)	0.4
Me cis-5,8,11,14,17-Eicosapentaenoic acid (C20:5n3)	0.2
Me Nervonic acid (C24:1)	0.2
Me cis-4,7,10,13,16,19-Docosahexaenoic acid (C22:6n3)	0.2

❄ ColdPAK required to maintain integrity of product.

Neats as stated, Solutions in 1 mL

Fatty Acid Ethyl Esters

Compound	CAS No.	Conc.	Matrix	Cat. No.
Ethyl arachidate	18281-05-5	100 mg	NEAT	FAEE-008N
		10 mg/mL	Hexane	FAEE-008S
Ethyl behenate	5908-87-2	100 mg	NEAT	FAEE-009N
		10 mg/mL	Hexane	FAEE-009S
Ethyl caprate	110-38-3	100 mg	NEAT	FAEE-003N
		10 mg/mL	Hexane	FAEE-003S
Ethyl caprylate	106-32-1	100 mg	NEAT	FAEE-002N
		10 mg/mL	Hexane	FAEE-002S
Ethyl erucate	37910-77-3	100 mg	NEAT	FAEE-011N
		10 mg/mL	Hexane	FAEE-011S
Ethyl heptadecanoate	14010-23-2	100 mg	NEAT	FAEE-015N
		10 mg/mL	Hexane	FAEE-015S
Ethyl laurate	106-33-2	100 mg	NEAT	FAEE-004N
		10 mg/mL	Hexane	FAEE-004S
Ethyl lignocerate	24634-95-5	100 mg	NEAT	FAEE-010N
		10 mg/mL	Hexane	FAEE-010S
Ethyl linoleate	544-35-4	100 mg	NEAT	FAEE-012N
		10 mg/mL	Hexane	FAEE-012S
Ethyl linolenate	1191-41-9	100 mg	NEAT	FAEE-016N
		10 mg/mL	Hexane	FAEE-016S
Ethyl linolenate gamma	31450-14-3	100 mg	NEAT	FAEE-020N
		10 mg/mL	Hexane	FAEE-020S
Ethyl myristate	124-06-1	100 mg	NEAT	FAEE-005N
		10 mg/mL	Hexane	FAEE-005S
Ethyl nervonate	137888-64-3	100 mg	NEAT	FAEE-013N
		10 mg/mL	Hexane	FAEE-013S
Ethyl oleate	111-62-6	100 mg	NEAT	FAEE-014N
		10 mg/mL	Hexane	FAEE-014S
Ethyl palmitate	628-97-7	100 mg	NEAT	FAEE-006N
		10 mg/mL	Hexane	FAEE-006S
Ethyl palmitoleate	56219-10-4	100 mg	NEAT	FAEE-001N
		10 mg/mL	Hexane	FAEE-001S
Ethyl stearate	111-61-5	100 mg	NEAT	FAEE-007N
		10 mg/mL	Hexane	FAEE-007S

Vitamin Standards

Water Soluble		CAS No.	Unit	Cat. No.
Thiamine • HCL	B1	67-03-8	1 gram	VIT-001N
Riboflavin	B2	83-88-5	1 gram	VIT-002N
Pyridoxine • HCL	B6	58-56-0	1 gram	VIT-003N
L-Ascorbic acid	C	50-81-7	1 gram	VIT-004N
Nicotinic acid	Niacin	59-67-6	1 gram	VIT-005N
Nicotinamide		98-92-0	1 gram	VIT-006N
Folic Acid	M	59-30-3	1 gram	VIT-007N
Calcium-D-pantothenate	B5	137-08-6	100 mg	VIT-008N
d-Biotin	H	58-85-5	100 mg	VIT-009N-R1
Cyanocobalamin	B12	68-19-9	25 mg	VIT-010N-R1
Water Soluble Vitamin Set		**VIT-WSK-R1-SET**		**10 units**

Includes: VIT-001N to VIT-010N

Fat Soluble				
dl-alpha-Tocopherol	E	10191-41-0	100 mg	VIT-012N
Cholecalciferol	D3	67-97-0	100 mg	VIT-013N
Retinol Palmitate	A, Palmitate	79-81-2	100 mg	VIT-014N
dl-alpha-Tocopherol acetate		7695-91-2	100 mg	VIT-015N
Phylloguinone	K1	84-80-0	100 mg	VIT-016N
Menaquinone	K2	11032-49-8	100 mg	VIT-017N
Menadione	K3	58-27-5	100 mg	VIT-018N
β-Carotene (Substantially free of alpha Carotene)		7235-40-7	10 mg	VIT-019N
d-alpha-Tocopherol succinate	E	4345-03-3	100 mg	VIT-020N
Ergocalciferol	D2	50-14-6	100 mg	VIT-022N
Fat Soluble Vitamin Set		**VIT-FSK-R2-SET**		**10 units**

Includes: VIT-012N to VIT-022N

Technical Note

Vitamin Standards are tested, packaged and stored under an ISO Guide 34, 17025 and 9001 Quality System. Always store Standards properly, away from light sources. Each Standard is provided with an actual lot analysis and additional transfer vial and label.

Preservative and Antimicrobial Standards

Compound	Purity	CAS No.	Unit	Cat. No.
Benzoic acid	99 %	65-85-0	1 gram	AP-001N
Sodium benzoate	99 %	532-32-1	1 gram	AP-002N
Potassium nitrite	97 %	7758-09-0	1 gram	AP-003N
Sodium nitrite	99 %	7632-00-0	1 gram	AP-004N
Sodium nitrate	99 %	7631-99-4	1 gram	AP-005N
Potassium nitrate	99 %	7757-79-1	1 gram	AP-006N
Methyl paraben	99 %	99-76-3	1 gram	AP-007N
Ethyl paraben	99 %	120-47-8	1 gram	AP-008N
Butyl paraben	99 %	94-13-3	1 gram	AP-009N
Propionic acid	99 %	79-09-4	1 gram	AP-010N
Sodium propionate	97 %	137-40-6	1 gram	AP-011N
Calcium propionate	97 %	4075-81-4	1 gram	AP-012N
Sorbic acid	99 %	110-44-1	1 gram	AP-013N
Potassium sorbate	99 %	590-00-1	1 gram	AP-014N
Preservative & Antimicrobial Set			**14 x 1 gram**	**AP-SET**

Set includes: AP-001N through AP-014N

Allergens

It has been estimated that 10% of the U.S. population is affected by allergens. Cosmetic allergens can be found in everything from shampoos to skin creams. The average person is now exposed to significantly higher levels of these chemicals than people were exposed to only a generation ago. The resulting synergistic effect, coupled with environmental exposure to chemicals, is the focus of an ever-increasing number of studies.

Phthalates are a health issue as well as a food safety concern as an Indirect Food Additive. They tend to migrate from plastic containers and wrappings into food. Finally, some pesticides are a cosmetic ingredient issue since they can be present with other ingredients such as lanolin.

AccuStandard now offers AllergenCheck™ Standards to meet analytical requirements of the cosmetic, pharmaceutical and food industries. These new products coupled with the widest selection of certified reference materials for pesticide and pesticide metabolite analysis, offer one-stop shopping for the analysis of allergens.

Many of the Standards are synthesized by AccuStandard and are not available elsewhere. If you do not see the chemicals or their metabolites that you need, let us know and we may be able to synthesize them. Additionally, if a certain custom mixture of allergens would make your analysis easier, we can provide you with a custom formulation that will save you time.

Allergen Standards are listed as follows:

- Neats and Single Solutions listed alphabetically by compound
- Allergens regulated by the EU
- Allergen standards listed by type

AllergenCheck™

Neats as stated, Solutions in 1 mL

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Acetylpyridine	1122-62-9	100 mg	Neat	ALR-066N
		100 µg/mL	MeOH	ALR-066S
Alanroot (Inula helenium)	97676-35-2	1000 µg/mL	EtOH	ALR-027S-ET-10X
Alkylphenol ethoxylates:				
Nonylphenol-ethylene oxide condensate (Nonoxynol-9)	26027-38-3	100 mg	Neat	ALR-079N
		100 µg/mL	MeOH	ALR-079S
Polyethylene glycol nonaphenyl ether (Triton N-101)	123359-41-1	100 mg	Neat	ALR-078N
		100 µg/mL	MeOH	ALR-078S
Allylisothiocyanate	57-06-7	100 mg	Neat	ALR-028N
		1000 µg/mL	EtOH	ALR-028S-ET-10X
Amyl cinnamal	122-40-7	100 mg	Neat	ALR-001N
		1000 µg/mL	AcCN	ALR-001S-CN-10X
Amylcinnamyl alcohol	101-85-9	1000 µg/mL	EtOH	ALR-008S-ET-10X
Anisyl alcohol	105-13-5	100 mg	Neat	ALR-014N
		1000 µg/mL	EtOH	ALR-014S-ET-10X
Arsenic	7440-38-2	1000 µg/mL	2-5% HNO_3	ALR-MET-01S
Balsam of Peru	8007-00-9	100 mg	Neat	ALR-080N
		100 µg/mL	MeOH	ALR-080S
Benzophenone-3 (Bp-3)	131-57-7	100 mg	Neat	ALR-081N
		100 µg/mL	AcCN	ALR-081S-CN
Benzyl alcohol	100-51-6	100 mg	Neat	ALR-002N
		1000 µg/mL	EtOH	ALR-002S-ET-10X
Benzyl benzoate	120-51-4	100 mg	Neat	ALR-019N
		1000 µg/mL	EtOH	ALR-019S-ET-10X
Benzyl butyl phthalate	85-68-7	100 mg	Neat	ALR-082N
		100 µg/mL	MeOH	ALR-082S
Benzyl cinnamate	103-41-3	100 mg	Neat	ALR-015N
		1000 µg/mL	EtOH	ALR-015S-ET-10X
Benzyl cyanide	140-29-4	100 mg	Neat	ALR-029N
		1000 µg/mL	EtOH	ALR-029S-ET-10X
Benzyl paraben	94-18-8	100 mg	Neat	ALR-083N
		100 µg/mL	MeOH	ALR-083S
Benzyl salicylate	118-58-1	100 mg	Neat	ALR-009N
		1000 µg/mL	AcCN	ALR-009S-CN-10X
Bithionol	97-18-7	100 mg	Neat	ALR-084N
		100 µg/mL	MeOH	ALR-084S
5-Bromo-5-nitro-1,3-dioxane (Bronidox L) (BND)	30007-47-7	100 mg	Neat	ALR-074N
		100 µg/mL	MeOH	ALR-074S
2-Bromo-2-nitropropane-1,3-diol (Bronopol)	52-51-7	100 mg	Neat	ALR-067N
		100 µg/mL	MeOH	ALR-067S
2-(4-tert-Butylbenzyl)propionaldehyde (technical grade)	80-54-6	1000 µg/mL	AcCN	ALR-017S-CN-10X
Butylated hydroxyanisole (BHA)	25013-16-5	100 mg	Neat	ALR-087N
		100 µg/mL	MeOH	ALR-087S
Butylated hydroxytoluene (BHT & 2,6-DBPC)	128-37-0	100 mg	Neat	ALR-088N
		100 µg/mL	MeOH	ALR-088S
Butylene glycol	107-88-0	100 mg	Neat	ALR-089N
		100 µg/mL	MeOH	ALR-089S
Butyl-methoxydibenzoylmethane (B-MDM) Sunblock, Parsol1789	70356-09-1	100 µg/mL	MeOH	ALR-086S
Butyl paraben	94-26-8	100 mg	Neat	ALR-085N
		100 µg/mL	MeOH	ALR-085S

Neats as stated, Solutions in 1 mL

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.
p-tert-Butylphenol	98-54-4	100 mg	Neat	ALR-030N
		1000 µg/mL	EtOH	ALR-030S-ET-10X
Cetone Alpha (technical grade)	127-51-5	1000 µg/mL	AcCN	ALR-024S-CN-10X
Chloroacetamide	79-07-2	100 mg	Neat	ALR-090N
		100 µg/mL	MeOH	ALR-090S
Chloroform	67-66-3	100 mg	Neat	ALR-091N
		100 µg/mL	MeOH	ALR-091S
2-Chloropyridine	109-09-1	100 mg	Neat	ALR-068N
		100 µg/mL	MeOH	ALR-068S
Chromium	7440-47-3	1000 µg/mL	2-5% HNO_3	ALR-MET-02S
Cinnamal	104-55-2	100 mg	Neat	ALR-010N
		1000 µg/mL	AcCN	ALR-010S-CN-10X
Cinnamyl alcohol	104-54-1	100 mg	Neat	ALR-003N
		1000 µg/mL	EtOH	ALR-003S-ET-10X
Citral	5392-40-5	100 mg	Neat	ALR-004N
		1000 µg/mL	AcCN	ALR-004S-CN-10X
β-Citronellol	106-22-9	100 mg	Neat	ALR-020N
		1000 µg/mL	EtOH	ALR-020S-ET-10X
Coal Tar (black)	8007-45-2	100 mg	Neat	ALR-094N
		100 µg/mL	Toluene	ALR-094S-T
Cobalt	7440-48-4	1000 µg/mL	2-5% HNO_3	ALR-MET-03S
Coumarin	91-64-5	100 mg	Neat	ALR-011N
		1000 µg/mL	AcCN	ALR-011S-CN-10X
2,4-Diaminoanisole sulfate hydrate	123333-56-2	100 µg/mL	Pyridine	ALR-070S-R1
2,4-Diaminophenol	137-09-7	100 mg	Neat	ALR-063N
		100 µg/mL	MeOH	ALR-063S
Diamyl phthalate	131-18-0	100 mg	Neat	ALR-098N
		100 µg/mL	MeOH	ALR-098S
Diazolidinyl urea	78491-02-8	100 mg	Neat	ALR-106N
		100 µg/mL	MeOH	ALR-106S
Dibromsalon (Halogenated salicylanilides)	87-12-7	100 mg	Neat	ALR-107N
		100 µg/mL	MeOH	ALR-107S
Dicyclohexyl phthalate	84-61-7	100 mg	Neat	ALR-099N
		100 µg/mL	MeOH	ALR-099S
Diethanolamine (DEA)	111-42-2	100 mg	Neat	ALR-109N
		100 µg/mL	MeOH	ALR-109S
Di(2-ethyl hexyl) phthalate (DEHP)	117-81-7	100 mg	Neat	ALR-097N
		100 µg/mL	MeOH	ALR-097S
Diethyl maleate	141-05-9	100 mg	Neat	ALR-033N
		1000 µg/mL	EtOH	ALR-033S-ET-10X
Diethyl phthalate	84-66-2	100 mg	Neat	ALR-110N
		100 µg/mL	MeOH	ALR-110S
Di-hexyl phthalate	84-75-3	100 mg	Neat	ALR-100N
		100 µg/mL	MeOH	ALR-100S
Dihydrocoumarin	119-84-6	100 mg	Neat	ALR-034N
		1000 µg/mL	Acetone	ALR-034S-A-10X
Diisodecyl phthalate	26761-40-0	100 mg	Neat	ALR-101N
		100 µg/mL	MeOH	ALR-101S
Diisononyl phthalate	68515-48-0	100 mg	Neat	ALR-102N
		100 µg/mL	MeOH	ALR-102S
Diisooctyl phthalate	27554-26-3	100 mg	Neat	ALR-103N
		100 µg/mL	MeOH	ALR-103S
Dimethyl citraconate	617-54-9	100 mg	Neat	ALR-038N
		1000 µg/mL	EtOH	ALR-038S-ET-10X
Dimethyl phthalate (DMP)	131-11-3	100 mg	Neat	ALR-111N
		100 µg/mL	MeOH	ALR-111S
6,10-Dimethyl-3,5,9-undecatrien-2-one (Pseudoionone)	141-10-6	100 mg	Neat	ALR-040N
		1000 µg/mL	Acetone	ALR-040S-A-10X
Di-n-butyl phthalate (DBP)	84-74-2	100 mg	Neat	ALR-104N
		100 µg/mL	MeOH	ALR-104S
Di-n-octyl phthalate	117-84-0	100 mg	Neat	ALR-105N
		100 µg/mL	MeOH	ALR-105S
1,4-Dioxane	123-91-1	100 mg	Neat	ALR-062N
		100 µg/mL	MeOH	ALR-062S
Diphenylamine	122-39-4	100 mg	Neat	ALR-041N
		1000 µg/mL	EtOH	ALR-041S-ET-10X
2-Ethoxyethanol	110-80-5	100 mg	Neat	ALR-064N
		100 µg/mL	MeOH	ALR-064S
2-Ethoxyethanol acetate	111-15-9	100 mg	Neat	ALR-065N
		100 µg/mL	MeOH	ALR-065S
Ethyl acrylate	140-88-5	100 mg	Neat	ALR-042N
		1000 µg/mL	EtOH	ALR-042S-ET-10X
Ethyl paraben	120-47-8	100 mg	Neat	ALR-113N
		100 µg/mL	MeOH	ALR-113S
Ethylene diamine dihydrochloride	333-18-6	100 mg	Neat	ALR-114N
		100 µg/mL	MeOH	ALR-114S

Allergens continued on next page

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Ethylhexyl salicylate	118-60-5	100 mg	Neat	ALR-174N
		100 µg/mL	AcCN	ALR-114S-CN
Eugenol	97-53-0	100 mg	Neat	ALR-005N
		1000 µg/mL	EtOH	ALR-005S-ET-10X
Farnesol	4602-84-0	100 mg	Neat	ALR-016N
		1000 µg/mL	EtOH	ALR-016S-ET-10X
Formaldehyde	50-00-0	100 µg/mL	Water	ALR-115S-W
Freon #11 Trichlorofluoromethane	75-69-4	200 µg/mL	MeOH	ALR-CFC-013S-2X
Freon #12 Dichlorodifluoromethane	75-71-8	200 µg/mL	MeOH	ALR-CFC-008S-2X
Freon #13 Chlorotrifluoromethane	75-72-9	200 µg/mL	MeOH	ALR-CFC-007S-2X
Freon #13b1 Bromotrifluoromethane	75-63-8	200 µg/mL	MeOH	ALR-CFC-001S-2X
Freon #21 Dichlorofluoromethane	75-43-4	200 µg/mL	MeOH	ALR-CFC-009S-2X
Freon #22 Chlorodifluoromethane	75-45-6	200 µg/mL	MeOH	ALR-CFC-003S-2X
Freon #23 Trifluoromethane	75-46-7	200 µg/mL	MeOH	ALR-CFC-015S-2X
Freon #40 Chloromethane	74-87-3	200 µg/mL	MeOH	ALR-CFC-005S-2X
Freon #113 1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	200 µg/mL	MeOH	ALR-CFC-014S-2X
Freon #114 1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	200 µg/mL	MeOH	ALR-CFC-010S-2X
Freon #115 Chloropentafluoroethane	76-15-3	200 µg/mL	MeOH	ALR-CFC-006S-2X
Freon #134a Tetrafluoroethane	811-97-2	200 µg/mL	MeOH	ALR-CFC-012S-2X
Freon #142b 1-Chloro-1,1-difluoroethane	75-68-3	200 µg/mL	MeOH	ALR-CFC-002S-2X
Freon #152a 1,1-Difluoroethane	75-37-6	200 µg/mL	MeOH	ALR-CFC-011S-2X
Freon #160 Chloroethane	75-00-3	200 µg/mL	MeOH	ALR-CFC-004S-2X
Geraniol	106-24-1	100 mg	Neat	ALR-012N
		1000 µg/mL	EtOH	ALR-012S-ET-10X
trans-2-Heptenal	18829-55-5	100 mg	Neat	ALR-044N
		1000 µg/mL	AcCN	ALR-044S-CN-10X
Heptyl paraben	1085-12-7	100 mg	Neat	ALR-117N
		100 µg/mL	MeOH	ALR-117S
trans-2-Hexenal diethyl acetal	67746-30-9	100 mg	Neat	ALR-045N
		1000 µg/mL	EtOH	ALR-045S-ET-10X
trans-2-Hexenal dimethyl acetal	18318-83-7	100 mg	Neat	ALR-046N
		1000 µg/mL	MeOH	ALR-046S-10X
Hexachlorophene (HCP)	70-30-4	100 mg	Neat	ALR-118N
		100 µg/mL	MeOH	ALR-118S
Hexyl cinnamaldehyde	101-86-0	1000 µg/mL	EtOH	ALR-021S-ET-10X
Homosalate (HMS)	118-56-9	100 µg/mL	AcCN	ALR-119S-CN
Dihydroabietyl alcohol	26266-77-3	100 mg	Neat	ALR-047N
		1000 µg/mL	EtOH	ALR-047S-ET-10X
Hydroquinone monoethyl ether (4-Ethoxyphenol)	622-62-8	100 mg	Neat	ALR-048N
		1000 µg/mL	EtOH	ALR-048S-ET-10X
p-Hydroxyanisole	150-76-5	100 mg	Neat	ALR-145N
		100 µg/mL	MeOH	ALR-145S
4-Hydroxybenzoic acid (Paraben)	99-96-7	100 mg	Neat	ALR-069N
		100 µg/mL	AcCN	ALR-069S-CN
Hydroxy-citronellal	107-75-5	100 mg	Neat	ALR-006N
		1000 µg/mL	AcCN	ALR-006S-CN-10X
tris(Hydroxymethyl)nitromethane (Tris Nitro)	126-11-4	100 mg	Neat	ALR-169N
		100 µg/mL	MeOH	ALR-169S
Hydroxymethylpentylcyclohexenecarboxaldehyde	31906-04-4	100 mg	Neat	ALR-013N
		1000 µg/mL	AcCN	ALR-013S-CN-10X
Imidazolidinyl urea	39236-46-9	100 mg	Neat	ALR-120N
		100 µg/mL	MeOH	ALR-120S
α-Ionone	127-41-3	100 mg	Neat	ALR-171N
		100 µg/mL	MeOH	ALR-171S
β-Ionone	79-77-6	100 mg	Neat	ALR-172N
		100 µg/mL	MeOH	ALR-172S
Isobutyl paraben	4247-02-3	100 mg	Neat	ALR-121N
		100 µg/mL	MeOH	ALR-121S
Isoeugenol	97-54-1	100 mg	Neat	ALR-007N
		1000 µg/mL	EtOH	ALR-007S-ET-10X
Isopropyl paraben	4191-73-5	100 mg	Neat	ALR-122N
		100 µg/mL	MeOH	ALR-122S
Lanolin, anhydrous	8006-54-0	100 mg	Neat	ALR-123N
		100 µg/mL	MeOH	ALR-123S-A
Lead	7439-92-1	1000 µg/mL	2-5% HNO_3	ALR-MET-04S
d-Limonene	5989-27-5	100 mg	Neat	ALR-022N
		1000 µg/mL	EtOH	ALR-022S-ET-10X
Linalool	78-70-6	100 mg	Neat	ALR-018N
		1000 µg/mL	EtOH	ALR-018S-ET-10X
Mercury	7439-97-6	1000 µg/mL	2-5% HNO_3	ALR-MET-05S
Metabromsalon	2577-72-2	100 mg	Neat	ALR-128N
		100 µg/mL	MeOH	ALR-128S
7-Methoxycoumarin	531-59-9	100 mg	Neat	ALR-050N
		1000 µg/mL	AcCN	ALR-050S-CN-10X
4-(p-Methoxyphenyl)-3-butene-2-one	943-88-4	1000 µg/mL	AcCN	ALR-051S-CN-10X
4-Methoxy-m-phenylenediamine-sulfate hydrate	6219-67-6	100 mg	Neat	ALR-072N
		100 µg/mL	MeOH	ALR-072S
1-(p-Methoxyphenyl)-1-penten-3-one	104-27-8	100 mg	Neat	ALR-052N
		1000 µg/mL	AcCN	ALR-052S-CN-10X

Neats as stated, Solutions in 1 mL

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.
4-Methyl-benzylidene camphor (4-MBC)	36861-47-9	100 mg	Neat	ALR-073N
		100 µg/mL	MeOH	ALR-073S
6-Methylcoumarin (6-MC)	92-48-8	100 mg	Neat	ALR-075N
		100 µg/mL	MeOH	ALR-075S
7-Methylcoumarin	2445-83-2	100 mg	Neat	ALR-054N
		1000 µg/mL	AcCN	ALR-054S-CN-10X
Methyl heptyne carbonate	111-12-6	100 mg	Neat	ALR-023N
		1000 µg/mL	EtOH	ALR-023S-ET-10X
5-Methyl-2,3-hexanedione (Acetyl isovaleryl)	13706-86-0	100 mg	Neat	ALR-055N
		1000 µg/mL	AcCN	ALR-055S-CN-10X
Methyl methacrylate monomer	80-62-6	100 mg	Neat	ALR-129N
		100 µg/mL	MeOH	ALR-129S
Methyl paraben	99-76-3	100 mg	Neat	ALR-130N
		100 µg/mL	MeOH	ALR-130S
Methyl trans-2-butenoate	623-43-8	100 mg	Neat	ALR-053N
		1000 µg/mL	MeOH	ALR-053S-10X
Methyldibromoglutaronitrile	35691-65-7	100 mg	Neat	ALR-132N
		100 µg/mL	MeOH	ALR-132S
Methylene chloride	75-09-2	100 mg	Neat	ALR-133N
		100 µg/mL	MeOH	ALR-133S
Methyleugenol	93-15-2	100 mg	Neat	ALR-061N
		1000 µg/mL	EtOH	ALR-061S-ET-10X
Monobenzyl phthalate (mBzP)	2528-16-7	100 mg	Neat	ALR-134N
		100 µg/mL	AcCN	ALR-134S-CN
Monobutyl phthalate (mBP)	131-70-4	100 mg	Neat	ALR-135N
		100 µg/mL	AcCN	ALR-135S-CN
Monoethanolamine (MEA) (2-Aminoethanol)	141-43-5	100 mg	Neat	ALR-136N
		100 µg/mL	MeOH	ALR-136S
Monoethyl phthalate (mEP)	2306-33-4	100 mg	Neat	ALR-137N
		100 µg/mL	AcCN	ALR-137S-CN
Monoethylhexyl phthalate (mEHP)	4376-20-9	100 mg	Neat	ALR-138N
		100 µg/mL	AcCN	ALR-138S-CN
Monomethyl phthalate	4376-18-5	100 mg	Neat	ALR-139N
		100 µg/mL	AcCN	ALR-139S-CN
Mono-n-pentyl phthalate **NEW**	24539-56-8	100 µg/mL	AcCN	ALR-177S-CN
Potassium dichromate	7778-50-9	1000 µg/mL	Water	ALR-MET-07S
Nickel	7440-02-0	1000 µg/mL	2-5% HNO_3	ALR-MET-06S
N-Phenyl-p-phenylenediamine	101-54-2	100 mg	Neat	ALR-140N
		100 µg/mL	MeOH	ALR-140S
Oak Moss extract	90028-68-5	100 mg	Neat	ALR-026N
		1000 µg/mL	EtOH	ALR-026S-ET-10X
Octyl-dimethyl-PABA (OD-PABA)(Padimate O)	21245-02-3	100 mg	Neat	ALR-146N
		100 µg/mL	MeOH	ALR-146S
Octyl-methoxycinnamate (OMC)	5466-77-3	100 mg	Neat	ALR-144N
		100 µg/mL	MeOH	ALR-144S
4-Phenyl-3-buten-2-one	122-57-6	100 mg	Neat	ALR-058N
		1000 µg/mL	AcCN	ALR-058S-CN-10X
meta-Phenylenediamine (MPD)	108-45-2	100 mg	Neat	ALR-127N
		100 µg/mL	MeOH	ALR-127S
para-Phenylenediamine (PPD)	106-50-3	100 mg	Neat	ALR-147N
		100 µg/mL	MeOH	ALR-147S
Polyethylene glycol (PEG), appr. Molecular weight 200	25322-68-3	100 mg	Neat	ALR-149N-MW200
		100 µg/mL	MeOH	ALR-149S-MW200
Polyethylene glycol (PEG), appr. Molecular weight 400	25322-68-3	100 mg	Neat	ALR-149N-MW400
		100 µg/mL	MeOH	ALR-149S-MW400
Polyethylene glycol (PEG), appr. Molecular weight 600	25322-68-3	100 mg	Neat	ALR-149N-MW600
		100 µg/mL	MeOH	ALR-149S-MW600
Polyethylene glycol (PEG), appr. Molecular weight 1500	25322-68-3	100 mg	Neat	ALR-149N-MW1500
		100 µg/mL	MeOH	ALR-149S-MW1500
Polyethylene glycol (PEG), appr. Molecular weight 4000	25322-68-3	100 mg	Neat	ALR-149N-MW4000
		100 µg/mL	MeOH	ALR-149S-MW4000
Polyvinylpyrolidone PVP/PA Copolymer	9003-39-8	100 µg/mL	MeOH	ALR-150S
Potassium dichromate	7778-50-9	1000 µg/mL	Water	ALR-MET-07S
Potassium sorbate	24634-61-5	100 mg	Neat	ALR-152N
		100 µg/mL	MeOH	ALR-152S
Propyl paraben	94-13-3	100 mg	Neat	ALR-153N
		100 µg/mL	MeOH	ALR-153S
Propylene glycol (PG)	57-55-6	100 µg/mL	MeOH	ALR-154S
Protocatechuic acid	99-50-3	100 mg	Neat	ALR-155N
		100 µg/mL	AcCN	ALR-155S-CN
Pyrocatechol	120-80-9	100 mg	Neat	ALR-156N
		100 µg/mL	MeOH	ALR-156S
Quaternium-15	51229-78-8	100 mg	Neat	ALR-157N
		100 µg/mL	MeOH	ALR-157S
Resorcinol	108-46-3	100 mg	Neat	ALR-158N
		100 µg/mL	MeOH	ALR-158S

Allergens continued on next page

Allergens & EU Directive List

Neats as stated, Solutions in 1 mL

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.
Salicylic acid	69-72-7	100 mg	Neat	ALR-173N
		100 µg/mL	Water	ALR-173S-W
Sodium hydroxide	1310-73-2	100 mg	Neat	ALR-159N
		100 µg/mL	MeOH	ALR-159S
Sodium nitrite	7632-00-0	100 mg	Neat	ALR-160N
		100 µg/mL	Water	ALR-160S-W
Talc	14807-96-6	100 mg	Neat	ALR-161N
Tetrachlorosalicylanilide	1154-59-2	100 mg	Neat	ALR-162N
		100 µg/mL	MeOH	ALR-162S
Thimerosal	54-64-8	100 mg	Neat	ALR-163N
		100 µg/mL	MeOH	ALR-163S
Thiuram (Thiram) (Tetramethylthiouram disulfide)	137-26-8	100 mg	Neat	ALR-164N
		100 µg/mL	MeOH	ALR-164S
Tree Moss extract	90028-67-4	1000 µg/mL	EtOH	ALR-025S-ET-10X
Tribomsalan	87-10-5	100 mg	Neat	ALR-167N
		100 µg/mL	MeOH	ALR-167S
Triethanolamine (TEA)	102-71-6	100 mg	Neat	ALR-168N
		100 µg/mL	MeOH	ALR-168S
Verbena oil (Lippia citriodora Kunth)	8024-12-2	100 mg	Neat	ALR-060N
		1000 µg/mL	EtOH	ALR-060S-ET-10X
Vinyl chloride	75-01-4	100 µg/mL	MeOH	ALR-170S
Zirconium	7440-67-7	1000 µg/mL	2-5% HNO_3	ALR-MET-08S

EU Directive 76/768/EEC

EU Directive List of 26 Regulated Contact Allergens:

Set of all 26 EU Allergens (in Solution) **ALR-EU26-R1-SET**

Each at 1000 µg/mL Conc. (1 mL) **26 x 1 mL**

Compound	CAS No.	Cat. No	1 mL
Amyl cinnamal	122-40-7	ALR-001S-CN-10X	
Amylcinnamyl alcohol	101-85-9	ALR-008S-ET-10X	
Anisyl alcohol	105-13-5	ALR-014S-ET-10X	
Benzyl alcohol	100-51-6	ALR-002S-ET-10X	
Benzyl benzoate	120-51-4	ALR-019S-ET-10X	
Benzyl cinnamate	103-41-3	ALR-015S-ET-10X	
Benzyl salicylate	118-58-1	ALR-009S-CN-10X	
2-(4-tert-Butylbenzyl)propionaldehyde (technical grade)	80-54-6	ALR-017S-CN-10X	
Cetone Alpha (technical grade)	127-51-5	ALR-024S-CN-10X	
Cinnamal	104-55-2	ALR-010S-CN-10X	
Cinnamyl alcohol	104-54-1	ALR-003S-ET-10X	
Citral	5392-40-5	ALR-004S-CN-10X	
b-Citronellol	106-22-9	ALR-020S-ET-10X	
Coumarin	91-64-5	ALR-011S-CN-10X	
Eugenol	97-53-0	ALR-005S-ET-10X	
Farnesol	4602-84-0	ALR-016S-ET-10X	
Geraniol	106-24-1	ALR-012S-ET-10X	
Hexyl cinnamaldehyde	101-86-0	ALR-021S-ET-10X	
Hydroxy-citronellal	107-75-5	ALR-006S-CN-10X	
Hydroxymethylpentylcyclohexene carboxaldehyde	31906-04-4	ALR-013S-CN-10X	
Isoeugenol	97-54-1	ALR-007S-ET-10X	
d-Limonene	5989-27-5	ALR-022S-ET-10X	
Linalool	78-70-6	ALR-018S-ET-10X	
Methyl heptyne carbonate	111-12-6	ALR-023S-ET-10X	
Oak Moss extract	90028-68-5	ALR-026S-ET-10X	
Tree Moss extract	90028-67-4	ALR-025S-ET-10X	

EU Directive List of substances that may be banned:

Set of 25 Allergens (in Solution) **ALR-EU36-R1-SET**

Neats at 100 mg, Solutions are in 1000 µg/mL Conc. (1 mL) **25 x 1 mL**

Compound	CAS No.	Cat. No	1 mL
Alanroot (Inula helenium)	97676-35-2	ALR-027S-ET-10X	
Allylisothiocyanate	57-06-7	ALR-028S-ET-10X	
Benzyl cyanide	140-29-4	ALR-029S-ET-10X	
p-tert-Butylphenol	98-54-4	ALR-030S-ET-10X	
Diethyl maleate	141-05-9	ALR-033S-ET-10X	
Dihydrocoumarin	119-84-6	ALR-034S-A-10X	
Dimethyl citraconate	617-54-9	ALR-038S-ET-10X	
6,10-Dimethyl-3,5,9-undecatrien-2-one (Pseudoionone)	141-10-6	ALR-040S-A-10X	
Diphenylamine	122-39-4	ALR-041S-ET-10X	
Ethyl acrylate	140-88-5	ALR-042S-ET-10X	
trans-2-Heptenal	18829-55-5	ALR-044S-CN-10X	
trans-2-Hexenal diethyl acetal	67746-30-9	ALR-045S-ET-10X	
trans-2-Hexenal dimethyl acetal	18318-83-7	ALR-046S-10X	
Dihydroabietyl alcohol	26266-77-3	ALR-047S-ET-10X	
Hydroquinone monoethyl ether (4-Ethoxyphenol)	622-62-8	ALR-048S-ET-10X	
7-Methoxycoumarin	531-59-9	ALR-050S-CN-10X	
4-(p-Methoxyphenyl)-3-butene-2-one	943-88-4	ALR-051S-CN-10X	
1-(p-Methoxyphenyl)-1-penten-3-one	104-27-8	ALR-052S-CN-10X	
7-Methylcoumarin	2445-83-2	ALR-054S-CN-10X	
5-Methyl-2,3-hexanedione (Acetyl isovaleryl)	13706-86-0	ALR-055S-CN-10X	
Methyl trans-2-butenoate	623-43-8	ALR-053S-10X	
Methyleugenol	93-15-2	ALR-061S-ET-10X	
Musk ambrette (solution only)	83-66-9	ALR-056S-CN-10X	
4-Phenyl-3-buten-2-one	122-57-6	ALR-058S-CN-10X	
Verbena oil (Lippia citriodora Kunth)	8024-12-2	ALR-060S-ET-10X	

Technical Mixtures

When a compound has a purity identified as "Technical" or "Tech Mixture" it means that the standard is not comprised of just one main compound. These are mixtures of multiple chemicals that make up a particular product and every chemical in the mix are components that define the product. The analysis considers all compounds in the product. Aroclors, flame retardants, PBDE technical grade, halowaxes, and some allergens, plastic additives, and dyes are classified as "Technical Mixtures".

Key to Catalog Numbers	
N	Neat, 100 mg
S	Solution in Methanol
S-A	Solution in Acetone
S-CN	Solution in Acetonitrile
S-ET	Solution in Ethanol
S-T	Solution in Toluene
S-W	Solution in Water

Allergens by Type

Sun Block

Set of 6 Sun Block Solutions **ALR-SUN-SET** **6 x 1 mL**
Each at 100 µg/mL Conc. (1 mL)

Compound	CAS No.	Cat. No.	1 mL
Benzophenone-3 (Bp-3)	131-57-7	ALR-081S-CN	
Butyl-methoxydibenzoylmethane(B-MDM) Sunblock, Parsol 1789	70356-09-1	ALR-086S	
Homosalate (HMS)	118-56-9	ALR-119S-CN	
4-Methyl-benzylidene camphor (4-MBC)	36861-47-9	ALR-073S	
Octyl-dimethyl-PABA (OD-PABA) (Padimate O)	21245-02-3	ALR-146S	
Octyl-methoxycinnamate (OMC)	5466-77-3	ALR-144S	

Parabens

Set of 11 Paraben Solutions **ALR-PAR-SET** **11 x 1 mL**
Each at 100 µg/mL Conc. (1 mL)

Compound	CAS No.	Cat. No.	1 mL
Benzyl paraben	94-18-8	ALR-083S	
Butyl paraben	94-26-8	ALR-085S	
Ethyl paraben	120-47-8	ALR-113S	
Heptyl paraben	1085-12-7	ALR-117S	
4-Hydroxybenzoic acid (Paraben)	99-96-7	ALR-069S-CN	
Isobutyl paraben	4247-02-3	ALR-121S	
Isopropyl paraben	4191-73-5	ALR-122S	
Methyl paraben	99-76-3	ALR-130S	
Potassium sorbate	24634-61-5	ALR-152S	
Propyl paraben	94-13-3	ALR-153S	
Protocatechuic acid	99-50-3	ALR-155S-CN	

Phthalates

Set of 17 Phthalate Solutions **ALR-PHT-SET** **17 x 1 mL**
Each at 100 µg/mL Conc. (1 mL)

Compound	CAS No.	Cat. No.	1 mL
Benzyl butyl phthalate	85-68-7	ALR-082S	
Diamyl phthalate	131-18-0	ALR-098S	
Dicyclohexyl phthalate	84-61-7	ALR-099S	
Di(2-ethyl hexyl) phthalate (DEHP)	117-81-7	ALR-097S	
Diethyl phthalate	84-66-2	ALR-110S	
Di-hexyl phthalate	84-75-3	ALR-100S	
Diisodecyl phthalate	26761-40-0	ALR-101S	
Diisononyl phthalate	68515-48-0	ALR-102S	
Diisooctyl phthalate	27554-26-3	ALR-103S	
Dimethyl phthalate (DMP)	131-11-3	ALR-111S	
Di-n-butyl phthalate (DBP)	84-74-2	ALR-104S	
Di-n-octyl phthalate	117-84-0	ALR-105S	
Monobenzyl phthalate (mBzP)	2528-16-7	ALR-134S-CN	
Monobutyl phthalate (mBP)	131-70-4	ALR-135S-CN	
Monoethyl phthalate (mEP)	2306-33-4	ALR-137S-CN	
Monoethylhexyl phthalate (mEHP)	4376-20-9	ALR-138S-CN	
Monomethyl phthalate	4376-18-5	ALR-139S-CN	

Metals

Set of 8 Metals Solutions **ALR-MET-SET** **8 x 100 mL**
Each at 1000 µg/mL 2-5% HNO_3, except † in Water (100 mL Volume)

Compound	CAS No.	Cat. No.	100 mL
Arsenic	7440-38-2	ALR-MET-01S	
Chromium	7440-47-3	ALR-MET-02S	
Cobalt	7440-48-4	ALR-MET-03S	
Lead	7439-92-1	ALR-MET-04S	
Mercury	7439-97-6	ALR-MET-05S	
Nickel	7440-02-0	ALR-MET-06S	
Potassium dichromate	7778-50-9	ALR-MET-07S †	
Zirconium	7440-67-7	ALR-MET-08S	

† in Water

Key to Catalog Numbers	
N	Neat, 100 mg
S	Solution in Methanol
S-A	Solution in Acetone
S-CN	Solution in Acetonitrile
S-ET	Solution in Ethanol
S-T	Solution in Toluene
S-W	Solution in Water

Purchasing Neat Standards

There are two ways to purchase neat standards: Nominal weight and exact weight. With exact weight, the standards will come with the exact weight contained in the vial indicated on the label. The Cat. No. will have an X-WT to indicate that this is an exact weight. Rinse the sample out of the vial and cap with solvent and dilute to acheive the desired concentration. Unless specified, neat samples are provided with nominal weights. Typically, the vials contain up to 10 to 20% more product, however it is not known when you receive your standard what the exact amount is in the vial. Below is a standard procedure for removing all the neat material from the vial and determining the exact weight of the material in the vial.

Small amounts (5-10 mg) of powder often are spread over the surface of the vial and cap. If the chemical is a liquid it may coat the walls as a thin layer invisible to the eye.
To recover all of the contents contained in a vial of neat material please use the procedure described below:

1. Wipe the outside of the vial (containing the Standard) clean and dry (including the cap).
2. Weigh the entire unit on an analytical balance. Record the weight to the nearest 0.1 mg.
3. Carefully transfer the contents to a volumetric flask using a suitable solvent. Rinse the cap and vial several times to assure a complete transfer.
4. Dry inside and outside of the vial and cap with mild heat or inert gas.
5. Weigh the empty dry vial on the same analytical balance to the nearest 0.1 mg and calculate by difference the amount of material transferred.

Chlorofluorocarbon Propellants (CFCs)

Set of 15 ALR-CFCs Solutions **ALR-CFC-SET** **15 x 1 mL**
Each at 200 µg/mL Conc. (1 mL)

Freon	Compound	CAS No.	Cat. No.	1 mL
Freon #11	Trichlorofluoromethane	75-69-4	ALR-CFC-013S-2X	
Freon #12	Dichlorodifluoromethane	75-71-8	ALR-CFC-008S-2X	
Freon #13	Chlorotrifluoromethane	75-72-9	ALR-CFC-007S-2X	
Freon #13b1	Bromotrifluoromethane	75-63-8	ALR-CFC-001S-2X	
Freon #21	Dichlorofluoromethane	75-43-4	ALR-CFC-009S-2X	
Freon #22	Chlorodifluoromethane	75-45-6	ALR-CFC-003S-2X	
Freon #23	Trifluoromethane	75-46-7	ALR-CFC-015S-2X	
Freon #40	Chloromethane	74-87-3	ALR-CFC-005S-2X	
Freon #113	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ALR-CFC-014S-2X	
Freon #114	1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	ALR-CFC-010S-2X	
Freon #115	Chloropentafluoroethane	76-15-3	ALR-CFC-006S-2X	
Freon #134a	Tetrafluoroethane	811-97-2	ALR-CFC-012S-2X	
Freon #142b	1-Chloro-1,1-difluoroethane	75-68-3	ALR-CFC-002S-2X	
Freon #152a	1,1-Difluoroethane	75-37-6	ALR-CFC-011S-2X	
Freon #160	Chloroethane	75-00-3	ALR-CFC-004S-2X	

AllergenCheck™

Azodyes may pose cancer risks and have been restricted in many countries, most notably of the European Union.

Neats at 100 mg. Solutions at 100 µg/mL in MeOH, except as noted.

Individual Dyes

Compound	Synonym	CAS No.	Neat 100 mg Cat. No.	Solution 1 mL Cat. No.
2-Amino-3-nitrophenol		603-85-0	DYE-107N	DYE-107S
2-Amino-4-chlorophenol		95-85-2	--------	DYE-034S *
2-Amino-5-(diethylamino)toluene monohydrochloride ***New***		2051-79-8	DYE-104N	DYE-104S
2-Aminophenol		95-55-6	DYE-108N	DYE-108S
Acid Red 26	*Ponceau Xylidine*	3761-53-3	--------	DYE-031S
Acid Violet 7		4321-69-1	DYE-121N	DYE-121S
Acid Violet 9		6552-76-2	DYE-122N	DYE-122S
Acid Violet 19		3244-88-0	DYE-123N	DYE-123S
Acid Violet 20			DYE-124N	DYE-124S
Acid Violet 30			DYE-125N-5MG	DYE-125S
Acid Violet 49		1694-09-3	DYE-120N	DYE-120S
Basic Blue 26	see Victoria Blue			
Basic Blue 7		2390-60-5	DYE-113N	DYE-113S
Basic Fuchsin		569-61-9	DYE-049N	DYE-049S
Basic Red 2		477-73-6	DYE-114N	DYE-114S
Basic Red 9		569-61-9	--------	DYE-030S
Basic Violet 1		8004-87-3	DYE-027N	DYE-027S
Basic Violet 3	Crystal Violet	548-62-9	DYE-028N	DYE-028S
Basic Violet 14		632-99-5	--------	DYE-012S
Congo Red	see Direct Red 28			
Crocein Scarlet 3b		5413-75-2	DYE-115N	DYE-115S
Crystal Violet	see Basic Violet 3			
D & C Red 7		5281-04-9	DYE-060N	DYE-060S
2,4-Diaminodiphenylamine		136-17-4	DYE-102N	--------
2,6-Diaminopyridine		141-86-6	DYE-103N	DYE-103S
N,N-Dimethyl-1,4-phenylenediamine		99-89-9	DYE-106N	DYE-106S
Direct Black 38		1937-37-7	--------	DYE-013S
Direct Blue 6		2602-46-2	--------	DYE-014S
Direct Red 28	*Congo Red*	573-58-0		DYE-064S
Disperse Blue 1		2475-45-8	--------	DYE-001S
Disperse Blue 3		2475-46-9	--------	DYE-004S
Disperse Blue 7		3179-90-6	--------	DYE-015S
Disperse Blue 26		3860-63-7	--------	DYE-016S
Disperse Blue 35		12222-75-2	--------	DYE-009S
Disperse Blue 102		12222-97-8	--------	DYE-017S
Disperse Blue 124		61951-51-7	--------	DYE-010S
Disperse Brown 1		23355-64-8	DYE-051N	DYE-051S
Disperse Orange 1		2581-69-3	--------	DYE-005S
Disperse Orange 3		730-40-5	--------	DYE-006S
Disperse Orange 11		82-28-0	--------	DYE-002S
Disperse Orange 37		13301-61-6	--------	DYE-011S
Disperse Red 1		2872-52-8	--------	DYE-007S
Disperse Red 11		2872-48-2	--------	DYE-018S
Disperse Red 17		3179-89-3	--------	DYE-019S
Disperse Yellow 1		119-15-3	--------	DYE-053S
Disperse Yellow 3		2832-40-8	DYE-003N	DYE-003S
Disperse Yellow 9		6373-73-5	--------	DYE-008S
Eosin Y **NEW**		15086-94-9	DYE-127N	DYE-127S
Eriochrome Black A		3618-58-4	DYE-109N	DYE-109S
FD & C Blue 1		3844-45-9	DYE-062N	DYE-062S
FD & C Blue 2		860-22-0	DYE-063N	DYE-063S
FD & C Red 3		16423-68-0	DYE-057N	DYE-057S
FD & C Red 40		25956-17-6	DYE-056N	--------
FD & C Yellow 5		1934-21-0	DYE-058N	DYE-058S
FD & C Yellow 6		2783-94-0	DYE-059N	DYE-059S

* in AcCN

Neats at 100 mg. Solutions at 100 µg/mL in MeOH, except as noted.

Individual Dyes

Compound	Synonym	CAS No.	Neat 100 mg Cat. No.	Solution 1 mL Cat. No.
Food Yellow 3	*Sunset Yellow FCF*	2783-94-0	DYE-024N	DYE-024S
Metanil Yellow		587-98-4	DYE-117N	DYE-117S
Methyl Blue **NEW**		28983-56-4	DYE-128N	DYE-128S
2,3-Naphthalenediol		92-44-4	--------	DYE-033S *
2-Nitro-1,4-phenylenediamine		5307-14-2	DYE-110N	DYE-110S
Orange II sodium salt **NEW**		633-96-5	DYE-116N	DYE-116S
Para Red		6410-10-2	DYE-026N	DYE-026S
4-Phenylazoaniline hydrochloride		3457-98-5	DYE-046N	DYE-046S
Ponceau SX		4548-53-2	--------	DYE-112S
Ponceau Xylidine	see Acid Red 26			
Rhodamine B		81-88-9	--------	DYE-118S
Solvent Orange 7	Sudan II	3118-97-6	DYE-021N	DYE-021S
Solvent Orange R	see Solvent Yellow 14			
Solvent Red 19	*Sudan Red 7B*	6368-72-5	DYE-025N	DYE-025S
Solvent Red 23	*Sudan III*	85-86-9	DYE-022N	DYE-022S
Solvent Red 24	*Sudan IV*	85-83-6	DYE-023N	DYE-023S
Solvent Yellow 1		3457-98-5	--------	DYE-029S
Solvent Yellow 14	*Sudan I, Solvent Orange R*	842-07-9	DYE-020N	DYE-020S
Sudan I	see Solvent Yellow 14			
Sudan II	Solvent Orange 7	3115-97-6	DYE-045N	DYE-045S
Sudan III	see Solvent Red 23			
Sudan IV	see Solvent Red 24			
Sudan Red 7B	see Solvent Red 19			
Sunfast D & C Red 34		569-61-9	DYE-061N	DYE-061S
Sunset Yellow FCF	see Food Yellow 3			
Timbasol Brown trans oxide		569-61-9	DYE-055N	DYE-055S
Victoria Blue	*Basic Blue 26*	2580-56-5	DYE-111N	DYE-111S

* in AcCN

EU Directive Dyes on next page

EU Directive 2002/61/EC Determination of Aryl Amine Breakdown Products in Azo Dyes

Individual Aryl Amine Standards

Compound	100 µg/mL in AcCN 1 mL	1000 µg/mL in AcCN 1 mL	10 µg/mL in Ethyl acetate for 10 mL 10 mL
o-Aminoazotoluene (01)	RAC-01	RAC-01-10X	RAC-01-EA-0.1X-10ML
4-Aminobiphenyl (02)	RAC-02	RAC-02-10X	RAC-02-EA-0.1X-10ML
2-Amino-4-nitrotoluene (03)	RAC-03	RAC-03-10X	RAC-03-EA-0.1X-10ML
Benzidine (04)	RAC-04	RAC-04-10X	RAC-04-EA-0.1X-10ML
4-Chloroaniline (05)	RAC-05	RAC-05-10X	RAC-05-EA-0.1X-10ML
4-Chloro-*o*-toluidine (06)	RAC-06	RAC-06-10X	RAC-06-EA-0.1X-10ML
p-Cresidine (07)	RAC-07	RAC-07-10X	RAC-07-EA-0.1X-10ML
2,4-Diaminoanisole * (08)	RAC-08	RAC-08-10X	RAC-08-EA-0.1X-10ML
4,4'-Diaminodiphenylmethane (09)	RAC-09	RAC-09-10X	RAC-09-EA-0.1X-10ML
2,4-Diaminotoluene (10)	RAC-10	RAC-10-10X	RAC-10-EA-0.1X-10ML
3,3'-Dichlorobenzidine (11)	RAC-11	RAC-11-10X	RAC-11-EA-0.1X-10ML
3,3'-Dimethoxybenzidine (12)	RAC-12	RAC-12-10X	RAC-12-EA-0.1X-10ML
3,3'-Dimethylbenzidine (13)	RAC-13	RAC-13-10X	RAC-13-EA-0.1X-10ML
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (14)	RAC-14	RAC-14-10X	RAC-14-EA-0.1X-10ML
4,4'-Methylenebis(2-chloroaniline) (15)	RAC-15	RAC-15-10X	RAC-15-EA-0.1X-10ML
2-Naphthylamine (16)	RAC-16	RAC-16-10X	RAC-16-EA-0.1X-10ML
4,4'-Oxydianiline (17)	RAC-17	RAC-17-10X	RAC-17-EA-0.1X-10ML
4,4'-Thiodianiline (18)	RAC-18	RAC-18-10X	RAC-18-EA-0.1X-10ML
o-Toluidine (19)	RAC-19	RAC-19-10X	RAC-19-EA-0.1X-10ML
2,4,5-Trimethylaniline (20)	RAC-20	RAC-20-10X	RAC-20-EA-0.1X-10ML
p-Aminoazobenzene (21)	RAC-21	RAC-21-10X	RAC-21-EA-0.1X-10ML
2-Aminobiphenyl (22)	RAC-22	RAC-22-10X	RAC-22-EA-0.1X-10ML
o-Anisidine (23)	RAC-23	RAC-23-10X	RAC-23-EA-0.1X-10ML
3-Chloro-*o*-toluidine (24)	RAC-24	RAC-24-10X	RAC-24-EA-0.1X-10ML

RAC-R1-SET **24 x 1 mL (Set includes the above ampules)** In Acetonitrile
100 µg/mL * In the form of the Sulfate hydrate 171 µg/mL in Pyridine (100 µg/mL as the base)

RAC-R1-10X-SET **24 x 1 mL (Set includes the above ampules)** In Acetonitrile
1000 µg/mL in AcCN * In the form of the Sulfate hydrate 1,710 µg/mL in Pyridine (1000 µg/mL as the base)

Carcinogenic Aryl Amine Mix

AE-00049-R1 **1 x 1 mL**
10 µg/mL in Ethyl acetate 23 comps.
AE-00049-SET **2 x 1 mL**
Contains **AE-00049-R1** (23 comps. Mix) plus **RAC-08** (2,4-Diaminoanisole) listed on the left
AE-00049-R1-10ML **1 x 10 mL**
10 µg/mL in Ethyl acetate 23 comps.

o-Aminoazotoluene (01)
4-Aminobiphenyl (02)
2-Amino-4-nitrotoluene (03)
Benzidine (04)
4-Chloroaniline (05)
4-Chloro-o-toluidine (06)
p-Cresidine (07)
4,4'-Diaminodiphenylmethane (09)
2,4-Diaminotoluene (10)
3,3'-Dichlorobenzidine (11)
3,3'-Dimethoxybenzidine (12)
3,3'-Dimethylbenzidine (13)
3,3'-Dimethyl-4,4'-diaminodiphenylmethane (14)
4,4'-Methylenebis(2-chloroaniline) (15)
2-Naphthylamine (16)
4,4'-Oxydianiline (17)
4,4'-Thiodianiline (18)
o-Toluidine (19)
2,4,5-Trimethylaniline (20)
p-Aminoazobenzene (21)
2-Aminobiphenyl (22)
o-Anisidine (23)
3-Chloro-*o*-toluidine (24)

Internal Standards

RAC-IS **1 x 1 mL**
1000 µg/mL in AcCN
RAC-IS-EA **1 x 1 mL**
1000 µg/mL in Ethyl acetate

3,3',5,5'-Tetramethylbenzidine

EU Directive 67/548/EEC Dyes

Criterion #22 Regulated Dyes
Carcinogenic

Compound	100 µg/ml in MeOH Cat. No. 1 mL
Disperse Blue 1	DYE-001S
Disperse Orange 11	DYE-002S
Disperse Yellow 3	DYE-003S
Basic Violet 14	DYE-012S
Direct Black 38	DYE-013S
Direct Blue 6	DYE-014S

Criterion #23 Regulated Dye
Disperse dyes, Sensitizing

Compound	100 µg/ml in MeOH Cat. No. 1 mL
Disperse Blue 3	DYE-004S
Disperse Orange 1	DYE-005S
Disperse Orange 3	DYE-006S
Disperse Red 1	DYE-007S
Disperse Yellow 9	DYE-008S
Disperse Blue 35	DYE-009S
Disperse Blue 124	DYE-010S
Disperse Orange 37	DYE-011S
Disperse Blue 7	DYE-015S
Disperse Blue 26	DYE-016S
Disperse Blue 102	DYE-017S
Disperse Red 11	DYE-018S
Disperse Red 17	DYE-019S

EU Directive 76/768/EEC Substances contained in Hair Dyes Ban

Compound	CAS No.	Neat 100 mg Cat. No.	100 µg/ml in MeOH 1 mL Cat. No.
2-Amino-3-nitrophenol	603-85-0	DYE-107N	DYE-107S
2-Amino-5-(diethylamino)toluene monohydrochloride	2051-79-8	DYE-104N	DYE-104S
2-Aminophenol	95-55-6	DYE-108N	DYE-108S
Basic Blue 7	2390-60-5	DYE-113N	DYE-113S
Basic Red 2	477-73-6	DYE-114N	DYE-114S
Crocein Scarlet 3b	5413-75-2	DYE-115N	DYE-115S
2,4-Diaminodiphenylamine	136-17-4	DYE-102N	----------
2,6-Diaminopyridine	141-86-6	DYE-103N	DYE-103S
N,N-Diethyl-1,4-phenylenediamine Sulfate	6283-63-2	DYE-105N	DYE-105S
N,N-Dimethyl-1,4-phenylenediamine	99-89-9	DYE-106N	DYE-106S
Eriochrome Black A	3618-58-4	DYE-109N	DYE-109S
2-Nitro-1,4-phenylenediamine	5307-14-2	DYE-110N	DYE-110S
Ponceau SX	4548-53-2	----------	DYE-112S
Victoria Blue	2580-56-5	DYE-111N	DYE-111S

PFOA, Odor and Irritant Standards

Perfluorooctanoic Acid (PFOA)

The acronym PFOA is used to refer to not only the Perfluorooctanoic Acid, but also its principal salts. PFOS is used to refer to Perfluorooctane sulfonate. They are synthetic chemicals that do not occur naturally in the environment and are typically used to aid in the manufacturing of fluoropolymers. These polymers have valuable properties of fire resistance and oil, stain and grease repellence. Another common use is as fire fighting foams. Fluorotelomers will thermally and biologically decompose to form the PFOAs.

The EPA has indicated the potential need for concern and the necessity for additional analytical testing and monitoring. PFOAs have been determined to bioaccumulate and are highly persistent. Continued testing has shown that this class of compounds is widely distributed in the environment.

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Perfluoroctanoic acid	335-67-1	100 µg/mL	MeOH	PFOA-001S	
Perfluorooctane sulfonic acid	1763-23-1	100 µg/mL	MeOH	PFOS-001S	
Potassium perfluorooctanesulfonate	2795-39-3	100 mg	NEAT	PFOS-002N	
		100 µg/mL	MeOH	PFOS-002S	
Scotchgard™ Pre-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-001S	
Scotchgard™ Post-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-002S	

Registered Trademarks
Scotchgard 3M

Odor Standards

The determination of odor in drinking water, waste water, and solids also include Japanese quantitative standards to meet the standard methods odor testing parameters. Odor Chemical Reference Materials, include both quantitative and qualitative standards.

Individual Odor Standards

Solutions are in 1 mL, except * in 10 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
Cumene	98-82-8	10 mg	NEAT	ODOR-06N
(+/-) Geosmin	16423-19-1	2 µg/mL	MeOH	ODOR-01S
Indan	496-11-7	10 mg	NEAT	ODOR-12N
Indene	95-13-6	10 mg	NEAT	ODOR-11N
2-Isobutyl-3-methoxypyrazine *	24683-00-9	1000 µg/mL	MeOH	ODOR-17S-10ML
2-Isopropyl-3-methoxypyrazine *	25773-40-4	1000 µg/mL	MeOH	ODOR-16S-10ML
cis-3-Hexenyl acetate	3681-71-8	10 mg	NEAT	ODOR-08N
cis-3-Hexen-1-ol	928-96-1	10 mg	NEAT	ODOR-09N
2-Methylbenzofuran	4265-25-2	10 mg	NEAT	ODOR-14N
2-Methylisoborneol	2371-42-8	2 µg/mL	MeOH	ODOR-02S
Methyl isobutyl ketone	108-10-1	10 mg	NEAT	ODOR-10N
Naphthalene	91-20-3	10 mg	NEAT	ODOR-13N
trans-2, cis-6-Nonadienal	557-48-2	10 mg	NEAT	ODOR-03N
Styrene	100-42-5	10 mg	NEAT	ODOR-04N
Toluene	108-88-3	10 mg	NEAT	ODOR-05N
2,4,6-Trichloroanisole *	87-40-1	1000 µg/mL	MeOH	ODOR-15S-10ML
m-Xylene	108-38-3	10 mg	NEAT	ODOR-07N

Japan Drinking Water Odor Standard

ODOR-JDWOS **1 x 1 mL**
100 µg/mL each in MeOH 2 comps.

(+/-) Geosmin
2-methylisoborneol

Odor Set

ODOR-STM-SET **12 x 10 mg**

trans-2, cis-6-Nonadienal
Styrene
Toluene
Cumene
m-Xylene
cis-3-Hexenyl acetate
cis-3-Hexen-1-ol
Methyl isobutyl ketone
Indene
Indan
Naphthalene
2-Methylbenzofuran

Irritant Standards

Irritants are chemicals that can cause a reversible inflammation of nasal passages, tear ducts, or skin. Chemicals that are classified as irritants would usually be classified as corrosives in a more concentrated form such as tear gas and mace.

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Chloroacetophenone	532-27-4	100 µg/mL	Hexane	IRT-001S
2'-Chloroacetophenone	2142-68-9	100 µg/mL	Hexane	IRT-002S
3'-Chloroacetophenone	99-02-5	100 µg/mL	Hexane	IRT-003S
4'-Chloroacetophenone	99-91-2	100 µg/mL	Hexane	IRT-004S
2'-Methylacetophenone	577-16-2	100 µg/mL	Hexane	IRT-005S

CFCs and Refrigerants

Refrigerants - Chlorofluorohydrocarbons (CFCs)

Chlorofluorohydrocarbons (CFCs) are ozone-depleting substances that were used primarily in air-conditioning and refrigeration systems. Under the Clean Air Act, CFCs were to be phased out of production in the U.S. by January 1, 1996. In order to monitor various refrigerants that may be present in the environment, the following single and multi-component mixes are offered to help labs screen for these compounds.

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
Bromochlorodifluoromethane	353-59-3	0.2 mg/mL	MeOH	M-REF-X-01	
Bromotrifluoromethane (Freon #13b1)	75-63-8	0.2 mg/mL	MeOH	M-REF-01	
1-Chloro-1,1-difluoroethane (Freon #142b)	75-68-3	0.2 mg/mL	MeOH	M-REF-02	
2-Chloro-1,1,1,2-tetrafluoroethane (Freon #124)	2837-89-0	0.2 mg/mL	MeOH	M-REF-X-02	
Chlorodifluoromethane (Freon #22)	75-45-6	0.2 mg/mL	MeOH	M-REF-03	
Chloroethane (Freon #160)	75-00-3	0.2 mg/mL	MeOH	M-REF-04	
Chloromethane	74-87-3	0.2 mg/mL	MeOH	M-REF-05	
Chloropentafluoroethane	76-15-3	0.2 mg/mL	MeOH	M-REF-06	
Chlorotrifluoromethane (Freon #13)	75-72-9	0.2 mg/mL	MeOH	M-REF-07	
1,2-Dibromotetrafluoroethane	124-73-2	0.2 mg/mL	MeOH	M-REF-X-03	
1,1-Dichloro-1-fluoroethane (Freon #141B)	1717-00-6	0.2 mg/mL	MeOH	M-REF-X-04	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon #114)	76-14-2	0.2 mg/mL	MeOH	M-REF-10	
2,2-Dichloro-1,1,1-trifluoroethane (Freon #123)	306-83-2	0.2 mg/mL	MeOH	M-REF-X-05	
Dichlorodifluoromethane (Freon #12)	75-71-8	0.2 mg/mL	MeOH	M-REF-08	
Dichlorofluoromethane (Freon #21)	75-43-4	0.2 mg/mL	MeOH	M-REF-09	
1,1-Difluoroethane (Freon 152a)	75-37-6	0.2 mg/mL	MeOH	M-REF-11	
Pentafluoroethane (Freon #125)	354-33-6	0.2 mg/mL	MeOH	M-REF-X-06	
1,1,2,2-Tetrafluoroethane (Freon #134)	359-35-3	0.2 mg/mL	MeOH	M-REF-X-07	
Tetrafluoroethane	811-97-2	0.2 mg/mL	MeOH	M-REF-12	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.2 mg/mL	MeOH	M-REF-14	
		2.0 mg/mL	MeOH	M-REF-14-10X	
Trichlorofluoromethane	75-69-4	0.2 mg/mL	MeOH	M-REF-13	
1,1,1-Trifluoroethane (Freon #143A)	420-46-2	0.2 mg/mL	MeOH	M-REF-X-08	
Trifluoromethane (Freon #23)	75-46-7	0.2 mg/mL	MeOH	M-REF-15	

Refrigerant Solutions (CFCs)

Individuals

Each at 0.2 mg/mL in MeOH — **1 mL**

Set

M-REF-SET — **15 x 1 mL**
Each at 0.2 mg/mL in MeOH — (below 15 comps.)

Multi-Component Solution

M-REF — **1 x 1 mL**
0.2 mg/mL each in MeOH — (below 15 comps.)

Freon #	Compound	Cat. No.
13b1	Bromotrifluoromethane (01)	M-REF-01
142b	1-Chloro-1,1-difluoroethane (02)	M-REF-02
22	Chlorodifluoromethane (03)	M-REF-03
160	Chloroethane (04)	M-REF-04
40	Chloromethane (05)	M-REF-05
115	Chloropentafluoroethane (06)	M-REF-06
13	Chlorotrifluoromethane (07)	M-REF-07
12	Dichlorodifluoromethane (08)	M-REF-08
21	Dichlorofluoromethane (09)	M-REF-09
114	1,2-Dichloro-1,1,2,2-tetrafluoroethane (10)	M-REF-10
152a	1,1-Difluoroethane (11)	M-REF-11
134a	Tetrafluoroethane (12)	M-REF-12
11	Trichlorofluoromethane (13)	M-REF-13
113	1,1,2-Trichloro-1,2,2-trifluoroethane (14)	M-REF-14
23	Trifluoromethane (15)	M-REF-15

Additional Individual Refrigerant Solutions (CFCs)

Individuals

Each at 0.2 mg/mL in MeOH — **1 mL**

Set

M-REF-X-R1-SET — **set of 9 x 1 mL**
Each at 0.2 mg/mL in MeOH — (below 9 comps.)

Multi-Component Solution

M-REF-X — **1 x 1 mL**
0.2 mg/mL each in MeOH — (below 8 comps., not including Freon 113a)

Freon #	Compound	Cat. No.
12B1	Bromochlorodifluoromethane	M-REF-X-01
124	2-Chloro-1,1,1,2-tetrafluoroethane	M-REF-X-02
114B2	1,2-Dibromotetrafluoroethane	M-REF-X-03
141b	1,1-Dichloro-1-fluoroethane	M-REF-X-04
123	2,2-Dichloro-1,1,1-trifluoroethane	M-REF-X-05
125	Pentafluoroethane	M-REF-X-06
134	1,1,2,2-Tetrafluoroethane	M-REF-X-07
113a	1,1,1-Trichlorotrifluoroethane (Freon 113a)	M-REF-X-09
143a	1,1,1-Trifluoroethane	M-REF-X-08

Qualitative Analysis Kits
PolyStandard™

These PolyStandard™ Kits were originally produced by Dr. Seaton Preston of the PolyScience Analytical Division 40 years ago. In 1999 AccuStandard acquired this division and renamed it PolyStandard. This selection of kits for qualitative and retention time analysis, and enables identification of unknown components or to analysis of a broad range of chemicals. All kits are in either vials or ampules and each kit includes an empty transfer vial.

Alcohols

C_1-C_5 Alcohols
PS-111C-R1-SET — **14 ampules**

Neats at 1 mL each.

(01) Methanol
(02) Ethanol
(03) 1-Propanol
(04) 2-Propanol
(05) 1-Butanol
(06) 2-Butanol
(07) 2-Methyl-1-propanol
(08) 2-Methyl-2-propanol
(09) 1-Pentanol
(10) 2-Pentanol
(11) 3-Pentanol
(12) 2-Methyl-1-butanol
(13) 3-Methyl-1-butanol
(14) 2-Methyl-2-butanol

C_6-C_8 Alcohols
PS-131C-R1-SET — **14 ampules**

Neats at 1 mL each.

(01) 1-Hexanol
(02) 2-Hexanol
(03) 3-Hexanol
(04) 2-Methyl-1-pentanol
(05) 4-Methyl-2-pentanol
(06) 2-Methyl-3-pentanol
(07) 3-Methyl-3-pentanol
(08) 2-Ethyl-1-butanol
(09) 3,3-Dimethyl-2-butanol
(10) 1-Heptanol
(11) 2-Heptanol
(12) 2,4-Dimethyl-3-pentanol
(13) 1-Octanol
(14) 2-Octanol

nC_6-C_{22} Alcohols
PS-121C-R1-SET — **14 ampules**

Neat at 10 mg each. Solutions are weight % in Ethylbenzene, 1 mL each.

(01) 1-Hexanol	Neat
(02) 1-Heptanol	Neat
(03) 1-Octanol	Neat
(04) 1-Nonanol	Neat
(05) 1-Decanol	Neat
(06) 1-Undecanol	Neat
(07) 1-Dodecanol	10%
(08) 1-Tridecanol	10%
(09) 1-Tetradecanol	10%
(10) 1-Pentadecanol	10%
(11) 1-Hexadecanol	10%
(12) 1-Octadecanol	5%
(13) 1-Eicosanol	5%
(14) 1-Docosanol	5%

Aromatics

Aromatics C_6-C_{16}
PS-251C-R1-SET — **14 ampules**

Neats at 1 mL each.

(01) Benzene
(02) Toluene
(03) *o*-Xylene
(04) *m*-Xylene
(05) *p*-Xylene
(06) Ethylbenzene
(07) Cumene
(08) Mesitylene
(09) *p*-Cymene
(10) *n*-Propylbenzene
(11) *n*-Butylbenzene
(12) *n*-Hexylbenzene
(13) *n*-Octylbenzene
(14) *n*-Decylbenzene

Aromatics C_6-C_9
PS-252C-R1-SET — **14 ampules**

Neats at 1 mL each.

(01) Toluene
(02) *o*-Xylene
(03) *m*-Xylene
(04) *p*-Xylene
(05) Ethylbenzene
(06) Cumene
(07) Mesitylene
(08) *n*-Propylbenzene
(09) 1,2,4-Trimethybenzene
(10) 1,2,3-Trimethybenzene
(11) 1-Ethyl-2-Methylbenzene
(12) 1-Ethyl-3-Methylbenzene
(13) 1-Ethyl-4-Methylbenzene
(14) Benzene

Ketones

Normal Ketones
PS-411C-R1-SET — **14 ampules**

Neats at 1 mL each.

(01) 2-Butanone
(02) 2-Pentanone
(03) 3-Pentanone
(04) 2-Hexanone
(05) 2-Heptanone
(06) 3-Heptanone
(07) 4-Heptanone
(08) 2-Octanone
(09) 3-Octanone
(10) 2-Nonanone
(11) 5-Nonanone
(12) 2-Methylcyclohexanone
(13) 3-Methylcyclohexanone
(14) 4-Methylcyclohexanone

Branched Ketones
PS-421D-R1-SET — **14 ampules**

Neats at 1 mL each.

(01) 3-Methyl-2-butanone
(02) 3,3-Dimethyl-2-butanone
(03) 2-Methyl-3-pentanone
(04) 4-Methyl-2-pentanone
(05) 2,4-Dimethyl-3-pentanone
(06) 2-Methyl-3-hexanone
(07) 5-Methyl-2-hexanone
(08) 2-Methyl-3-heptanone
(09) 5-Methyl-3-heptanone
(10) 2,6-Dimethyl-4-heptanone
(11) Mesityl oxide
(12) Acetophenone
(13) Cyclopentanone
(14) Cyclohexanone

Food Additives

Antioxidants
PS-920CX-R1-SET — **15 vials**

Neats at 10 mg each.

(01) BHA (2 and 3-*tert*-Butyl-4-methoxy phenol)
(02) BHT (2,6-*di*-*tert*-Butyl-4-methyl phenol)
(03) 4-Hydroxymethyl-2,6-*di*-*tert*-butyl phenol
(04) THBP (2,4,5-Trihydroxybutyrophenone)
(05) Ethoxyquin (1,2-Dihydro-6-ethoxy-2,2,4-trimethyl quinoline)
(06) *tert*-Butyl hydroquinone
(07) DLTDP (Dilaurylthiodipropionate)
(08) Thiodipmpionic acid
(09) Propyl gallate
(10) Ascorbyl palmitate
(11) Ascorbic acid
(12) Erythorbic acid (*iso*-Ascorbic acid)
(13) Tocopherols (mixed)
(14) Glycine
(15) Lecithin

Capillary Column Probe Solutions (also Grob Mixes)

AccuStandard has assembled the following test mixtures based on suggestions by Grob 1 and 2 for evaluating capillary column performance. The alkanes in these mixtures can be used for evaluating instrumental effects and determining separation number and efficiency (PS-CP-02-1ML, PS-CP-03-1ML, PS-CP-04-1ML, PS-CP-05A-1ML, PS-CP-06A-1ML). Grob 2 has suggested a more complete mixture, the Non-Polar Columns Test Mix PS-CP-01-1ML provides a more complete capillary column test because a wider variety of organic compounds are included.

Alkane C_8-C_{12} Mixture
PS-CP-02-1ML — **1 mL**

0.5 mg/mL each in n-Hexane

5 comps.

Octane	Undecane
Nonane	Dodecane
Decane	

Alkane C_{13}-C_{20} Mixture
PS-CP-03-1ML — **1 mL**

0.5 mg/mL each in n-Hexane

8 comps.

Tridecane	Heptadecane
Tetradecane	Octadecane
Pentadecane	Nonadecane
Hexadecane	Eicosane

Alkane C_8-C_{40}Mixture
PS-CP-06A-1ML — **1 mL**

0.5 mg/mL each in n-Hexane

23 comps.

Octane	Eicosane
Nonane	Docosane
Decane	Tetracosane
Undecane	Hexacosane
Dodecane	Octacosane
Tridecane	Triacontane
Tetradecane	Dotriacontane
Pentadecane	Tetratriacontane
Hexadecane	Hexatriacontane
Heptadecane	Octatriacontane
Octadecane	Tetracontane
Nonadecane	

Alkane C_{22}-C_{32} Even Number Mixture
PS-CP-04-1ML — **1 mL**

0.5 mg/mL each in n-Hexane

6 comps.

Docosane	Octacosane
Tetracosane	Triacontane
Hexacosane	Dotriacontane

Alkane C_{34}-C_{44} Even Number Mixture
PS-CP-05A-1ML — **1 mL**

0.5 mg/mL each in n-Hexane

4 comps.

Tetratriacontane	Octatriacontane
Hexatriacontane	Tetracontane

Non-Polar Columns Test Mix
PS-CP-01-1ML — **1 mL**

At the stated conc. in CH_2Cl_2

12 comps.

Methyl decanoate	0.42 mg/mL
Methyl undecanoate	0.42 mg/mL
Methyl dodecanoate	0.41 mg/mL
2,3-Butanediol	0.53 mg/mL
Dicyclohexylamine	0.31 mg/mL
2,6-Dimethylaniline	0.32 mg/mL
2,6-Dimethylphenol	0.32 mg/mL
2-Ethylhexanoic acid	0.38 mg/mL
Nonanal	0.40 mg/mL
Octanol	0.36 mg/mL
Undecane	0.29 mg/mL
Decane	0.28 mg/mL

Contains interactive and labile components.

Refrigerate when not in use.

Qualitative Analysis Kits
PolyStandard™

Hydrocarbons

Alkanes nC_6-nC_{19}
PS-211C-R1-SET **14 ampules**

Neats at 1 mL each. Solutions are weight % in Ethylbenzene, 1 mL each.

(01) *n*-Hexane	Neat
(02) *n*-Heptane	Neat
(03) *n*-Octane	Neat
(04) *n*-Nonane	Neat
(05) *n*-Decane	Neat
(06) *n*-Undecane	Neat
(07) *n*-Dodecane	Neat
(08) *n*-Tridecane	Neat
(09) *n*-Tetradecane	Neat
(10) *n*-Pentadecane	Neat
(11) *n*-Hexadecane	10%
(12) *n*-Heptadecane	10%
(13) *n*-Octadecane	10%
(14) *n*-Nonadecane	10%

Alkenes C_6-C_{10}
PS-231C-R1-SET **14 ampules**

Neats at the stated quantities.

(01) Hexene-1	1 mL
(02) Hexene-2 (*cis, trans*)	0.5 mL
(03) 2-Methylpentene-1	1 mL
(04) 4-Methylpentene-1	1 mL
(05) 4-Methylpentene-2 (*cis, trans*)	0.5 mL
(06) 2-Ethylbutene-1	0.5 mL
(07) Heptene-1	1 mL
(08) Heptene-2 (*cis, trans*)	0.5 mL
(09) Heptene-3 (*cis, trans*)	0.5 mL
(10) Octene-1	1 mL
(11) Octene-2	1 mL
(12) 2-Ethylhexene-1	0.5 mL
(13) Nonene-1	1 mL
(14) Decene-1	1 mL

Alkenes C_8-C_{22}
PS-241D-R1-SET **14 vials**

Neats at the stated quantities.

(01) 2,4,4-Trimethylpentene-1	1 mL
(02) 2,4,4-Trimethylpentene-2	0.5 mL
(03) Nonene-1	0.5 mL
(04) Nonene-4 (*cis, trans*)	0.5 mL
(05) 3,5,5-Trimethyl-1-hexene	0.5 mL
(06) Decene-1	1 mL
(07) Undecene-1	1 mL
(08) Dodecene-1	1 mL
(09) Tridecene-1	1 mL
(10) Tetradecene-1	1 mL
(11) Hexadecene-1	1 mL
(12) Octadecene-1	1 mL
(13) Eicosene-1	1 mL
(14) Docosene-1	0.5 mL

Alkanes nC_{19}-nC_{40}
PS-261C-R1-SET **14 ampules**

At the stated conc. by weight % in Ethylbenzene, 1 mL each.

(01) *n*-Nonadecane	10%
(02) *n*-Eicosane	10%
(03) *n*-Heneicosane	10%
(04) *n*-Docosane	10%
(05) *n*-Tricosane	10%
(06) *n*-Tetracosane	10%
(07) *n*-Pentacosane	10%
(08) *n*-Hexacosane	10%
(09) *n*-Octacosane	10%
(10) *n*-Triacontane	1%
(11) *n*-Dotriacontane	1%
(12) *n*-Hexatriacontane	1%
(13) *n*-Octatriacontane	1%
(14) *n*-Tetracontane	1%

Naphthenes C_5-C_{10}
PS-281C-R1-SET **14 ampules**

Neats at 1 mL each.

(01) Cyclopentane
(02) Methylcyclopentane
(03) Cyclohexane
(04) Methylcyclohexane
(05) *cis*-1,2-Dimethylcyclohexane
(06) *trans*-1,2-Dimethylcyclohexane
(07) *cis* & *trans*-1,3-Dimethylcyclohexane
(08) *cis* & *trans*-1,4-Dimethylcyclohexane
(09) Ethylcyclohexane
(10) *n*-Propylcyclohexane
(11) *iso*-Propylcyclohexane
(12) *n*-Butylcyclohexane
(13) *iso*-Butylcyclohexane
(14) *tert*-Butylcyclohexane

Sugars & Sugar Alcohols

Sugars & Sugar Alcohols
PS-960C-R1-SET **15 vials**

Neats at 10 mg each.

(01) D-Xylose
(02) D-Ribose
(03) L-Arabinose
(04) D-Fructose
(05) D-Galactose
(06) α-D-Glucose
(07) D-Mannose
(08) L-Rhamnose monohydrate
(09) L-Sorbose
(10) Xylitol
(11) Ribitol (Adonitol)
(12) D-Arabitol
(13) L-Arabitol
(14) D-Mannitol
(15) D-Sorbitol

Aldehydes

Aldehydes
PS-450E-R2-SET **15 ampules**

Solutions at the stated conc. by weight % in Toluene, at 1 mL each.

(01) Propionaldehyde *(Propanal)*	Neat
(02) Butyraldehyde *(Butanal)*	Neat
(03) Isobutyraldehyde *(2-Methylpropanal)*	Neat
(04) Valeraldehyde *(Pentanal)*	Neat
(05) Isovaleraldehyde *(3-Methylbutanal)*	Neat
(06) Caproicaldehyde *(Hexanal)*	Neat
(07) Enanthaldehyde *(Heptanal)*	Neat
(08) Caprylaldehyde *(Octanal)*	Neat
(09) Pelargonaldehyde *(Nonanal)*	Neat
(10) Capraldehyde *(Decanal)*	10%
(11) Undecylaldehyde *(Hendecanal)*	10%
(12) Lauraldehyde *(Dodecanal)*	10%
(13) Tridecylaldehyde *(Tridecanal)*	10%
(15) Benzaldehyde *(Benzenecarbonal)*	Neat

Glycols & Glycol Ethers

Glycols C_3-C_{12}
PS-151C-SET **15 ampules**

Neats at 1 mL each. Solutions at the stated conc. by weight % in MeOH, at 1 mL each.

(01) 1,2-Propanediol	Neat	(09) 1,6-Hexanediol	10%
(02) 1,3-Propanediol	Neat	(10) 2,5-Hexanediol	10%
(03) 1,2-Butanediol	Neat	(11) 1,7-Heptanediol	10%
(04) 1,3-Butanediol	Neat	(12) 1,8-Octanediol	10%
(05) 1,4-Butanediol	Neat	(13) 1,9-Nonanediol	10%
(06) 2,3-Butanediol	Neat	(14) 1,10-Decanediol	10%
(07) 1,5-Pentanediol	Neat	(15) 1,12-Dodecanediol	10%
(08) 2,4-Pentanediol	Neat		

Glycols Ethers C_3-C_{10}
PS-160C-R1-SET **15 ampules**

Neats at 1 mL each.

(01) Ethylene glycol methyl ether (2-Methoxyethanol)
(02) Ethylene glycol ethyl ether (2-Ethoxyethanol)
(03) Ethylene glycol *n*-butyl ether (2-*n*-Butoxyethanol)
(04) Ethylene glycol *n*-hexyl ether (2-Hexoxyethanol)
(05) Ethylene glycol phenyl ether (2-Phenoxyethanol)
(06) Diethylene glycol methyl ether [2-(2-Methoxyethoxy)-ethanol]
(07) Diethylene glycol ethyl ether [2-(2-Ethoxyethoxy)-ethanol]
(08) Diethylene glycol *n*-butyl ether [2-(2-*n*-Butoxyethoxy)-ethanol]
(09) Diethylene glycol *n*-hexyl ether [2-(2-*n*-Hexoxyethoxy)-ethanol]
(10) Propylene glycol methyl ether (1-Methoxy-isopropanol)
(11) Propylene glycol *n*-propyl ether (1-Propoxy-isopropanol)
(12) Propylene glycol *n*-butyl ether (1-*n*-Butoxy-isopropanol)
(13) Dipropylene glycol methyl ether [1-(1-Methoxyisopropoxy)isopropanol]
(14) Tripropylene glycol methyl ether
(15) Glycol ethers Mixture PS-16C
Neat at the stated weight %.
Ethylene glycol ethyl ether 10%
Ethylene glycol butyl ether 10%
Diethylene glycol ethyl ether 30%
Diethylene glycol butyl ether 50%

Acids & Esters

Saturated Fatty Acids Methyl Ester

SFA-N-SET **18 vials**

Neats at 100 mg each.

(01) Methyloctanoate*(Caprylate)* C8:0
(02) Methylnonoate *(Pelargonate)* C9:0
(03) Methyldecanoate*(Caprate)* C10:0
(04) Methylundecanoate C11:0
(05) Methyldodecanoate *(Laurate)* C12:0
(06) Methyltridecanoate C13:0
(07) Methyltetradecanoate*(Myristate)* C14:0
(08) Methylpentadecanoate C15:0
(09) Methylhexadecanoate*(Palmitate)* C16:0
(10) Methylheptadecanoate*(Margarate)* C17:0
(11) Methyloctadecanoate*(Stearate)* C18:0
(12) Methyl 12-hydroxystearate C18:0
(13) Methylnonadecanoate C19:0
(14) Methyleicosanoate*(Arachidate)* C20:0
(15) Methylheneicosanoate C21:0
(16) Methyldocosanoate*(Behenate)* C22:0
(17) Methyltricosanoate C23:0
(18) Methyltetracosanoat*(Lignocerate)* C24:0

Mixture

SFA-N-SET **18 vials**

Mixture at 100 mg each.

Ethyl Esters

PS-621C-R1-SET **14 vials**

Solution at stated conc. by weight % in Hexane in 1 mL. Neats at 1 mL each.

(01) Ethyl acetate	Neat
(02) Ethyl propionate	Neat
(03) Ethyl butyrate	Neat
(04) Ethyl valerate	Neat
(05) Ethyl caproate	Neat
(06) Ethyl heptanoate	Neat
(07) Ethyl caprylate	Neat
(08) Ethyl pelargonate	Neat
(09) Ethyl caprate	Neat
(10) Ethyl undecanoate	Neat
(11) Ethyl laurate	Neat
(12) Ethyl myristate	10%
(13) Ethyl palmitate	10%
(14) Ethyl stearate	10%

Fatty Acids C_3-C_{18}

PS-651C-R1-SET **14 vials**

Neat at the stated quantities

(01) Propionic acid	1 mL
(02) Butyric acid	1 mL
(03) Valeric acid	1 mL
(04) Caproic acid	1 mL
(05) Heptanoic acid	1 mL
(06) Caprylic acid	1 mL
(07) Pelargonic acid	1 mL
(08) Capric acid	1 mL
(09) *n*-Hendecanoic acid	1 mL
(10) 10-Hendecenoic acid	10 mg
(11) Lauric acid	10 mg
(12) Myristic acid	10 mg
(13) Palmitic acid	10 mg
(14) Stearic acid	10 mg

Dicarboxylic Acids

PS-670CX-R1-SET

15 vials

Neats at 10 mg each.

(01) Oxalic acid
(02) Malonic acid
(03) Maleic acid
(04) Fumaric acid
(05) Succinic acid
(06) Glutaric acid
(07) Adipic acid
(08) Pimelic acid
(09) Suberic acid
(10) Azelaic acid
(11) Sebacic acid
(12) 1,12-Dodecanedioic acid
(13) Phthalic acid
(14) Isophthalic acid
(15) Terephthalic acid

Amino Acids

L-Amino Acid Kit

PS-970C-R1-SET **22 vials**

Neats at 10 mg each.

(01) L-Alanine
(02) L-Arginine
(03) L-Asparagine
(04) L-Aspartic acid
(05) L-Cysteine
(06) L-Cystine
(07) L-Glutamic acid
(08) L-Glutamine
(09) Glycine
(10) L-Histidine
(11) *trans*-4-Hydroxy-L-proline
(12) L-Isoleucine
(13) L-Leucine
(14) L-Lycine
(15) L-Methionine
(16) L-Phenylalanine
(17) L-Proline
(18) L-Serine
(19) L-Threonine
(20) L-Tryptophan
(21) L-Tyrosine
(22) L-Valine

Phenols

PS-170D-R1-SET **14 vials**

At the stated quantities and conc. by weight % in Toluene.

(01) Phenol	1 mL/Neat
(02) *o*-Cresol	1 mL/Neat
(03) *m*-Cresol	1 mL/Neat
(04) *p*-Cresol	1 mL/Neat
(05) *o*-Ethylphenol	1 mL/10%
(06) *p*-Ethylphenol	1 mL/10%
(07) 2-*iso*-Propylphenol	1 mL/10%
(08) 2,3-Xylenol	1 mL/10%
(09) 2,4-Xylenol	1 mL/10%
(10) 2,5-Xylenol	1 mL/10%
(11) 2,6-Xylenol	1 mL/10%
(12) 3,4-Xylenol	1 mL/10%
(13) 3,5-Xylenol	1 mL/10%
(14) 2,3,5-Trimethylphenol	1 mL/5%

Pesticides & Herbicides

Chlorinated Pesticides

PS-510D-R1-SET

15 ampules

Solution at 0.1% in MeOH, 1 mL each.

(01) DDT
(02) BHC
(03) DDE
(04) Endrin
(05) Lindane
(06) Toxaphene
(07) Chlordane
(08) Methoxychlor
(09) Heptachlor
(10) Strobane
(11) Aldrin
(12) Dieldrin
(13) TDE
(14) Endosulfan (mix of isomers)
(15) Chloropicrin

Organophosphorus Insecticides

PS-520E-R1-SET

13 ampules

Solution at 0.1% in MeOH, 1 mL each.

(01) Methyl Parathion
(02) Ethion
(03) Co-Ral
(04) Guthion *(Azinphos methyl)*
(05) Di-Syston *(Disulfoton)*
(06) Phosdrin
(07) Naled (Dibrom)
(08) Diazinon
(09) DDVP *(Vapona) (Dichlorvos)*
(11) Cygon
(12) Malathion
(13) Zolone
(15) Phorate *(Thimet)*

Capillary Column Probe Solutions (also Grob Mixes)

The PS-CP-01 mixture provides a more complete capillary column test because a wider variety of organic compounds is included. Test mixture PS-CP-01 contains interactive and labile components. Refrigerate when not in use.

Non-Polar Columns Test Mix

PS-CP-01-1ML **1 mL**

At the stated conc. in CH_2Cl_2

12 comps.

Methyl decanoate	0.42 mg/mL
Methyl undecanoate	0.42 mg/mL
Methyl dodecanoate	0.41 mg/mL
2,3-Butanediol	0.53 mg/mL
Dicyclohexylamine	0.31 mg/mL
2,6-Dimethylaniline	0.32 mg/mL
2,6-Dimethylphenol	0.32 mg/mL
2-Ethylhexanoic acid	0.38 mg/mL
Nonanal	0.40 mg/mL
Octanol	0.36 mg/mL
Undecane	0.29 mg/mL
Decane	0.28 mg/mL

Sulfur Compounds

PS-710C-R1-SET

14 ampules

Neats at 1 mL each.

(01) *iso*-Propyl mercaptan
(02) *n*-Propyl mercaptan
(03) *iso*-Butyl mercaptan
(04) *n*-Butyl mercaptan
(05) *sec*-Butyl mercaptan
(06) *tert*-Butyl mercaptan
(07) *n*-Amyl mercaptan
(08) *tert*-Amyl mercaptan
(09) *n*-Hexyl mercaptan
(10) *n*-Heptyl mercaptan
(11) Ethyl sulfide
(12) Allyl sulfide
(13) Di-*n*-propyl sulfide
(14) Di-*n*-butyl sulfide

Calibration Mixture

PS-71C **1 mL vial**

Neat at the stated weight % listed

Mercaptan Mixture PS-71C

Ethyl mercaptan	*13.4%*
n-Propyl mercaptan	*22.4%*
iso-Butyl mercaptan	*28.6%*
n-Butyl mercaptan	*35.6%*

Phthalate Esters

PS-840C-R1-SET

15 vials

Neats at 1 mL each.

(01) Dimethyl phthalate
(02) Diethyl phthalate
(03) Di-*n*-propyl phthalate
(04) Di-*iso*-propyl phthalate
(05) Di-*n*-butyl phthalate
(06) Di-*iso*-butyl phthalate
(07) Dipentyl phthalate
(08) Dihexyl phthalate
(09) Diheptyl phthalate
(10) Dioctyl phthalate
(11) Dinonyl phthalate
(12) Didecyl phthalate
(13) Diundecyl phthalate
(14) Didodecyl phthalate
(15) Phthalate Mixture PS-84C

Neat at stated weight %

Dimethyl phthalate	*16.7%*
Diethyl phthalate	*16.7%*
Di-n-propyl phthalate	*33.3%*
Di-n-butyl phthalate	*33.3%*

Calibration Mixture

PS-84C-1ML **1 mL vial**

Neat at the stated weight % listed above.

PCBs

PS-590D-R1-SET

15 ampules

At 100 µg/mL in MeOH, 1 mL each.

(01) Aroclor 1016
(02) Aroclor 1221
(03) Aroclor 1232
(04) Aroclor 1242
(05) Aroclor 1248
(06) Aroclor 1254
(07) Aroclor 1260
(08) p,p-DDT
(09) p,p'-DDE
(10) p,p'-TDE
(11) Heptachlor
(12) Heptachlor epoxide
(13) Aldrin
(14) Dieldrin
(15) Lindane

Environmental Protection Agency (EPA) Methods

Table of Contents

Environmental Protection Agency (EPA) Methods

Table of Contents

Analytes in EPA Methods

Alphabetical List of Individual Standards for EPA Methods

AccuStandard has compiled an easy to use alphabetical list of all the popular single component solutions available for EPA methods, alphabetized by Chemical Name. Additionally, the CAS number index in the back of the catalog can easily be used to find a component with multiple synonyms.

For a complete listing by product types see

- **PCB Congeners (pages 3-6)**
- **PBDE Congeners (pages 26-28)**
- **Pesticides (pages 47-66)**
- **Appendix IX (pages 196-197)**

If you would like a different solvent or concentration than is listed, contact Technical Service.

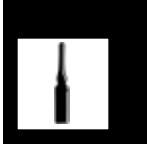
Solvent Key for Individual Solutions

M Methanol **D** Methylene chloride **H** Hexane **W** Water
A Acetone **CN** Acetonitrile **MT** *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Acenaphthene	100	M	APP-9-001
83-32-9	1,000	M	APP-9-001-10X
Acenaphthene-d_{10}	500	M	M-548.1-IS
15067-26-2			
Acenaphthylene	100	M	APP-9-002
208-96-8	1,000	M	APP-9-002-10X
Acephate	100	A	P-200S-A
30560-19-1	1,000	A	P-200S-A-10X
Acetaldehyde	1,000	W	M-8315-01
75-07-0	1,000	M	M-554-01 ❄
Acetaldehyde-DNPH	100	CN	M-8315-R-DNPH-01
1019-57-4	1,000	M:CN	M-554-DNPH-01
Acetochlor	100	M	P-465S
34256-82-1			
Acetone	100	M	APP-9-003 ❄
67-64	10,000	W	M-8015B/5031-01
Acetone-DNPH	100	CN	M-8315-R2-DNPH-02
1567-89-1			
Acetonitrile	100	M	APP-9-005
75-05-8	1,000	M	APP-9-005-10X
Acetophenone	100	D	APP-9-004
98-86-2	2000	D	APP-9-004-20X
2-Acetylaminofluorene	100	D	APP-9-006
53-96-3			
Acifluorfen	100	M	P-245S
50594-66-6	1,000	M	P-245S-10X
Acifluorfen methyl ester	100	M	P-246S
50594-67-7	1,000	M	P-246S-10X
Acrolein	100	M:W	APP-9-007 ❄
107-02-8	1,000	M:W	APP-9-007-10X ❄
Acrolein-DNPH	100	CN	M-8315-R-DNPH-03
888-54-0	1,000	CN	M-8315-R-DNPH-03-10X
Acrylamide	1,000	M	M-8032
79-06-1			
Acrylonitrile	100	M	APP-9-008
107-13-1	1,000	M	APP-9-008-10X
Alachlor	100	M	P-102S
15972-60-8	1,000	M	P-102S-10X
Alanap	100	M	P-274S
132-66-1			
Aldicarb	100	CN	M-531-06
116-06-3			
Aldicarb sulfone	100	CN	M-531-02
1646-88-4			
Aldicarb sulfoxide	100	M	P-131S
1646-87-3	100	CN	M-531-01
Aldrin	100	M	P-002S
309-00-2	1,000	M	P-002S-10X
Allethrin	100	M	P-267S
584-79-2			
Allyl alcohol	10,000	W	M-8015B/5031-05
107-18-6			
Allyl chloride	100	M	APP-9-010
107-05-1	2000	M	APP-9-010-20X
Ametryn	100	M	P-003S
834-12-8	1,000	M	P-003S-10X

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
4-Aminobiphenyl	100	D	APP-9-011
92-67-1			
Aminocarb	100	CN	M-632-01
2032-59-9			
2-Amino-4,6-dinitrotoluene	100	M:CN	M-8330-13-0.1X
35572-78-2	1,000	M:CN	M-8330-13
4-Amino-2,6-dinitrotoluene	100	M:CN	M-8330-14-0.1X
19406-51-0	1,000	M:CN	M-8330-14
4-Aminopyridine	100	M	P-407S
504-24-5			
Anilazine	100	H:A	P-287S-H
101-05-3		80:20	
Aniline	100	M	APP-9-012
62-53-3	1,000	M	APP-9-012-10X
Aniline-d_5	200	D	M-625-01
4165-61-1	2,000	D	M-625-01-10X
Anthracene	100	M	APP-9-013
120-12-7	1,000	M	APP-9-013-10X
Anthracene-d_{10}	200	D	M-625-02
1719-06-8			
Aramite	100	M	P-132S
140-57-8			
Asulam	100	M	P-276S
3337-71-1			
Atrazine	100	M	P-005S
1912-24-9	1,000	M	P-005S-10X
Atrazine desethyl	100	M	P-343S
6190-65-4			
Atrazine-desisopropyl	100	M	P-345S
1007-28-9			
Azamethiphos	100	M	P-352S
35575-96-3			
Azinphos-ethyl	100	M	P-201S
2642-71-9	1,000	H	M-8141A-1-01
Azinphos-methyl	100	M	P-007S
86-50-0	1,000	H	M-8140-01
Azobenzene	2,000	D	Z-014B-1
103-33-3			
Barbamate (Barban)	100	M	P-202S
101-27-9	100	CN	M-632-02
Baycarb	100	M	P-347S
3766-81-2			
Baygon	100	M	P-009S
114-26-1	100	CN	M-531-07
Benazolin	100	M	P-397S
3813-05-6			
Bendiocarb	100	M	P-203S
22781-23-3	100	CN	M-639
Benfluralin	100	M	P-237S
1861-40-1			
Benfuracarb	100	M	P-454S
82560-54-1	1000	M	P-454S-10X
Benomyl	100	CN	P-104S-CN ❄
17804-35-2			
Bensulfuron-methyl	100	M	P-597S
83055-99-6			



Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Bensulide	100	CN	M-636	
741-58-2	100	M	P-204S	
Bentazon	100	CN	M-643	
25057-89-0	100	A	P-177S-A	
Bentazon methyl	100	M	P-241S	
61592-45-8				
Benz[a]anthracene	100	M	APP-9-016	
56-55-3	1,000	M	APP-9-016-10X	
Benz[a]anthracene-d_{12}	200	D	M-625-03	
1718-53-2	2,000	D	M-625-03-10X	
Benzaldehyde-DNPH	100	CN	M-8315-R-DNPH-04	
1157-84-2				
Benzene	200	M	M-502-01	
71-43-2	2,000	M	M-502-01-10X	
Benzene-d_6	200	M	M-624-SS-01	
1076-43-3	2,000	M	M-624-SS-01-10X	
Benzidine	50	D	M-625C-1	
92-87-5	2000	D	M-625C-1-40X	
Benzo[a]pyrene	100	M	APP-9-020	
50-32-8	500	CN	M-8310-FL-05	
Benzo[b]fluoranthene	100	M	APP-9-017	
205-99-2	1,000	M	APP-9-017-10X	
Benzo[g,h,i]perylene	100	D	APP-9-019	
191-24-2	1,000	D	APP-9-019-10X	
Benzo[k]fluoranthene	100	M	APP-9-018	
207-08-9	500	CN	M-8310-FL-08	
Benzoic acid	2,000	D	Z-014D-1	
65-85-0				
Benzyl alcohol	100	M	APP-9-021	
100-51-6	5000	M	APP-9-021-50X	
Benzyl benzoate	5,000	H	M-8061-IS	
120-51-4				
Benzyl butyl phthalate	100	M	APP-9-034	
85-68-7				
Benzyl chloride	200	M	M-8010-01	
100-44-7				
α-BHC	100	M	P-010S	
319-84-6	1,000	M	P-010S-10X	
β-BHC	100	M	P-011S	
319-85-7	1,000	M	P-011S-10X	
δ-BHC	100	M	P-012S	
319-86-8	1,000	M	P-012S-10X	
BHC Tech	100	M	P-081S	
608-73-1				
Bifenox	100	M	P-257S	
42576-02-3				
Bifenthrin	100	M	P-445S	
82657-04-3	1000	M	P-445S-10X	
Bitertanol	100	M	P-351S	
55179-31-2				
Bloc	100	M	P-086S	
60168-88-9				
Bolstar	100	M	P-108S	
35400-43-2	1,000	H	M-8140-02	
Botran	100	M	P-013S	
99-30-9				
Bromacil	100	M	P-181S	
314-40-9				
Brominal	100	M	P-256S	
1689-84-5				
Bromoacetic acid	1,000	MT	M-552A-1	
79-08-3				
4-**Bromoanisole**	50	M	BAN-03	
Bromobenzene	200	M	M-502-02	
108-86-1	2,000	M	M-502-02-10X	
2-Bromobiphenyl	1,000	A	M-8081-SS-X	
2052-07-5				
Bromochloroacetic acid	40	MT	M-552.2A-01	
5589-96-8	1,000	MT	M-552A-R-02	
Bromochloroacetonitrile	5,000	A	M-551B-1	
83463-62-1				
2-Bromochlorobenzene	200	M	M-624-SS-12	
694-80-4				
4-Bromochlorobenzene	2,000	M	M-8020-SS-1	
106-39-8				

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Bromochlorodifluoromethane	200	M	M-REF-X-01	
353-59-3				
Bromochloromethane	200	M	M-502-03	
74-97-5	2,000	M	M-502-03-10X	
2-Bromo-1-chloropropane	200	M	M-624-SS-04	
3017-95-6	20,000	M	M-001R-3	
Bromodichloroacetic acid	40	MT	M-552.2A-02	
71133-14-7				
Bromodichloromethane	200	M	M-502-04	
75-27-4	2,000	M	M-502-04-10X	
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate				
672-99-1	100	CN	M-531-IS	
p-Bromofluorobenzene	100	A	M-551.1-IS	
460-00-4	200	M	M-624-SS-03	
Bromoform	200	M	M-502-05	
75-25-2	2,000	M	M-502-05-10X	
Bromomethane	200	M	M-502-06	
74-83-9	2,000	M	M-502-06-10X	
1-Bromo-2-nitrobenzene	1,000	A	M-8081-IS-DC	
577-19-5				
4-Bromophenyl phenyl ether	100	M	APP-9-033	
101-55-3				
Bromophos-ethyl	100	M	P-372S	
4824-78-6	1,000	M	P-372S-10X	
2-Bromopropanoic acid	1,000	MT	M-552.1-SS	
598-72-1				
Bromotrifluoromethane	200	M	M-REF-01	
(Freon #13b1)				
Bueno	100	M	P-279S	
2163-80-6				
Butachlor	100	M	P-191S	
23184-66-9	1,000	M	P-191S-10X	
1,3-Butadiene	200	M	S-406A	
106-99-0	2,000	M	S-406A-10X	
Butanal	1,000	M	M-554-02 ❄	
123-72-8				
Butanal-DNPH	100	CN	M-8315-R-DNPH-05	
1527-98-6	1,000	M:CN	M-554-DNPH-02	
1-Butanol	10,000	W	M-8015B/5031-06	
71-36-3				
t-Butanol	2,000	M	S-410	
75-65-0	10,000	W	M-8015B/5031-07	
Butylate	100	M	P-088S	
2008-41-5	1,000	M	P-088S-10X	
n-Butylbenzene	200	M	M-502-07	
104-51-8	2,000	M	M-502-07-10X	
sec-Butylbenzene	200	M	M-502-08	
135-98-8	2,000	M	M-502-08-10X	
tert-Butylbenzene	200	M	M-502-09	
98-06-6	2,000	M	M-502-09-10X	
Captafol	100	M	P-254S	
2425-06-1				
Captan	100	M	P-182S ❄	
133-06-2				
Carbaryl	100	M	P-083S	
63-25-2	1,000	M	P-083S-10X	
Carbazole	1,000	M	M-634-IS	
86-74-8				
Carbendazim	100	CN	M-631	
10605-21-7	100	M	P-278S	
Carbofuran	100	CN	M-531-08	
1563-66-2	100	M	P-106S	
Carbon disulfide	100	M	APP-9-035	
75-15-0	2000	M	APP-9-035-20X	
Carbon tetrachloride	200	M	M-502-10	
56-23-5	2,000	M	M-502-10-10X	
Carbophenothion	100	M	P-095S	
786-19-6	1,000	H	M-8141A-1-02	
Carbosulfan	100	M	P-446S	
55285-14-8				
Carboxin	100	M	P-216S	
5234-68-4				
Chloral hydrate	5,000	A	M-551B-2	
302-17-0	1,000	M	M-E-1179-M	

❄ ColdPAK required to maintain integrity of product.

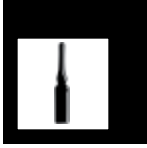
Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Chloramben 133-90-4	100	M	P-243S
Chloramben methyl ester 7286-84-2	100	M	P-272S
Chlorbenside 103-17-3	100 1,000	M M	P-107S P-107S-10X
α-Chlordane 5103-71-9	100 100	M H	P-134S P-134S-H
Chlordane 57-74-9	100 1,000	M M	P-017S P-017S-10X
γ-Chlordane 5103-74-2	100 1,000	M M	P-135S P-135S-10X
Chlordene 3734-48-3	100	M	P-136S
Chlorfenvinphos 470-90-6	100 1,000	M H	P-139S M-8141A-1-03
Chlorflurecol-methyl ester 2536-31-4	100 100	M M	P-401S P-401S-10X
Chlorimuron-ethyl 90982-32-4	100	CN	P-284S-CN
bis(2-Chloro-1-methylethyl)ether 108-60-1	100	D	APP-9-028
Chloroacetic acid 79-11-8	1,000	MT	M-552A-2
p-Chloroaniline 106-47-8	100	M	APP-9-038
Chlorobenzene 108-90-7	200 2,000	M M	M-502-11 M-502-11-10X
Chlorobenzilate 510-15-6	100 1,000	CN CN	P-133S-CN P-133S-CN-10X
Chlorodibromoacetic acid 5278-95-5	100	MT	M-552.2A-03
1-Chloro-1,1-difluoroethane (Freon #142b)	200	M	M-REF-02
Chlorodifluoromethane (Freon #22)	200	M	M-REF-03
Chloroethane 75-00-3	200 2,000	M M	M-502-12 M-502-12-10X
Chloroethane (Freon #160)	200	M	M-REF-04
bis(2-Chloroethoxy)methane 111-91-1	100 1,000	D M	APP-9-026 APP-9-026-M-10X
bis(2-Chloroethyl)ether 111-44-4	100 4000	M M	APP-9-027 APP-9-027-40X
2-Chloroethylvinyl ether 110-75-8	200 2,000	M M	M-601C ❄ M-601C-10X ❄
1-Chloro-2-fluorobenzene 348-51-6	2,000	M	S-163
1-Chloro-4-fluorobenzene 352-33-0	200	M	M-624-SS-13
Chloroform 67-66-3	200 2,000	M M	M-502-13 M-502-13-10X
1-Chlorohexane 544-10-5	200 2,000	M M	M-8010R-1-04 M-8010R-1-04-10X
Chloromethane 74-87-3	200 2,000	M M	M-502-14 M-502-14-10X
bis(Chloromethyl)ether 542-88-1	100 2,000	H H	S-006 S-006-20X
4-Chloro-3-methylphenol 59-50-7	100	M	APP-9-041
2-Chloronaphthalene 91-58-7	100 2000	M H	APP-9-045 M-8120-01
4-Chloro-3-nitrobenzotrifluoride 121-17-5	1,000	A	M-8081-SS-DC
Chloropentafluoroethane 76-15-3	200	M	M-REF-06
2-Chlorophenol 95-57-8	100 2000	M D	APP-9-046 APP-9-046-D-20X
2-Chlorophenol-d_4 93951-73-6	200	D	M-625-20
4-Chlorophenyl phenyl ether 7005-72-3	100	M	APP-9-047
Chloropicrin 76-06-2	5,000 100	A M	M-551B-3 P-398S
Chloroprene 126-99-8	100 1,000	M M	APP-9-048-R1 APP-9-048-R1-10X

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
3-Chloro-1,2-propanediol 96-24-2	100	M	P-408S
Chloropropylate 5836-10-2	100	M	P-213S
2-Chloro-1,1,1,2-tetrafluoroethane (Freon #124)	200	M	M-REF-X-02
Chlorothalonil 1897-45-6	100 1,000	M M	P-222S P-222S-10X
2-Chlorotoluene 95-49-8	200 2,000	M M	M-502-15 M-502-15-10X
4-Chlorotoluene 106-43-4	200 2,000	M M	M-502-16 M-502-16-10X
Chlorotrifluoromethane (Freon #13)	200	M	M-REF-07
Chlorpropham 101-21-3	100	CN	M-632-05
Chlorpyrifos 2921-88-2	1,000	H	M-8140-03
Chlorpyrifos-methyl 5598-13-0	100	M	P-223S
Chlorsulfuron 64902-72-3	100	CN	P-262S-CN
Chrysene 218-01-9	100 500	M CN	APP-9-049 M-8310-FL-09
Chrysene-d_{12} 1719-03-5	2,500 4,000	T D	M-680B Z-014J-2
Clethodim 99129-21-2	100 1,000	CN CN	P-602S-CN P-602S-CN-10X
Clopyralid methyl ester 1532-24-7	100	M	P-488S
Coumaphos 56-72-4	100 1,000	M H	P-019S M-8140-04
4-CPA 122-88-3	100	M	P-373S
m-Cresol 108-39-4	100 1,000	D D	APP-9-050 APP-9-050-10X
o-Cresol 108-39-4	100 2,000	D D	APP-9-051 APP-9-051-20X
p-Cresol 106-44-5	100	D	APP-9-052
Crotonaldehyde 123-73-9	1,000	M	M-554-03 ❄
Crotonaldehyde-DNPH 1527-96-4	100 1,000	CN M:CN	M-8315-R-DNPH-06 M-554-DNPH-03
Crufomate 299-86-5	100	M	P-292S
Cyanazine 21725-46-2	100 100	CN M	M-629 P-175S
Cycloate 1134-23-2	100	M	P-248S
Cyclohexanone 108-94-1	1,000	M	M-554-04 ❄
Cyclohexanone-DNPH 1589-62-4	100	CN	M-8315-R-DNPH-07
Cypermethrin 52315-07-8	100 1,000	M M	P-225S P-225S-10X ❄
Cyprazine 22936-86-3	100 100	M H	P-420S P-420S-H
Cyromazine 66215-27-8	100	M	P-296S
2,4-D 94-75-7	100 200	M M	P-020S M-8150S-A-01
2,6-D acid 575-90-6	100 100	M CN	P-690S P-690S-CN
2,4-D butoxyethyl ester 1929-73-3	10	mg	P-438N
2,4-D ethyl ester 533-23-3	100	M	P-636S
2,4-D ethylhexyl ester 1928-43-4	100	H	P-439S-H
2,4-D methyl ester 1928-38-7	100 200	M H	P-021S M-8150-01
Dacthal 1861-32-1	100	M	P-196S
Dalapon acid 75-99-0	40 200	MT CN	M-552.2A-04 M-8150S-A-05 ❄

Analytes in EPA Methods



Solvent Key for Individual Solutions
M Methanol **D** Methylene chloride **H** Hexane **W** Water
A Acetone **CN** Acetonitrile **MT** *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Dalapon methyl ester	200	M	M-552.1-01
17640-02-7	200	H	M-8150-05
Danitol	100	M	P-263S
39515-41-8	1,000	M	P-263S-10X
Dasanit	100	M	P-235S
115-90-2	1000	H	P-235S-H-10X
Dazomet	25	A	M-1659-MS
533-74-4	100	M	P-465S
2,4-D-PFB	100	MT	M-8150-02-PFB
2,4-DB acid	100	M	P-141S
94-82-6	200	M	M-8150S-A-02
2,4-DB methyl ester	100	M	P-228S
18625-12-2	200	H	M-8150-02
DCPA diacid	100	M	P-320S
2136-79-0	100	CN	P-320S-CN
p,p'-DDA	100	M	P-444S
83-05-6	1000	M	P-444S-10X
o,p'-DDD	100	M	P-024S
53-19-0			
p,p'-DDD	100	M	P-025S
72-54-8	1000	M	P-025S-10X
o,p'-DDE	100	M	P-026S
3424-82-6			
p,p'-DDE	100	M	P-027S
72-55-9	1000	M	P-027S-10X
4,4'-DDMU	100	M	P-424S
1022-22-6			
o,p'-DDT	100	M	P-028S
789-02-6			
p,p'-DDT	100	M	P-029S
50-29-3			
DDT, Tech	100	M	P-346S
50-29-3	100	CN	P-346S-CN
Decachlorobiphenyl	200	A	CLP-032-R-01
2051-24-3	500	MT	M-508-SS-2
Decafluorobiphenyl	200	D	M-625-04
434-90-2	2,000	D	M-625-04-10X
Decafluorotriphenylphosphine	10	D	M-680-TS
5074-71-5	25	D	M-625C-3
Decanal	1,000	M	M-554-05
112-31-2			
Decanal-DNPH	100	CN	M-8315-R-DNPH-08
1527-95-3	1,000	M:CN	M-554-DNPH-05
Deet (Off®)	100	M	P-255S
134-62-3			
DEF 6	100	M	P-150S
78-48-8			
Deltamethrin	100	M	P-355S
52918-63-5			
Demeton-S	100	M	P-271S
126-75-0			
Demeton-S-methyl	100	M	P-482S
919-86-8			
DFTPP	50	A	M-1653-TS
5074-71-5	100	D	M-525-TS
DFTPPO	100	CN	M-553-PC
Diallate	100	M	P-142S
2303-16-4			
2,6-Diamino-4-nitrotoluene	100	CN	M-8330-ADD-13
59229-75-3			
2,4-Diamino-6-nitrotoluene	100	CN	M-8330-ADD-12
6629-29-4			
Diazinon	100	M	P-033S
333-41-5	1,000	H	M-622-06
Dibenz[a,h]anthracene	100	M	APP-9-058
53-70-3	500	CN	M-8310-FL-10
Dibenzofuran	100	M	APP-9-059
132-64-9			

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Dibromoacetic acid	20	MT	M-552.2A-05
631-64-1	1,000	MT	M-552A-5
Dibromoacetonitrile	5,000	A	M-551B-4
3252-43-5			
4,4'-Dibromobiphenyl	200	D	M-625-05
92-86-4	2,000	D	M-625-05-10X
Dibromochloromethane	200	M	M-502-17
124-48-1	2,000	M	M-502-17-10X
1,2-Dibromo-3-chloropropane	200	M	M-502-18
96-12-8	2,000	M	M-502-18-10X
1,2-Dibromoethane	200	M	M-502-19
106-93-4	2,000	M	M-502-19-10X
Dibromofluoromethane	200	M	M-8260-SS-2
1868-53-7	2,000	M	M-8260-SS-2-10X
Dibromomethane	200	M	M-502-20
74-95-3	2,000	M	M-502-20-10X
a,a-Dibromo-m-xylene	1,000	A	M-8081-IS-X
626-15-3			
4,4'-Dibromooctafluorobiphenyl	200	D	M-625-06
10386-84-2	2,000	D	M-625-06-10X
1,2-Dibromopropane	5,000	M	M-552-IS
78-75-1	10,000	H	M-556-IS
2,3-Dibromopropionic acid	1,000	MT	M-552.2-SS
600-05-5	20,000	MT	M-552-SS
1,2-Dibromotetrafluoroethane	200	M	M-REF-X-03
124-73-2			
Dibutylchlorendate	2	A	M-1618-SS
1770-80-5	100	M	P-109S
Dicamba	100	M	P-008S
1918-00-9	200	M	M-8150S-A-06
Dicamba methyl ester	100	M	P-071S
6597-78-0	200	H	M-8150-06
Dicapthon	100	M	P-035S
2463-84-5	1,000	M	P-035S-10X
Dichlobenil	100	M	P-275S
1194-65-6			
Dichlofenthion	100	M	P-211S
97-17-6			
Dichlone	100	M	P-253S
117-80-6			
Dichlormid	100	M	P-675S
37764-25-3			
Dichloroacetic acid	60	MT	M-552.2A-06
79-43-6	1,000	MT	M-552A-3 ❄
Dichloroacetonitrile	5,000	A	M-551B-5
3018-12-0			
1,2-Dichlorobenzene	200	M	M-502-21
95-50-1	2,000	M	M-502-21-10X
1,3-Dichlorobenzene	200	M	M-502-22
541-73-1	2,000	M	M-502-22-10X
1,4-Dichlorobenzene	200	M	M-502-23
106-46-7	2,000	M	M-502-23-10X
1,2-Dichlorobenzene-d_4	200	M	M-624-SS-11
2199-69-1	2,000	M	M-624-SS-11-10X
1,4-Dichlorobenzene-d_4	2,000	M	Z-014J-3-M-0.5X
3855-82-1	4,000	D	Z-014J-3
3,3'-Dichlorobenzidine	100	M	APP-9-067
91-94-1	2,000	M	Z-014F-2
3,5-Dichlorobenzoic acid	100	M	P-242S
51-36-5	1,000	M	P-242S-10X
4,4'-Dichlorobenzophenone	100	M	P-295S
90-98-2	1,000	M	P-295S-10X
4,4'-Dichlorobiphenyl	500	MT	M-508-SS
2050-68-2			
1,4-Dichlorobutane	200	M	M-624-SS-05
110-56-5			
trans-1,4-Dichloro-2-butene	100	M	APP-9-068
110-57-6			
Dichlorodifluoromethane	200	M	M-502-24
75-71-8	2,000	M	M-502-24-10X

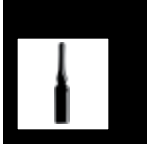
❄ ColdPAK required to maintain integrity of product.

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Dichlorodifluoromethane (Freon #12)	200	M	M-REF-08
1,1-Dichloroethane 75-34-3	200	M	M-502-25
	2,000	M	M-502-25-10X
1,2-Dichloroethane 107-06-2	200	M	M-502-26
	2,000	M	M-502-26-10X
cis-1,2-Dichloroethene 156-59-2	200	M	M-502-28
	2,000	M	M-502-28-10X
1,2-Dichloroethane-d_4 17060-07-0	200	M	M-624-SS-06
	2,000	M	M-624-SS-06-10X
1,1-Dichloroethene 75-35-4	200	M	M-502-27
	2,000	M	M-502-27-10X
trans-1,2-Dichloroethene 156-60-5	200	M	M-502-29
	2,000	M	M-502-29-10X
1,1-Dichloro-1-fluoroethane (Freon #141B)	200	M	M-REF-X-04
Dichlorofluoromethane 75-43-4	200	M	M-502-61
	2,000	M	M-502-61-10X
Dichlorofluoromethane (Freon #21)	200	M	M-REF-09
Dichloromethane 75-09-2	200	M	M-502-39
	2,000	M	M-502-39-10X
Dichlorophen 97-23-4	100	M	P-232S
2,4-Dichlorophenol 120-83-2	1,000	MT	M-552A-6
	1,000	M	M-8040-07
2,6-Dichlorophenol 87-65-0	100	D	APP-9-076
	1,000	M	M-8040-08
2,3-Dichlorophenoxyacetic acid 2976-74-1	100	M	P-470S
	100	CN	P-470S-CN
2,4-Dichlorophenylacetic acid 19719-28-9	100	A	M-8150B-SS
	1,000	A	M-8150B-SS-10X
1,2-Dichloropropane 78-87-5	200	M	M-502-30
	2,000	M	M-502-30-10X
1,3-Dichloropropane 142-28-9	200	M	M-502-31
	2,000	M	M-502-31-10X
2,2-Dichloropropane 594-20-7	200	M	M-502-32
	2,000	M	M-502-32-10X
1,1-Dichloro-2-propanone 513-88-2	5,000	A	M-551B-6
1,1-Dichloropropene 563-58-6	200	M	M-502-33
	2,000	M	M-502-33-10X
trans-1,3-Dichloropropene 10061-02-6	100	M	APP-9-079
1,3-Dichloropropene (cis/trans) 542-75-6	400	M	M-502-34-R
	4,000	M	M-502-34-R-10X
cis-1,3-Dichloropropene 10061-01-5	100	M	APP-9-078
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon #114)	200	M	M-REF-10
2,2-Dichloro-1,1,1-trifluoroethane (Freon #123)	200	M	M-REF-X-05
Dichlorprop 120-36-5	100	M	P-143S
	200	M	M-8150S-A-07
Dichlorprop methyl ester 57153-17-0	100	M	P-229S
	200	H	M-8150-07
Dichlorvos 62-73-7	100	M	P-036S
	1,000	H	M-8140-07
Diclofop methyl 51338-27-3	100	M	P-303S
Dicrotophos 141-66-2	100	M	P-178S
Dieldrin 60-57-1	100	M	P-037S
	1,000	M	P-037S-10X
Diethyl ether 60-29-7	10,000	W	M-8015B/5031-09
Diethyl phosphate (mono- & di-) 598-02-7	100	M	P-443S
Diethyl phthalate 84-66-2	100	M	APP-9-081
	1,000	M	APP-9-081-10X
1,4-Difluorobenzene 540-36-3	200	M	M-624-SS-07
	2,000	M	M-624-SS-07-10X
2,2'-Difluorobiphenyl 388-82-9	200	D	M-625-07
	2,000	D	M-625-07-10X
4,4'-Difluorobiphenyl 398-23-2	100	CN	M-550-IS

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
1,1-Difluoroethane (Freon 152a)	200	M	M-REF-11
Dimefox 115-26-4	100	M	P-299S
Dimethoate 60-51-5	1,000	H:A	M-8141-01
	1,000	M	P-039S-10X
Dimethyl phosphate 813-78-5	100	M	P-442S
Dimethyl phthalate 131-11-3	100	M	APP-9-088
	1,000	M	APP-9-088-10X
2,3-Dimethyl-2,3-dinitrobutane (DMNB) 3964-18-9	100	CN	M-8330-ADD-21
1,3-Dimethyl-2-nitrobenzene 81-20-9	250	MT	M-507-SS
	1,000	MT	M-507-SS-4X
4-Dimethylaminoazobenzene 60-11-7	100	D	APP-9-083
7,12-Dimethylbenz[a]anthracene 57-97-6	100	D	APP-9-084
2,5-Dimethylbenzaldehyde-DNPH 152477-96-8	100	CN	M-8315-R-DNPH-09
3,3'-Dimethylbenzidine 119-93-7	100	D	APP-9-085
a,a-Dimethylphenethylamine 122-09-8	100	D	APP-9-086
	100	D	APP-9-086-20X
2,4-Dimethylphenol 105-67-9	100	M	APP-9-087
	1,000	M	M-8040-09
Di-n-butyl phthalate 84-74-2	100	M	APP-9-063
	1,000	M	APP-9-063-10X
Dinex 131-89-5	100	M	P-427S
	1,000	M	P-427S-10X
3,5-Dinitroaniline 618-87-1	100	CN:M	M-8330-ADD-4
1,2-Dinitrobenzene 528-29-0	1,000	M	M-8330-SS
1,3-Dinitrobenzene 99-65-0	100	M:CN	M-8330-01-0.1X
	1,000	M:CN	M-8330-01
4,6-Dinitro-o-cresol 534-52-1	100	M	P-384S
	1,000	M	P-384S-10X
2,4-Dinitrophenol 51-28-5	100	M	APP-9-091
	1,000	M	M-8040-10
2,4-Dinitrophenylhydrazine 119-26-6	1,000	CN	M-1667A-DERV-10ML in 10 mL
2,4-Dinitrotoluene 121-14-2	100	M:CN	M-8330-02-0.1X
	1,000	M:CN	M-8330-02
2,5-Dinitrotoluene 619-15-8	100	CN	M-8095-SS-03
2,6-Dinitrotoluene 606-20-2	100	M:CN	M-8330-03-0.1X
	1,000	M:CN	M-8330-03
3,4-Dinitrotoluene 610-39-9	100	CN	M-8095-SS-01
	1,000	M	M-8330-IS
Dinocap 39300-45-3	100	M	P-288S
Di-n-octyl phthalate 117-84-0	100	M	APP-9-095
Dinoseb 88-85-7	100	M	P-144S
	1,000	M	M-8040-11
Dinoseb methyl ether 6099-79-2	100	M	P-230S
	200	H	M-8150-08
Dioxacarb 6988-21-2	100	M	M-8318-05
p-Dioxane 123-91-1	100	M	APP-9-096
	1,000	M	APP-9-096-10X
Dioxathion 78-34-2	100	M	P-219S
	1,000	H	M-8141A-1-04
Diphenamid 957-51-7	100	M	P-173S
Diphenylamine 122-39-4	100	D	APP-9-097
	1,000	M	M-620
Diquat dibromide monohydrate **(as Diquat)**	100	M	P-231S
	1,000	M	P-231S-10X
Disulfoton 298-04-4	100	M	P-042S
	1,000	H	M-8140-08
Disulfoton sulfone 2497-06-5	100	M	P-582S
2,4-DP ethyl hexyl 79270-78-3	100	M	P-429S



Solvent Key for Individual Solutions
M Methanol **D** Methylene chloride **H** Hexane **W** Water
A Acetone **CN** Acetonitrile **MT** *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Dursban	100	M	P-094S
2921-88-2	1,000	M	P-094S-10X
Dyfonate	100	M	P-087S
944-22-9	100	H	P-087S-H
EGDN	100	CN	M-8330-ADD-5
628-96-6			
Endosulfan I	100	M	P-091S
959-98-8	10	MT	M-548-IS
Endosulfan II	100	M	P-092S
33213-65-9	1,000	M	P-092S-10X
Endosulfan sulfate	100	M	P-145S
1031-07-8	1,000	M	P-145S-10X
Endothall	100	M	P-183S
145-73-3	1,000	M	P-183S-10X
Endothall dimethyl ester	100	M	M-548.1-ME
Endothall pentafluorophenyl hydrazine derivative	100	MT	M-548-CAL
Endrin	100	M	P-045S
72-20-8	1,000	M	P-045S-10X
Endrin aldehyde	100	M	P-046S
7421-93-4	1,000	M	P-046S-10X
Endrin ketone	100	M	P-146S
53494-70-5			
EPN	100	A	P-220S-A
2104-64-5	1,000	H	M-8141-02
Ethalfluralin	100	M	P-269S
55283-68-6			
Ethanol	10,000	W	M-8015B/5031-11
64-17-5			
Ethephon	100	M	P-239S
16672-87-0			
Ethion	100	M	P-048S
563-12-2	1,000	H	M-8141A-1-05
Ethoprop	100	M	P-129S
13194-48-4	1,000	H	M-8140-09
Ethyl acetate	10,000	W	M-8015B/5031-12
141-78-6			
Ethyl carbamate	100	M	P-419S
51-79-6			
Ethyl methacrylate	100	M	APP-9-105
97-63-2			
Ethyl methanesulfonate	100	D	APP-9-106
62-50-0			
Ethylbenzene	200	M	M-502-35
100-41-4	2,000	M	M-502-35-10X
Ethylbenzene-d_{10}	200	M	M-624-SS-08
25837-05-2			
Ethylene glycol	10,000	W	M-8015B/5031-13
107-21-1			
Ethylene oxide ❄	5,000	W	M-8015B/5031-14-R1
75-21-8			
bis(2-Ethylhexyl)adipate	100	M	P-233S
103-23-1	1,000	M	P-233S-10X
bis(2-Ethylhexyl)phthalate	100	M	APP-9-029
117-81-7	1,000	M	APP-9-029-10X
Famphur	100	M	P-147S
52-85-7	1,000	H	M-8141A-1-06
Fenaminosulf	100	M	P-058S
140-56-7	1,000	M	P-058S-10X
Fenamiphos	100	M	P-114S
22224-92-6			
Fenitrothion	100	M	P-259S
122-14-5			
Fenoxaprop-ethyl	100	M	P-365S
66441-23-4			
Fenoxycarb	100	M	P-686S
79127-80-3			
Fensulfothion	1,000	H	M-8140-10
115-90-2			
Fenthion	100	M	P-148S
55-38-9	1,000	H	M-8140-11
Fenuron	100	M	P-004S
101-42-8	100	CN	M-632-07
Fenuron TCA	100	M	P-006S
4482-55-7	100	CN	M-632-08
Fenvalerate ❄	100	M	P-194S
51630-58-1			
Ferbam	100	M	P-110S
14484-64-1			
Fipronil	100	A	P-738S-A
120068-37-3	100	M	P-738S
Fipronil sulfide	100	A	P-781S-A
120067-83-6			
Fipronil sulfone	100	A	P-780S-A
120068-36-2			
Flamprop-methyl	100	M	P-366S
52756-25-9			
Fluazifop butyl	100	M	P-310S
69806-50-4			
Fluazifop-p-butyl	100	M	P-601S
79241-46-6			
Fluchloralin	100	M	P-270S
33245-39-5			
Fluometuron	100	M	P-014S
2164-17-2	100	CN	M-632-09
Fluoranthene	100	M	APP-9-108
206-44-0	500	CN	M-8310-FL-11
Fluorene	100	M	APP-9-109
86-73-7	500	M	M-8310-FL-12
4-Fluoroaniline	200	D	M-625-08
371-40-4	2,000	D	M-625-08-10X
Fluorobenzene	20	M	M-524-IS-2-10X
462-06-6	2,000	M	M-524-IS-2
2-Fluorobiphenyl	200	D	M-625-09
321-60-8	2,000	D	M-625-09-10X
1-Fluoronaphthalene	200	D	M-625-10
321-38-0	2,000	D	M-625-10-10X
2-Fluoronaphthalene	200	D	M-625-11
323-09-1			
2-Fluorophenol	200	D	M-625-16
367-12-4	2,000	D	M-625-16-10X
Flurenol methyl ester	100	M	P-412S
1216-44-0			
Fluridone	100	M	P-193S
59756-60-4			
Tau-Fluvalinate	100	CN	P-356S-CN
102851-06-9			
Folpet	100	M	P-258S
133-07-3			
Formaldehyde	1,000	W	M-8315-02
50-00-0	1,000	M	M-554-06 ❄
Formaldehyde-DNPH	100	CN	M-8315-R-DNPH-10
1081-15-8	1,000	M:CN	M-554-DNPH-06
Formothion	100	CN	P-149S-CN
2540-82-1			
Glyphosate	100	W	M-547
1071-83-6	1,000	W	P-015S-W-10X
Guanidine nitrate	100	M	M-8330-ADD-10
506-93-7			
Haloxyfop	100	M	P-496S
69806-34-4	100	CN	P-496S-CN
Haloxyfop-methyl	100	M	P-497S
69806-40-2			
Heptachlor	100	M	P-053S
76-44-8	1,000	M	P-053S-10X
Heptachlor epoxide (Isomer A)	100	M	P-294S
28044-83-9			
Heptachlor epoxide (Isomer B)	100	M	P-054S
1024-57-3	1,000	M	P-054S-10X

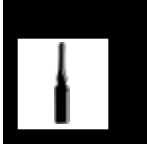
❄ ColdPAK required to maintain integrity of product.

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Heptanal 111-71-7	1,000	M	M-554-07
Heptanal-DNPH 2074-05-7	100 1,000	CN M:CN	M-8315-R-DNPH-11 M-554-DNPH-07
Hexachlorobenzene 118-74-1	1,000 2,000	A H	M-8091-IS-20X M-8120-05
Hexachlorobutadiene 87-68-3	200 2,000	M M	M-502-36 M-502-36-10X
Hexachlorocyclopentadiene 77-47-4	100 2,000	M H	APP-9-114 M-8120-07
Hexachloroethane 67-72-1	100 2,000	M H	APP-9-115 M-8120-08
Hexachlorophene 70-30-4	100 2,000	M D	APP-9-116 APP-9-116-D-20X
Hexachloropropene 1888-71-7	100	M	APP-9-117
Hexanal 66-25-1	1,000	M	M-554-08 ❄
Hexanal-DNPH 1527-97-5	100 1,000	CN M:CN	M-8315-R-DNPH-12 M-554-DNPH-08
2-Hexanone 591-78-6	100	M	APP-9-118 ❄
Hexazinone 51235-04-2	100 1,000	M M	P-123S P-123S-10X
HMX 2691-41-0	100 1,000	M:CN M:CN	M-8330-04-0.1X M-8330-04
Hydrazine 302-01-2	100	M	M-8330-ADD-8
2-Hydroxyatrazine 2163-68-0	100	M:A	P-326S
3-Hydroxycarbofuran 16655-82-6	100 100	CN M	M-531-05 M-8318-06
1-Hydroxychlordene 24009-05-0	100	M	P-151S
Imidan 732-11-6	100 1,000	M H	P-055S M-8141A-1-08
Indeno[1,2,3-cd]pyrene 193-39-5	100 500	M CN	APP-9-119 M-8310-FL-13
Iodofenphos 18181-70-9	100	M	P-379S
Ioxynil 1689-83-4	100	M	P-522S
Iprodione 36734-19-7	100 100	A CN	P-016S-A P-016S-CN
Isobutyl alcohol 78-83-1	100 10,000	M W	APP-9-120 M-8015B/5031-15
Isodrin 465-73-6	1,000	M	APP-9-121-10X
Isofenphos 25311-71-1	100	M	P-018S
Isophorone 78-59-1	100 1,000	M M	APP-9-122 APP-9-122-10X
Isopropalin 33820-53-0	100	M	P-100S
Isopropanol 67-63-0	10,000	W	M-8015B/5031-16
Isopropylbenzene 98-82-8	200 2,000	M M	M-502-37 M-502-37-10X
p-Isopropyltoluene (p-Cymene) 99-87-6	200 2,000	M M	M-502-38 M-502-38-10X
Isosafrole 120-58-1	100	D	APP-9-123
Isovaleraldehyde-DNPH 2256-01-1	100	CN	M-8315-R-DNPH-13
Karmex 330-54-1	100 100	M CN	P-227S M-632-06
Kelthane 115-32-2	100	M	P-057S
Kepone 143-50-0	100 1,000	M M	P-152S P-152S-10X
3-Ketocarbofuran 16709-30-1	100	A	P-298S-A
Leptophos 21609-90-5	100 1,000	M H	P-206S M-8141A-1-07
Lindane (γ-BHC) 58-89-9	100 1,000	M M	P-059S P-059S-10X
Linuron 330-55-2	100 100	M CN	P-022S M-632-10
Lontrel 1702-17-6	100	M	P-224S
Malathion 121-75-5	1,000	H	M-8141-03
MCPA acid 94-74-6	100 2,000	M M	P-153S M-8150S-A-09
MCPA methyl ester 2436-73-9	100 2,000	M H	P-038S M-8150-09
MCPB acid 94-81-5	100	M	P-370S
MCPB methyl ester 57153-18-1	100	M	P-371S
MCPP acid 7085-19-0	100 2,000	CN M	P-154S-CN M-8150S-A-10
MCPP methyl ester 2786-19-7	100 2,000	M H	P-040S M-8150-10
Mecoprop, 2-Ethylhexyl ester 71526-69-7	100	M	P-502S
Mercaptobenzothiazole 149-30-4	100	CN	M-640
Merphos 150-50-5	1,000	H	M-8140-12
Metalaxyl 57837-19-1	100	M	P-120S
Metaldehyde 9002-91-9	100 100	M CN	P-600S P-600S-CN
Metamitron 41394-05-2	100	M	P-252S
Metazachlor 67129-08-2	100	M	P-249S
Methacrylonitrile 126-98-7	100	M	APP-9-125
Methanol 67-56-1	10,000	W	M-8015B/5031-17
Methapyrilene 91-80-5	100 1,000	D D	APP-9-126 APP-9-126-10X
Methidathion 950-37-8	100	M	P-195S
Methiocarb 2032-65-7	100 100	M CN	M-8318-07 M-531-11
Methomyl 16752-77-5	100 1,000	CN CN	M-531-04 M-531-04-10X
Methoprene 40596-69-8	100	M	P-157S
Methoxychlor 72-43-5	100 1,000	M M	P-064S P-064S-10X
o,p'-Methoxychlor 30667-99-3	100	M	P-535S
p,p'-Methoxychlor-olefin 2132-70-9	100 1,000	M M	P-466S P-466S-10X
Methyl-2,3-dibromopropionate 1729-67-5	1,000	MT	M-552.2-SS-ME
Methyl bromoacetate 96-32-2	200	M	M-552.1-02
Methyl bromochloroacetate 20428-74-4	200 1,000	M MT	M-552.1-03 M-552-R-03
Methyl bromodichloroacetate	40	MT	M-552.2-04
Methyl 2-bromopropionate 5445-17-0	1,000	MT	M-552.1-SS-ME
Methyl chlorodibromoacetate 20428-75-5	100	MT	M-552.2-06
3-Methylcholanthrene 56-49-5	100	D	APP-9-128
Methyl dibromoacetate 6482-26-4	20 100	MT M	M-552.2-07 M-552.1-05
Methyl dichloroacetate 116-54-1	60 300	MT M	M-552.2-08 M-552.1-06
Methyl-3,5-dichlorobenzoate 2905-67-1	100 1,000	M M	P-247S P-247S-10X
Methyl-2,4-Dichlorophenylacetate 55954-23-9	100	M	P-214S
Methylene chloride-d_2 1665-00-5	2,000	M	M-502-IS-2-3

❄ ColdPAK required to maintain integrity of product.



Solvent Key for Individual Solutions
M Methanol **D** Methylene chloride **H** Hexane **W** Water
A Acetone **CN** Acetonitrile **MT** *tert*-Butyl methyl ether

Analytes in EPA Methods

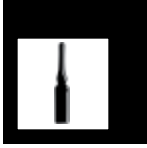
Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Methyl ethyl ketone 78-93-3	1,000 10,000	M W	APP-9-129-10X ❄ M-8015B/5031-18
Methyl iodide 74-88-4	100	M	APP-9-130
Methyl isobutyl ketone 108-10-1	10,000	W	M-8015B/5031-19
Methyl isothiocyanate 556-61-6	25	A	M-1659-RPS
Methyl methacrylate 80-62-6	100	M	APP-9-131
Methyl methanesulfonate 66-27-3	100	D	APP-9-132
1-Methylnaphthalene 90-12-0	500	CN	M-8310-FL-14
2-Methylnaphthalene 91-57-6	100 500	D CN	APP-9-133 M-8310-FL-15
2-Methyl-4-nitroaniline 99-52-5	100	CN	M-8095-SS-02
3-Methyl-4-nitrophenol 2581-34-2	100	M	P-509S
Methyl nonyl ketone 112-12-9	100 100	M CN	P-415S P-415S-CN
Methyl paraoxon 298-00-0	100	M	P-311S
Methyl parathion 298-00-0	100 1,000	M H	P-065S M-8140-13
4-Methyl-2-pentanone 108-10-1	100	M	APP-9-135
Methyl tribromoacetate 3222-05-7	200	MT	M-552.2-09 ❄
Methyl trichloroacetate 598-99-2	100 200	M MT	M-552.1-07 M-552.2-10
Metolachlor 51218-45-2	100 1,000	M M	P-158S P-158S-10X
Metribuzin 21087-64-9	100 1,000	M M	P-089S P-089S-10X
Metsulfuron methyl 74223-64-6	100	M	P-463S
Mevinphos 7786-34-7	100 1,000	M H	P-074S M-8140-14
Mexacarbate 315-18-4	100 100	M CN	P-030S M-632-13
MGK-264 113-48-4	100	M	P-082S
MGK-326 136-45-8	100	M	P-342S
Mirex 2385-85-5	100	M	P-066S
Molinate 2212-67-1	100	M	P-176S
Monitor 10265-92-6	100	M	P-155S
Monobromoacetic acid 79-08-3	40	MT	M-552.2A-07
Monochloroacetic acid 79-11-8	60	MT	M-552.2A-08
Monocrotophos 6923-22-4	100 1,000	M H	P-112S M-8141-04
Monuron 150-68-5	100	CN	M-632-14
Monuron TCA 140-41-0	100 100	M CN	P-034S M-632-15
MtBE 1634-04-4	2,000	M	M-8020-QC
Myclobutanil 88671-89-0	100 1,000	M M	P-330S P-330S-10X
Nabam 142-59-6	100	M	P-383S
Naled 300-76-5	100 1,000	M H	P-159S M-8140-15
Naphthalene 91-20-3	200 500	M M	M-502-40 M-8310-FL-16

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
1-Naphthalene acetamide 86-86-2	100	M	P-512S
Naphthalene-d_8 1146-65-2	200 4,000	D D	M-625-12 Z-014J-4
1-Naphthol 90-15-3	100	CN	M-531-10
1,4-Naphthoquinone 130-15-4	100	D	APP-9-137
1-Naphthylamine 134-32-7	100	D	APP-9-138
2-Naphthylamine 91-59-8	100	D	APP-9-139
Napropamide 15299-99-7	100 100	M CN	P-179S M-632.1-3
Neburon 555-37-3	100 100	M CN	P-041S M-632-16
Niclosamide 50-65-7	100	M	P-160S
m-Nitroaniline 99-09-2	100	D	APP-9-141
o-Nitroaniline 88-74-4	100	D	APP-9-140
p-Nitroaniline 100-01-6	100	D	APP-9-142
4-Nitroanisole 100-17-4	100	M	P-273S
Nitrobenzene 98-95-3	100 1,000	M:CN M:CN	M-8330-06-0.1X M-8330-06
Nitrobenzene-d_5 4165-60-0	200 2000	D D	M-625-13 M-625-13-10X
Nitroguanidine 556-88-7	100	M	M-8330-ADD-6
Nitromethane 75-52-5	100	M	M-8330-ADD-7
5-Nitro-o-toluidine 99-55-8	100	D	APP-9-156
o-Nitrophenol 88-75-5	100	M	APP-9-144
p-Nitrophenol 100-02-7	100	M	APP-9-145
4-Nitroquinoline-1-oxide 56-57-5	100	D	APP-9-146
N-Nitrosodiethylamine 55-18-5	100	D	APP-9-148
N-Nitrosodimethylamine 62-75-9	100 1,000	D M	APP-9-149 APP-9-149-M-10X
N-Nitrosodi-n-butylamine 924-16-3	100 500	D W	APP-9-147 M-8015B/5031-20
N-Nitrosodi-n-propylamine 621-64-7	100	D	APP-9-151
N-Nitrosodiphenylamine 86-30-6	100 1,000	D M	APP-9-150 APP-9-150-M-10X
N-Nitrosomethylethylamine 10595-95-6	100	D	APP-9-152
N-Nitrosomorpholine 59-89-2	100	D	APP-9-153
N-Nitrosopiperidine 100-75-4	100	D	APP-9-154
N-Nitrosopyrrolidine 930-55-2	100	D	APP-9-155
2-Nitrotoluene 88-72-2	100 1,000	M:CN M:CN	M-8330-07-0.1X M-8330-07
3-Nitrotoluene 99-08-1	100 1,000	M:CN M:CN	M-8330-08-0.1X M-8330-08
4-Nitrotoluene 99-99-0	100 1,000	M:CN M:CN	M-8330-09-0.1X M-8330-09
cis-Nonachlor 5103-73-1	100 1,000	M M	P-297S P-297S-10X
trans-Nonachlor 39765-80-5	100	M	P-184S

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Nonanal 124-19-6	1,000	M	M-554-09
Nonanal-DNPH 2348-19-8	100 1,000	CN M:CN	M-8315-R-DNPH-14 M-554-DNPH-09
Octanal 124-13-0	1,000	M	M-554-10
Octanal-DNPH 1726-77-8	100 1,000	CN M:CN	M-8315-R-DNPH-15 M-554-DNPH-10
Omethoate 1113-02-6	100 1,000	M M	P-121S P-121S-10X
Oryzalin 19044-88-3	100	CN	M-638
Oxadiazon 19666-30-9	100 1,000	M M	P-236S P-236S-10X
Oxamyl 23135-22-0	100 100	M CN	P-161S M-531-03
Oxycarboxin 5259-88-1	100	M	P-391S
Oxychlordane Isomer 27304-13-8	100 100	M H	P-331S P-331S-H
Oxydemeton-methyl 301-12-2	100	M	P-290S
Oxyfluorfen 42874-03-3	100	M	P-277S
Paraldehyde 123-63-7	10,000	W	M-8015B/5031-21
Paraoxon 311-45-5	100 1,000	M M	P-453S P-453S-10X
Paraquat CL tetrahydrate 1910-42-5 **(as Paraquat)**	100	M	P-051S
Parathion 56-38-2	100 1,000	M H	P-070S M-622-19
Pendimethalin 40487-42-1	100 1,000	M M	P-097S P-097S-10X
Pentachloroanisole 1825-21-4	100	M	P-199S
Pentachlorobenzene 608-93-5	100	M	APP-9-173
Pentachloroethane 76-01-7	100	M	APP-9-174
Pentachloronitrobenzene 82-68-8	100 1,000	MT MT	M-508-IS M-508-IS-10X
Pentachlorophenol 87-86-5	25 1,000	D M	M-625C-2 M-8040-15
Pentafluorobenzene 363-72-4	200	M	M-624-SS-10
Pentafluoroethane (Freon #125)	200	M	M-REF-X-06
Pentafluorophenol 771-61-9	200	D	M-625-17
Pentanal 110-62-3	1,000	M	M-554-11
Pentanal-DNPH 2057-84-3	100 1,000	CN M:CN	M-8315-R-DNPH-16 M-554-DNPH-11
2-Pentanone 107-87-9	10,000	W	M-8015B/5031-22
Permethrin 52645-53-1	100	M	P-128S
Perthane 72-56-0	100	M	P-162S
PETN 78-11-5	100	M	M-8330-ADD-2
Phenacetin 62-44-2	100 1,000	D D	APP-9-177 APP-9-177-10X
Phenanthrene 85-01-8	100 200	M D	APP-9-178 Z-013-15
Phenanthrene-d_{10} 1517-22-2	200	D	M-625-14
Phenol 108-95-2	100 1,000	D M	APP-9-179 M-8040-16
Phenol-d_5 4165-62-2	200 2,000	D D	M-625-18 M-625-18-10X
Phenthoate 2597-03-7	100	M	P-476S
p-Phenylenediamine 106-50-3	100	M	APP-9-180
o-Phenylphenol 90-43-7	100	M	P-460S
Phorate 298-02-2	100 1,000	M H	P-170S M-8140-16
Phorate sulfone 2588-04-7	100	H	P-655S-H
Phosalone 2310-17-0	100	M	P-163S
Phosfolan 947-02-4	100 1,000	M M	P-234S P-234S-10X
Phosphamidon 13171-21-6	100 1,000	M H	P-075S M-8141A-1-09
Picloram 1918-02-1	100 100	M CN	P-047S M-644
Picloram methyl ester 14143-55-6	100	M	P-198S
2-Picoline 109-06-8	100 10,000	M W	APP-9-182 M-8015B/5031-23
Picramic acid 831-52-7	100	M	M-8330-ADD-22
Picric acid 88-89-1	100	CN:M	M-8330-ADD-3
Pirimicarb 23103-98-2	100	M	P-304S
Pirimiphos-methyl 29232-93-7	100	M	P-305S
Prebane 886-50-0	100	M	P-119S
Profenofos 41198-08-7	100	M	P-260S
Profluoralin 26399-36-0	100 1,000	M M	P-099S P-099S-10X
Promecarb 2631-37-0	100	M	M-8318-09
Prometon 1610-18-0	100	M	M-619-04
Prometryne 7287-19-6	100	M	M-619-05
Pronamide 23950-58-5	100	M	P-164S
Propachlor 1918-16-7	100 1,000	M M	P-215S P-215S-10X
Propanal 123-38-6	1,000	M	M-554-12 ❄
Propanal-DNPH 725-00-8	100 1,000	CN M:CN	M-8315-R-DNPH-17 M-554-DNPH-12
Propanil 709-98-8	100	CN	M-632.1-2
1-Propanol 71-23-8	10,000	W	M-8015B/5031-24
Propargite 2312-35-8	100	M	P-251S
Propazine 139-40-2	100	M	M-619-06
Propham 122-42-9	100	CN	M-632-18
Propionitrile 107-12-0	100 10,000	M W	APP-9-184 M-8015B/5031-25
n-Propylbenzene 103-65-1	200 2,000	M M	M-502-41 M-502-41-10X
Propyleneglycol dinitrate 6423-43-4	100	M	M-8330-ADD-35
Pyrazon 1698-60-8	100 1,000	M M	P-395S P-395S-10X
Pyrazoxyfen 71561-11-0	100	M	P-618S
Pyrene 129-00-0	100 500	M CN	APP-9-185 M-8310-FL-18
Pyrene-d_{10} 1718-52-1	50	A	M-525-SS
Pyridine 110-86-1	100 10,000	M W	APP-9-186-M M-8015B/5031-26
Pyridine-d_5 7291-22-7	200 2000	D D	M-625-15 M-625-15-10X
PYX 38082-89-2	100	CN	M-8330-ADD-11



Solvent Key for Individual Solutions
M Methanol **D** Methylene chloride **H** Hexane **W** Water
A Acetone **CN** Acetonitrile **MT** *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Quizalofop ethyl 76578-14-8	100	CN	P-293S-CN
RDX 121-82-4	100 1,000	M:CN M:CN	M-8330-05-0.1X M-8330-05
Ronnel 299-84-3	100 1,000	M H	P-080S M-8140-17
Rotenone 83-79-4	100 100	M CN	P-056S ❄ M-635
Safrole 94-59-7	100	M	APP-9-187
Secbumeton 26259-45-0	100	M	M-619-07
Siduron 1982-49-6	100 100	M CN	P-063S M-632-20
Silvex 93-72-1	100 1,000	M M	P-084S P-084S-10X
Silvex methyl ester 4841-20-7	100	M	P-115S
Simazine 122-34-9	100 1,000	M M	P-085S M-507F
Simetryn 1014-70-6	100	M	M-619-08
Stirophos 961-11-5	1,000	H	M-8140-18
Styrene 100-42-5	200 2,000	M M	M-502-42 M-502-42-10X
Sulfotep 3689-24-5	100 1,000	M H	P-167S M-8141-06
Sulfoxide 120-62-7	100	M	P-396S
Sumithrin 26002-80-2	100	M	P-050S
Swep 1918-18-9	100 100	M CN	P-061S M-632-21
2,4,6-T 575-89-3	100 100	M CN	P-523S P-523S-CN
2,4,5-T acid 93-76-5	100 1,000	M M	P-168S P-168S-10X
2,4,5-T butoxyethyl ester 2545-59-7	100	CN	P-441S-CN
2,4,5-T methyl ester 1928-37-6	100 200	M H	P-067S M-8150-03
2,4,5-T n-butyl ester 93-79-8	100	CN	P-440S-CN
TAME 994-05-8	200	M	S-1019
TCMX 877-09-8	100 1,000	H H	M-8082-SS M-8082-SS-10X
Tebuconazol 107534-96-3	100	M	P-451S
Tebuthiuron 34014-18-1	100	M	P-188S
Tefluthrin 79538-32-2	100	M	P-568S ❄
TEPP 107-49-3	1,000	H	M-8141-07
Terbacil 5902-51-2	100	M	P-096S
Terbufos 13071-79-9	100 1,000	M H	P-208S M-8141A-1-10
Terbuthylazine 5915-41-3	100	M	M-619-10
p-Terphenyl-d_{14} 1718-51-0	500	D	M-525-FS-2
Terrazole 2593-15-9	100	M	P-190S
1,2,4,5-Tetrachlorobenzene 95-94-3	100 2,000	M H	APP-9-191 M-8120-09
1,1,1,2-Tetrachloroethane 630-20-6	200 2,000	M M	M-502-43 M-502-43-10X
1,1,2,2-Tetrachloroethane 79-34-5	200 2,000	M M	M-502-44 M-502-44-10X
Tetrachloroethene 127-18-4	200 2,000	M M	M-502-45 M-502-45-10X
2,3,5,6-Tetrachloronitrobenzene 117-18-0	100	M	P-467S
2,3,4,6-Tetrachlorophenol 58-90-2	100 1,000	M M	APP-9-195 M-8040-17
Tetrachlorvinphos 961-11-5	100 1,000	M CN	P-125S AE-00047
Tetradifon 116-29-0	100	M	P-261S
Tetrafluoroethane 811-97-2	200	M	M-REF-12
1,1,2,2-Tetrafluoroethane (Freon #134)	200	M	M-REF-X-07
Tetrahydrofuran 109-99-9	1,000	W	M-1671A-IS
Tetryl 479-45-8	100 1,000	M:CN M:CN	M-8330-10-0.1X M-8330-10
Thiabendazole 148-79-8	100 100	M CN	P-068S M-641
Thiobencarb 28249-77-6	100 1,000	M M	P-180S P-180S-10X
4,4'-Thiodiphenol 2664-63-3	100 1,000	M M	P-117S P-117S-10X
Thiofanox 39196-18-4	100	M	P-266S
Thionazin 297-97-2	100	M	P-171S
Thiophanate 23564-06-9	100 100	M CN	P-321S P-321S-CN
Thiram 137-26-8	100 1,000	M M	P-118S P-118S-10X
Tillam 1114-71-2	100 1,000	M M	P-105S P-105S-10X
Tilt 60207-90-1	100	M	P-280S
TNT 118-96-7	100 1,000	M:CN M:CN	M-8330-11-0.1X M-8330-11
Tokuthion 34643-46-4	100 1,000	M H	P-126S M-8140-19
m-Tolualdehyde-DNPH 2880-05-9	100	CN	M-8315-R-DNPH-18
o-Tolualdehyde-DNPH 1773-44-0	100	CN	M-8315-R-DNPH-19
p-Tolualdehyde-DNPH 2571-00-8	100	CN	M-8315-R-DNPH-20
Toluene 108-88-3	200 2,000	M M	M-502-46 M-502-46-10X
o-Toluidine 95-53-4	100 10,000	M W	APP-9-199 M-8015B/5031-27
Toxaphene 8001-35-2	1,000 2,500	M A	P-093S-10X M-525-5
2,4,5-TP 93-72-1	200	M	M-8150S-A-04
2,4,5-TP methyl ester 4841-20-7	200	H	M-8150-04
2,4,5-TP-PFB	100	MT	M-8150-04-PFB
Triadimefon 43121-43-3	100	M	P-069S
Triallate 2303-17-5	100	M	P-268S
1,2,4-Triazole 288-88-0	100	M	P-627S
Triazophos 24017-47-8	100	M	P-334S
Tribromoacetic acid 75-96-7	200	MT	M-552.2A-09

❄ ColdPAK required to maintain integrity of product.

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Solvent Key for Individual Solutions
M Methanol **D** Methylene chloride **H** Hexane **W** Water
A Acetone **CN** Acetonitrile **MT** *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
1,3,5-Tribromobenzene 626-39-1	50	A	M-8121-IS
2,4,6-Tribromophenol 118-79-6	200	D	M-625-19
	200	M	M-604-SS
2,4,6-Tribromophenol-PFB	200	M	M-604-SS-PFB
Tributylphosphate 126-73-8	1,000	A	M-8141A-SS-01
Trichlorfon 52-68-6	100	M	P-044S
1,1,2-Trichloro-1,2,2-trifluoroethane 76-13-1	200	M	M-REF-14
	2,000	M	M-REF-14-10X
1,1,1-Trichloro-2-propanone 918-00-3	5,000	A	M-551B-8
Trichloroacetic acid 76-03-9	20	MT	M-552.2A-10
	1,000	MT	M-552A-4 ❄
Trichloroacetonitrile 545-06-2	5,000	A	M-551B-7
1,2,3-Trichlorobenzene 87-61-6	200	M	M-502-47
	2,000	M	M-502-47-10X
1,2,4-Trichlorobenzene 120-82-1	200	M	M-502-48
	2,000	M	M-502-48-10X
2,3,5-Trichlorobenzoic acid 50-73-7	100	M	P-508S
	100	CN	P-508S-CN
1,1,1-Trichloroethane 71-55-6	200	M	M-502-49
	2,000	M	M-502-49-10X
1,1,2-Trichloroethane 79-00-5	200	M	M-502-50
	2,000	M	M-502-50-10X
Trichloroethene 79-01-6	200	M	M-502-51
	2,000	M	M-502-51-10X
Trichlorofluoromethane (Freon #11) 75-69-4	200	M	M-502-52
	2,000	M	M-502-52-10X
Trichloronate 327-98-0	100	M	P-127S
	1,000	H	M-8140-20
2,4,5-Trichlorophenol 95-95-4	100	A	CLP-FC
	1,000	M	M-8040-18
2,4,6-Trichlorophenol 88-06-2	100	MT	M-552A-R-08 ❄
	1,000	M	M-8040-19
3,4,5-Trichlorophenol 609-19-8	1,000	M	M-1653-IS
	1,000	A	M-1653-IS-R
1,1,2-Trichloropropane 598-77-6	200	M	S-1321B
1,2,3-Trichloropropane 96-18-4	200	M	M-502-53
	2,000	M	M-502-53-10X
a,a,a-Trichlorotoluene 98-07-7	200	M	M-624-SS-14
Triclopyr 55335-06-3	100	M	P-289S
	100	CN	P-289S-CN
Triclopyr methyl ester 60825-26-5	100	M	P-291S
Tricresyl phosphate 1330-78-5	100	M	P-209S
Tricyclazole 41814-78-2	100	M	P-090S
Triethylphosphate 78-40-0	100	M	P-335S
o,o,o-Triethylphosphorothioate 126-68-1	100	M	P-172S
	1,000	H	P-172S-H-10X
2',4',5'-Trifluoroacetophenone 129322-83-4	20	CN	M-556-SS
1,1,1-Trifluoroethane (Freon #143A)	200	M	M-REF-X-08
Trifluoromethane (Freon #23)	200	M	M-REF-15
a,a,a-Trifluorotoluene 98-08-8	200	M	M-602-SS
	2,000	M	M-602-SS-10X
Trifluralin 1582-09-8	100	M	P-197S
	1,000	M	P-197S-10X
2,3,5-Triiodobenzoic acid 88-82-4	100	M	P-507S
	100	CN	P-507S-CN
2,3,5-Trimethacarb 2655-15-4	100	M	P-515S
3,4,5-Trimethacarb 2686-99-9	100	M	P-516S
Trimethyl phosphate 512-56-1	100	M	P-210S
1,2,4-Trimethylbenzene 95-63-6	200	M	M-502-54
	2,000	M	M-502-54-10X
1,3,5-Trimethylbenzene 108-67-8	200	M	M-502-55
	2,000	M	M-502-55-10X
1,3,5-Trinitrobenzene 99-35-4	100	M:CN	M-8330-12-0.1X
	1,000	M:CN	M-8330-12
Triphenylphosphate 115-86-6	500	MT	M-507-IS
	5,000	MT	M-507-IS-10X
Vacor 53558-25-1	100	M	P-240S
	100	CN	M-632.1-1
Vernolate 1929-77-7	100	M	P-111S
Vinclozolin 50471-44-8	100	M	P-122S
	1,000	M	P-122S-10X
Vinyl acetate 108-05-4	100	M	APP-9-211 ❄
Vinyl chloride 75-01-4	200	M	M-502-56
	2,000	M	M-502-56-10X
o-Xylene 95-47-6	200	M	M-502-57
	2,000	M	M-502-57-10X
m-Xylene 108-38-3	200	M	M-502-58
	2,000	M	M-502-58-10X
p-Xylene 106-42-3	200	M	M-502-59
	2,000	M	M-502-59-10X
Xylene (total) 1330-20-7	100	M	APP-9-213
Ziram 137-30-4	100	CN	M-630-1-0.1X

❄ ColdPAK required to maintain integrity of product.

Thousands of Standards, just a click away

AccuStandard.com

Contract Laboratory Program (CLP)

In 1980, the US Congress addressed the problem of cleaning up abandoned and inactive dump sites by enacting the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA). These acts mandated the clean-up of the worst abandoned or inactive waste sites in the nation as well as leaking underground storage tanks.

These standards are routinely used for other testing protocols. An outgrowth of this legislation was the Contract Laboratory Program (CLP) which was established to perform Superfund analyses.

CLP methods are designed for both volatile and semi-volatile compounds. The most recent EPA Target Compounds are listed in the OLM 04.1 and OLM 04.2 Statement of Work.

CLP Contents

All the Analytical Documentation required in CLP Analysis

Each CLP Standard is furnished with:

- Quantitative analysis of the product by comparison to a separately prepared Standard.
- Target concentration analytically determined to be within a 95% confidence interval.
- A chromatogram of the product lot with analytes listed by order of elution and instrumental parameters shown.
- Certificate showing actual gravimetric/volumetric weights, purities and analyte CAS No.'s.

Contract Laboratory Program (CLP)
Volatiles

VOC Selected Target Compound Solutions

Volatile Target Compounds List (TCL)

CLP-022-SET ❄ — **set of 2 x 1 mL (CLP-022-PART-A, CLP-022-PART-B)**

Part A

CLP-022-PART-A — **1 x 1 mL**
0.5 mg/mL each in MeOH — 29 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,1-Dichloroethane
- Dichloromethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Ethylbenzene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Vinyl chloride
- *m*-Xylene
- *p*-Xylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Part B

CLP-022-PART-B ❄ — **1 x 1 mL**
0.5 mg/mL each in MeOH — 8 comps.

- Acetone
- 2-Butanone
- Carbondisulfide
- 2-Hexanone
- 4-Methyl-2-pentanone
- Styrene
- Vinyl acetate
- *o*-Xylene

Volatile Target Compounds List (TCL)

Gases

CLP-022G	0.2 mg/mL each in MeOH		**1 x 1 mL**
CLP-022G-PAK	0.2 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-022G-10X	2.0 mg/mL each in MeOH		**1 x 1 mL**
CLP-022G-10X-PAK	2.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**

4 comps.

- Bromomethane
- Chloroethane
- Chloromethane
- Vinyl chloride

Ketones

CLP-022K ❄	0.2 mg/mL each in MeOH	**1 x 1 mL**
CLP-022K-10X ❄	2.0 mg/mL each in MeOH	**1 x 1 mL**
CLP-022K-25X ❄	5.0 mg/mL each in MeOH	**1 x 1 mL**

4 comps.

- Acetone
- 2-Butanone
- 2-Hexanone
- 4-Methyl-2-pentanone

Volatile Target Compounds List (TCL)

CLP-022 ❄ — **1 x 1 mL**
0.2 mg/mL each in MeOH — 37 comps.

- Acetone
- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- 2-Butanone
- Carbondisulfide
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,1-Dichloroethane
- Dichloromethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Ethylbenzene
- 2-Hexanone
- 4-Methyl-2-pentanone
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Vinyl acetate
- Vinyl chloride
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

CLP-022-R2 ❄ — **1 x 1 mL**
0.2 mg/mL each in MeOH — 36 comps.

- Acetone
- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- 2-Butanone
- Carbondisulfide
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,1-Dichloroethane
- Dichloromethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- 1,2-Dichloropropane
- cis-1,3-Dichloropropene *
- trans-1,3-Dichloropropene **
- Ethylbenzene
- 2-Hexanone
- 4-Methyl-2-pentanone
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Vinyl chloride
- m-Xylene
- o-Xylene
- p-Xylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Technical Note

AccuStandard provides CLP Volatile Target Compound List in a single solution in two versions. CLP-022-R2 (Vinyl acetate was removed from the TCL PLM03.1), for CLP laboratories following SOW OLM01.8 (August 1994). CLP-022-SET will continue to be available as an alternate source of reference material.

❄ ColdPAK required to maintain integrity of product.

Volatiles

Volatile Calibration Check Compounds (CCC)

CLP-020	0.2 mg/mL each in MeOH		**1 x 1 mL**
CLP-020-PAK	0.2 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-020-10X	2.0 mg/mL each in MeOH		**1 x 1 mL**
CLP-020-10X-PAK	2.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
			6 comps.

Chloroform
1,1-Dichloroethene
1,2-Dichloropropane
Ethylbenzene
Toluene
Vinyl chloride

Volatile System Performance Check Compounds (SPCC)

CLP-021	0.2 mg/mL each in MeOH		**1 x 1 mL**
CLP-021-PAK	0.2 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-021-10X	2.0 mg/mL each in MeOH		**1 x 1 mL**
CLP-021-10X-PAK	2.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
			5 comps.

Bromoform
Chlorobenzene
Chloromethane
1,1-Dichloroethane
1,1,2,2-Tetrachloroethane

Hexadecane Extraction Volatiles

CLP-BTEX	0.2 mg/mL each in MeOH		**1 x 1 mL**
CLP-BTEX-PAK	0.2 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-BTEX-10X	2.0 mg/mL each in MeOH		**1 x 1 mL**
CLP-BTEX-10X-PAK	2.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
			6 comps.

Benzene
Ethylbenzene
Toluene
m-Xylene
o-Xylene
p-Xylene

CLP-001B		**1 x 1 mL**
1.0 mg/mL each in MeOH		2 comps.

n-Decane
n-Nonane

Instrument Performance Check Solution

CLP-004	25 µg/mL in MeOH		**1 x 1 mL**
CLP-004-PAK	25 µg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-10X	250 µg/mL in MeOH		**1 x 1 mL**
CLP-004-10X-PAK	250 µg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-80X	2000 µg/mL in MeOH		**1 x 1 mL**
CLP-004-80X-PAK	2000 µg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-100X	2500 µg/mL in MeOH		**1 x 1 mL**
CLP-004-100X-PAK	2500 µg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-1000X	25 mg/mL in MeOH		**1 x 1 mL**

p-Bromofluorobenzene

Aldehydes and Ketones in Alcohol Solvents

Standards containing aldehydes and ketones in methanol are given shorter expiration periods because of their tendency to form acetals and ketals. AccuStandard adds stabilizers to inhibit this reaction. To enhance stability, freezer storage is required.

Purgeable Surrogate Standard

CLP-PS	0.25 mg/mL each in MeOH		**1 x 1 mL**
CLP-PS-PAK	0.25 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-PS-4X	1.0 mg/mL each in MeOH		**1 x 1 mL**
CLP-PS-4X-PAK	1.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-PS-10X	2.5 mg/mL each in MeOH		**1 x 1 mL**
CLP-PS-10X-PAK	2.5 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
			3 comps.

p-Bromofluorobenzene
1,2-Dichloroethane-d_4
Toluene-d_8

Purgeable Internal Standard

CLP-PI-0.25X	0.25 mg/mL each in MeOH		**1 x 1 mL**
CLP-PI-0.25X-PAK	0.25 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-PI	1.0 mg/mL each in MeOH		**1 x 1 mL**
CLP-PI-PAK	1.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-PI-2.5X	2.5 mg/mL each in MeOH		**1 x 1 mL**
CLP-PI-2.5X-PAK	2.5 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
			3 comps.

Bromochloromethane
Chlorobenzene-d_5
1,4-Difluorobenzene

Purgeable Internal/Surrogate Standard

CLP-PIPS			**1 x 1 mL**
CLP-PIPS-PAK		*SAVE*	**5 x 1 mL**
2.5 mg/mL each in MeOH			6 comps.

Bromochloromethane
p-Bromofluorobenzene
Chlorobenzene-d_5
1,2-Dichloroethane-d_4
1,4-Difluorobenzene
Toluene-d_8

Purgeable Organic Matrix Spiking Solution

CLP-003-R	0.25 mg/mL each in MeOH		**1 x 1 mL**
CLP-003-R-PAK	0.25 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-003-R-10X	2.5 mg/mL each in MeOH		**1 x 1 mL**
CLP-003-R-10X-PAK	2.5 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
			5 comps.

Benzene
Chlorobenzene
1,1-Dichloroethene
Toluene
Trichloroethene

Many Higher Concentrations are the Same Price

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Contract Laboratory Program (CLP)
Volatiles (continued)

CLP OLM 04.1 & 04.2 - Volatiles

The set of volatile standards along with a complete semi-volatile series meets OLM 04.1, and also can be used for OLM 04.2.

CLP OLM 04.1 & 04.2 - Volatiles Set
CLP-VOC-SET ❄ **9 x 1 mL (CLP-022-R3, M-601B, CLP-022K-10X, CLP-BTEX, CLP-PS-10X,CLP-PI-2.5X, CLP-PIPS, CLP-003R-10X, CLP-004-10X)**

CLP OLM 04.1 & 04.2 - Volatile Target Compound List

CLP-022-R3		**1x 1 mL**
CLP-022-R3-PAK	***SAVE***	**5 x 1 mL**
200 µg/mL in MeOH		40 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon disulfide
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 1,2-Dibromo-3-chloropropane
- Cyclohexane
- Dibromochloromethane
- 1,2-Dibromoethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *cis*-1,2-Dichloroethene
- *trans*-1,2-dichloroethene
- Dichloromethane
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Ethylbenzene
- Isopropylbenzene
- Methyl acetate
- Methylcyclohexane
- MtBE
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- 1,1,2-Trichloro-1,2,2-trifluoroethane
- *m*-Xylene
- *p*-Xylene
- *o*-Xylene

Gases

M-601B		**1 x 1 mL**
M-601B-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		6 comps.

- Bromomethane
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

Ketones

CLP-022K		**1 x 1 mL**
0.2 mg/mL each in MeOH		
CLP-022K-10X		**1 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

- Acetone
- 2-Butanone
- 2-Hexanone
- 4-Methyl-2-pentanone

CLP 04.1 & 04.2 Screening Mix

CLP-BTEX		**1 x 1 mL**
CLP-BTEX-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		6 comps.
CLP-BTEX-10X		**1 x 1 mL**
CLP-BTEX-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		6 comps.

- Benzene
- Ethylbenzene
- Toluene
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene

Purgeable Surrogate Standard

CLP-PS-10X		**1 x 1 mL**
CLP-PS-10X-PAK	***SAVE***	**5 x 1 mL**
2.5 mg/mL each in MeOH		3 comps.

- *p*-Bromofluorobenzene
- 1,2-Dichloroethane-d_4
- Toluene-d_8

Purgeable Internal Standard

CLP-PI-2.5X		**1 x 1 mL**
CLP-PI-2.5X-PAK	***SAVE***	**5 x 1 mL**
2.5 mg/mL each in MeOH		3 comps.

- Bromochloromethane
- Chlorobenzene-d_5
- 1,4-Difluorobenzene

Purgeable Internal/Surrogate Standard

CLP-PIPS		**1 x 1 mL**
CLP-PIPS-PAK	***SAVE***	**5 x 1 mL**
2.5 mg/mL each in MeOH		6 comps.

- Bromochloromethane
- *p*-Bromofluorobenzene
- Chlorobenzene-d_5
- 1,2-Dichloroethane-d_4
- 1,4-Difluorobenzene
- Toluene-d_8

Purgeable Organic Matrix Spiking Solution

CLP-003-R-10X		**1 x 1 mL**
CLP-003-R-10X-PAK	***SAVE***	**5 x 1 mL**
2.5 mg/mL each in MeOH		5 comps.

- Benzene
- Chlorobenzene
- 1,1-Dichloroethene
- Tol*uene*
- Trichloroethene

Instrument Performance Check Solution

CLP-004-10X		**1 x 1 mL**
CLP-004-10X-PAK	***SAVE***	**5 x 1 mL**
250 µg/mL in MeOH		
CLP-004-100X		**1 x 1 mL**
CLP-004-100X-PAK	***SAVE***	**5 x 1 mL**
2500 µg/mL in MeOH		

- *p*-Bromofluorobenzene

❄ ColdPAK required to maintain integrity of product.

Low Concentration SOW (10/92) Organic Analysis of Water

Volatile Target Compounds Mix

CLP-022-LC — **1 x 1 mL**

0.2 mg/mL each in MeOH (except indictated) — 42 comps.

Acetone (1.0 mg/mL)	1,2-Dichloroethane
Benzene	1,1-Dichloroethylene
Bromochloromethane	*cis*-1,2-Dichloroethylene
Bromodichloromethane	*trans*-1,2-Dichloroethylene
Bromoform	1,2-Dichloropropane
Bromomethane	*cis*-1,3-Dichloropropene *
2-Butanone (1.0 mg/mL)	*trans*-1,3-Dichloropropene **
Carbon disulfide	Ethylbenzene
Carbon tetrachloride	2-Hexanone (1.0 mg/mL)
Chlorobenzene	4-Methyl-2-pentanone (1.0 mg/mL)
Chloroethane	Styrene
Chloroform	1,1,2,2-Tetrachloroethane
Chloromethane	Tetrachloroethene
Dibromochloromethane	Toluene
1,2-Dibromo-3-chloropropane	1,1,1-Trichloroethane
1,2-Dibromoethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Vinyl chloride
1,4-Dichlorobenzene	*o*-Xylene
1,1-Dichloroethane	*m*-Xylene
Dichloromethane	*p*-Xylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Internal Standard Mix

CLP-LC-IS	25 µg/mL each in MeOH		**1 x 1 mL**
CLP-LC-IS-PAK	25 µg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-LC-IS-10X	0.25 mg/mL each in MeOH		**1 x 1 mL**
CLP-LC-IS-10X-PAK	0.25 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
CLP-LC-IS-100X	2.5 mg/mL each in MeOH		**1 x 1 mL**
CLP-LC-IS-100X-PAK	2.5 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**

3 comps.

Chlorobenzene-d_5	1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4	

Tuning Solution / Surrogate Standard Mix

CLP-004	25 µg/mL in MeOH		**1 x 1 mL**
CLP-004-PAK	25 µg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-10X	0.25 mg/mL in MeOH		**1 x 1 mL**
CLP-004-10X-PAK	0.25 mg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-100X	2.5 mg/mL in MeOH		**1 x 1 mL**
CLP-004-100X-PAK	2.5 mg/mL in MeOH	*SAVE*	**5 x 1 mL**
CLP-004-1000X	25 mg/mL in MeOH		**1 x 1 mL**

p-Bromofluorobenzene

Laboratory Control Sample Spiking Solution

CLP-LCS-V — **1 x 1 mL**

CLP-LCS-V-PAK — *SAVE* — **5 x 1 mL**

0.2 mg/mL each in MeOH — 12 comps.

Benzene	1,2-Dichloropropane
Bromoform	*cis*-1,3-Dichloropropene *
Carbon tetrachloride	Tetrachloroethene
1,2-Dibromoethane	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,2-Dichloroethane	Vinyl chloride

* may contain trace amounts of *trans* isomer

Storage Conditions

Most VOC formulations require refrigeration or freezer storage to inhibit adverse reactions among the components. It is imperative that these conditions are followed.

2-Part Label System

Smudgeproof, tear and solvent resistant * (Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration, date safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents: Methylene chloride, Methanol and Acetone

Priority Pollutant Standards

Priority Pollutants - Standards for Calibration of Capillary GC/MS

The EPA procedures call for fused silica capillary column analysis of priority pollutants. AccuStandard has assembled the following mixtures to be used in calibrating this analytical system. These mixtures are highly concentrated to aid in the establishment of response factors.

Base/Neutrals - Mix #1

Z-014A — **1 x 1 mL**
Z-014A-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 14 comps.

- 4-Bromophenylphenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 4-Chlorophenylphenyl ether
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- N-Nitrosodimethylamine
- N-Nitrosodi-*n*-propylamine
- N-Nitrosodiphenylamine

Base/Neutrals - Mix #2

Z-014B — **1 x 1 mL**
Z-014B-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 14 comps.

- Azobenzene
- 2-Chloronaphthalene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Isophorone
- Nitrobenzene
- 1,2,4-Trichlorobenzene

Benzidine Mix

Z-014F — **1 x 1 mL**
Z-014F-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- Benzidine
- 3,3'-Dichlorobenzidine

Phenols Mix

Z-014H — **1 x 1 mL**
Z-014H-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 11 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Technical Note

2,4-Dinitrophenol, 4-nitrophenol, and pentachlorophenol are susceptible to adsorption on active surfaces found in injection ports or contaminated columns.

Toxic Substances - Mix #1

Z-014D — **1 x 1 mL**
Z-014D-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- Benzoic acid
- 2-Methylphenol
- 4-Methylphenol
- 2,4,5-Trichlorophenol

Toxic Substances - Mix #2

Z-014E — **1 x 1 mL**
Z-014E-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

Internal Standards Mixture

Z-014J — **1 x 1 mL**
Z-014J-PAK *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

Z-014J-0.5X — **1 x 1 mL**
Z-014J-0.5X-PAK — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

PAH Mix

Z-014G — **1 x 1 mL**
Z-014G-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2: Benzene (50:50) — 16 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

PAH Mix

Z-014G-R — **1 x 1 mL**
Z-014G-R-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2: Benzene (50:50) — 17 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Carbazole
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

Expanded PAH Mix

Z-014G-FL — **1 x 1 mL**
2.0 mg/mL each in Dichloromethane:Benzene (50:50) — 18 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene
- 1-Methylnaphthalene
- 2-Methylnaphthalene

Priority Pollutants - Standards for Calibration of Capillary GC/MS - Complete Sets (Continued)

Z-014R-SET **9 x 1 mL**
Set includes:

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014C	Pesticides - Mix #1
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix
Z-014J	Internal Standard Mix

Z-014R-1-SET **9 x 1 mL**
Set includes:

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014C-R	Pesticides - Mix #2
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix
Z-014J	Internal Standard Mix

Z-014R-2-SET **7 x 1 mL**
Set includes:

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G	PAH Mix
Z-014H	Phenols Mix

Z-014R-3-SET **7 x 1 mL**
Set includes:

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix

Order a complete Set and Save

Pesticides - Mix #1

Z-014C **1 x 1 mL**
Z-014C-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50)
16 comps.

Aldrin	Dieldrin
α-BHC	Endosulfan I
β-BHC	Endosulfan II
γ-BHC	Endosulfan sulfate
δ-BHC	Endrin
4,4'-DDD	Endrin aldehyde
4,4'-DDE	Heptachlor
4,4'-DDT	Heptachlor epoxide

Pesticides - Mix #2

Z-014C-R **1 x 1 mL**
Z-014C-R-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50)
20 comps.

Aldrin	Dieldrin
α-BHC	Endosulfan I
β-BHC	Endosulfan II
γ-BHC	Endosulfan sulfate
δ-BHC	Endrin
α-Chlordane	Endrin aldehyde
γ-Chlordane	Endrin ketone
4,4'-DDD	Heptachlor
4,4'-DDE	Heptachlor epoxide
4,4'-DDT	Methoxychlor

Pesticides - Mix #3

Z-014C-R2 **1 x 1 mL**
Z-014C-R2-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50)
18 comps.

Aldrin	Endosulfan I
α-BHC	Endosulfan II
β-BHC	Endosulfan sulfate
γ-BHC	Endrin
δ-BHC	Endrin aldehyde
4,4'-DDD	Endrin ketone
4,4'-DDE	Heptachlor
4,4'-DDT	Heptachlor epoxide
Dieldrin	Methoxychlor

Tuning Standards for EPA Methods

M-625-TS **1 x 1 mL**
M-625-TS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL each in CH_2Cl_2
4 comps.

Benzidine	DFTPP
p,p'-DDT	Pentachlorophenol

CLP-TS **1 x 1 mL**
CLP-TS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL in CH_2Cl_2

Perfluorokerosene

EPA Method 625 GC/MS Calibration Standards

M-625C-SET **set of 5 x 1 mL**

Individual Solutions M-625C-# **each**
At stated conc. in CH_2Cl_2

(1) Benzidine (50 µg/mL)
(2) Pentachlorophenol (25 µg/mL)
(3) Decafluorotriphenylphosphine (25 µg/mL)
(4) Benzidine (50 µg/mL) + DFTPP (25 µg/mL)
(5) Pentachlorophenol (25 µg/mL) + DFTPP (25 µg/mL)

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Base/Neutral & Acid Composite Mixtures
For CLP Semi-Volatiles Analysis

CLP Target List

The following composite mixes were formulated to allow flexibility of preparing a final semi-volatile mix to meet your laboratory's specific needs. CLP-HC-BN-SET contains 46 of the Base-Neutral analytes on the CLP semi-volatile Target List . These Base-Neutral analytes are now available in a two ampule set to extend the useful life of your stock calibration standards. CLP-HC-A contains the acidic compounds found in the CLP Target List. An additional composite mix can then be selected to complement your exact requirements for semi-volatile analysis.

Base-Neutral

CLP-HC-BN-R 44 comps.
2.0 mg/mL each in Benzene : CH_2Cl_2: AcCN (40:40:20)

- Acenaphthene
- Acenaphthylene
- Anthracene
- Azobenzene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[a]pyrene
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl)ether
- bis(2-Chloro-1-methylethyl) ether
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz[a,h]anthracene
- Di-*n*-butyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Diethyl phthalate
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-cd]pyrene
- Isophorone
- Naphthalene
- Nitrobenzene
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- Phenanthrene
- Pyrene
- 1,2,4-Trichlorobenzene

Technical Note

Azobenzene was substituted for 1,2-Diphenylhydrazine because the 1,2-Diphenylhydrazine loses hydrogen to form azobenzene under GC operating conditions.

Benzidine

Z-014F 2 comps.
2.0 mg/mL each in MeOH

- Benzidine
- 3,3'-Dichlorobenzidine

CLP-HC-BN-R		**1 x 1 mL**
CLP-HC-BN-R-PAK	***SAVE***	**5 x 1 mL**
Z-014F		**1 x 1 mL**

CLP Target List Set

CLP-HC-BN-SET		**2 x 1 mL (CLP-HC-BN-R, Z-014F)**
CLP-HC-BN-SET-PAK	***SAVE***	**5 x (2 x 1 mL)**

Acid Composite Mix

CLP-HC-A-R		**1 x 1 mL**
CLP-HC-A-R-PAK	***SAVE***	**5 x 1 mL**

2.0 mg/mL each in CH_2Cl_2 19 comps.

- Benzoic acid
- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- *o*-Cresol
- *p*-Cresol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 4,6-Dinitro-2-methylphenol
- 2,4-Dinitrophenol
- Ethyl methanesulfonate
- Methyl methanesulfonate
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Additional Composite Mixtures

Composite #1

Z-014E **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

Composite #2

Z-014E-R **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 9 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Pyridine

Composite #3

Z-014E-R3 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 10 comps.

- Aniline
- Benzyl alcohol
- Carbazole
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Pyridine

Thousands of Standards, just a click away

AccuStandard.com

GC/MS Analysis of Semi-Volatiles

Method Analytes Mixture
CLP-TCLSV — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 3 comps.

- Benzoic acid
- Benzyl alcohol
- N-Nitrosodimethylamine

Calibration Check Compounds (CCC) Set
CLP-011-SET — **2 x 1 mL (CLP-011A, CLP-011B)**

Base/Neutrals
CLP-011A — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 7 comps.

- Acenaphthene
- Benzo[a]pyrene
- 1,4-Dichlorobenzene
- Di-*n*-octylphthalate
- Hexachlorobutadiene
- Fluoranthene
- N-Nitroso-diphenylamine

Acids
CLP-011B — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Base/Neutrals & Acids Matrix Standard Spiking Sets

CLP-007-R-SET	**2 x 1 mL (CLP-007A, CLP-007-2)**
CLP-007-R-SET-PAK	**5 x (2 x 1 mL) (CLP-007A, CLP-007-2)**
CLP-007-SET	**2 x 1 mL (CLP-007A, CLP-007B)**

Base/Neutrals
CLP-007A — **1 x 1 mL**
1.0 mg/mL each in MeOH — 6 comps.

- Acenaphthene
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- N-Nitroso-di-*n*-propylamine
- Pyrene
- 1,2,4-Trichlorobenzene

Acids
CLP-007-2 — **1 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.
CLP-007B — **1 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

- 2-Chlorophenol
- 4-Chloro-3-methylphenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol

Surrogate Standard
CLP-BNS-3-2X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2

- 4-Terphenyl-d_{14}

Internal Standards Mixture
Z-014J — **1 x 1 mL**
Z-014J-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

System Performance Check Compounds (SPCC)
CLP-010 — **1 x 1 mL**
0.2 mg/mL each in CH_2Cl_2
CLP-010-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- 2,4-Dinitrophenol
- Hexachlorocyclopentadiene
- 4-Nitrophenol
- N-nitroso-di-*n*-propylamine

Semi-Volatile Organic Extract Calibration (Screening Mix)
CLP-009 — **1 x 1 mL**
0.1 mg/mL each in CH_2Cl_2
CLP-009-10X — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 3 comps.

- Di-*n*-octylphthalate
- Phenanthrene
- Phenol

Initial Calibration Target Compounds List
CLP-012 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- Benzoic acid
- 2,4-Dinitrophenol
- 4,6-Dinitro-2-methylphenol
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- 4-Nitrophenol
- Pentachlorophenol
- 2,4,5-Trichlorophenol

Acid Surrogate Standard
CLP-AS — **1 x 1 mL**
CLP-AS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH
CLP-AS-10X — **1 x 1 mL**
CLP-AS-10X-PAK — *SAVE* — **5 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

- 2-Fluorophenol
- Phenol-d_5
- 2,4,6-Tribromophenol

Base/Neutrals Surrogate Standard
CLP-BNS — **1 x 1 mL**
CLP-BNS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2
CLP-BNS-10X — **1 x 1 mL**
CLP-BNS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 3 comps.

- 2-Fluorobiphenyl
- Nitrobenzene-d_5
- *p*-Terphenyl-d_{14}

Matrix Spike *(SW 846 / Method 8270C/D)*
CLP-007-WL-50ML — **1 x 50 mL**
At stated conc. in MeOH — 11 comps.

4-Chloro-3-methyl phenol	(200 µg/mL)	1,4-Dichlorobenzene	(100 µg/mL)
2-Chlorophenol	(200 µg/mL)	2,4-Dinitrotoluene	(100 µg/mL)
4-Nitrophenol	(200 µg/mL)	N-Nitrosodi-*n*-propylamine	(100 µg/mL)
Pentachlorophenol	(200 µg/mL)	Pyrene	(100 µg/mL)
Phenol	(200 µg/mL)	1,2,4-Trichlorobenzene	(100 µg/mL)
Acenaphthene	(100 µg/mL)		

Matrix Spike *(3/90 SOW / Method 8270C/D)*
CLP-007R-WL-50ML — **1 x 50 mL**
At stated conc. in MeOH — 11 comps.

4-Chloro-3-methyl phenol	(150 µg/mL)	1,4-Dichlorobenzene	(100 µg/mL)
2-Chlorophenol	(150 µg/mL)	2,4-Dinitrotoluene	(100 µg/mL)
4-Nitrophenol	(150 µg/mL)	N-Nitrosodi-*n*-propylamine	(100 µg/mL)
Pentachlorophenol	(150 µg/mL)	Pyrene	(100 µg/mL)
Phenol	(150 µg/mL)	1,2,4-Trichlorobenzene	(100 µg/mL)
Acenaphthene	(100 µg/mL)		

Base/Neutral & Acid Composite Mixtures
For CLP Semi-Volatiles Analysis

August 1994 Statement of Work

Acid Surrogate Standards

CLP-029 — **1 x 1 mL**
CLP-029-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH

CLP-029-0.75X — **1 x 1 mL**
CLP-029-0.75X-PAK — *SAVE* — **5 x 1 mL**
1.5 mg/mL each in MeOH — 4 comps.

- 2-Chlorophenol-d_4
- 2-Fluorophenol
- Phenol-d_5
- 2,4,6-Tribromophenol

Semi-Volatile Surrogate Mixes

CLP-031-R — **1 x 1 mL**
CLP-031-R-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH:CH_2Cl_2 (50:50) — 8 comps.

2-Chlorophenol-d_4	(1.5 mg/mL)	Nitrobenzene-d_5	(1.0 mg/mL)
1,2-Dichlorobenzene-d_4	(1.0 mg/mL)	Phenol-d_5	(1.5 mg/mL)
2-Fluorobiphenyl	(1.0 mg/mL)	*p*-Terphenyl-d_{14}	(1.0 mg/mL)
2-Fluorophenol	(1.5 mg/mL)	2,4,6-Tribromophenol	(1.5 mg/mL)

CLP-031-R2 — **1 x 1 mL**
CLP-031-R2-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 8 comps.

- 2-Chlorophenol-d_4
- 1,2-Dichlorobenzene-d_4
- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d_5
- Phenol-d_5
- *p*-Terphenyl-d_{14}
- 2,4,6-Tribromophenol

Base/Neutral Surrogate Standard

CLP-030 — **1 x 1 mL**
CLP-030-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 4 comps.

- 1,2-Dichlorobenzene-d_4
- 2-Fluorobiphenyl
- Nitrobenzene-d_5
- *p*-Terphenyl-d_{14}

Instrument Performance Check Solution

CLP-033 — **1 x 1 mL**
CLP-033-PAK — *SAVE* — **5 x 1 mL**
0.25 mg/mL in CH_2Cl_2

- Decafluorotriphenylphosphine (DFTPP)

GC/MS Tuning Solution

CLP-TS — **1 x 1 mL**
CLP-TS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL in CH_2Cl_2

- Perfluorokerosene

GPC Solutions for Sample Clean-up

Semi-Volatiles (Gel Permeation)

GPC Calibration Standard Solution

CLP-027 — **1 x 1 mL**
CLP-027-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(250 mg/mL)	Perylene	(0.2 mg/mL)
bis(2-Ethylhexyl)phthalate	(10 mg/mL)	Sulfur	(0.8 mg/mL)
Methoxychlor	(2 mg/mL)		

8/94 SOW OLM03.1

CLP-027-R2 — **1 x 1 mL**
CLP-027-R2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(250 mg/mL)	Perylene	(0.2 mg/mL)
bis(2-Ethylhexyl)phthalate	(5 mg/mL)	Sulfur	(0.8 mg/mL)
Methoxychlor	(1 mg/mL)		

Method 3640 - GPC Calibration Solutions and Set

Solution A

CLP-008A — **1 x 1 mL**
200 mg/mL in CH_2Cl_2

- Corn Oil

Solution B

CLP-008B-R — **1 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 2 comps.

- bis(2-Ethylhexyl)phthalate
- Pentachlorophenol

CLP-008-R-SET — **2 x 1 mL (CLP-008A, CLP-008B-R)**

Low Concentration SOW Semi-Volatiles

Base/Neutrals - Mix #1

Z-014A-LC **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 13 comps.

- 4-Bromophenylphenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 4-Chlorophenylphenyl ether
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- N-Nitrosodiphenylamine
- N-Nitrosodi-n-propylamine

Base/Neutrals - Mix #2

Z-014B-LC **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 14 comps.

- 4-Chloroaniline
- 2-Chloronaphthalene
- Dibenzofuran
- 3,3'-Dichlorobenzidine
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Isophorone
- 2-Methylnaphthalene
- Nitrobenzene
- 1,2,4-Trichlorobenzene

Base/Neutrals - Mix #3

Z-014K-LC **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 8 comps.

- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- 4-Nitrophenol
- Pentachlorophenol
- 2,4,5-Trichlorophenol

Polynuclear Aromatic Hydrocarbon Mix

Z-014G **1 x 1 mL**
Z-014G-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene (50:50) 16 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i,]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

Phenols Mixture

Z-014H-LC **1 x 1 mL**
Z-014H-LC-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 9 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2-Methylphenol
- 4-Methylphenol
- 2-Nitrophenol
- Phenol
- 2,4,6-Trichlorophenol

Laboratory Control Sample Spiking Solution

CLP-LCS-SV-SET **2 x 1 mL**

CLP-LCS-SV-R1 **1 x 1 mL**
At stated conc. in Acetone:MeOH (90:10)
14 comps.

Benzo[a]pyrene	(20 µg/mL)
2-Chlorophenol	(40 µg/mL)
bis(2-Chloroethyl) ether	(20 µg/mL)
Diethylphthalate	(20 µg/mL)
2,4-Dinitrotoluene	(20 µg/mL)
Hexachlorobenzene	(20 µg/mL)
Hexachloroethane	(20 µg/mL)
Isophorone	(20 µg/mL)
Naphthalene	(20 µg/mL)
N-Nitrosos-di-*n*-propylamine	(20 µg/mL)
N-Nitrosodiphenylamine	(20 µg/mL)
Phenol	(40 µg/mL)
1,2,4-Trichlorobenzene	(20 µg/mL)
2,4,6-Trichlorophenol	(40 µg/mL)

CLP-LCS-SV-ADD **1 x 1 mL**
40 µg/mL in Acetone:MeOH (9:1)

- 4-Chloroaniline

Tuning Solution

M-625C-3-2X **1 x 1 mL**
50 µg/mL in CH_2Cl_2

- Decafluorotriphenylphosphine

Internal Standard

Z-014J-0.5X **1 x 1 mL**
Z-014J-0.5X-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standards

CLP-LC-SS-1 **1 x 1 mL**
CLP-LC-SS-1-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in MeOH:CH_2Cl_2 (20:80)
5 comps.

- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d_5
- Phenol-d_5
- *p*-Terphenyl-d_{14}

CLP-LC-SS-2 **1 x 1 mL**
CLP-LC-SS-2-PAK ***SAVE*** **5 x 1 mL**
6.0 mg/mL in MeOH

- 2,4,6-Tribromophenol

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

CLP OLM 04.1 & 04.2 - Semi-Volatiles

Base Neutrals Mix #1
CLP-HC-SV-MIX1 — **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 13 comps.

- Benzyl butyl phthalate
- 4-Bromophenyl phenyl ether
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 4-Chlorophenyl phenyl ether
- Dibutyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine

CLP Base Neutral & PAH Mix #2
CLP-HC-SV-MIX2 — **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 : Benzene (75:25) — 31 comps.

- Acenaphthene
- Acenaphthylene
- Acetophenone
- Anthracene
- Atrazine
- Benzaldehyde
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[a]pyrene
- Biphenyl
- e-Caprolactam
- Carbazole
- 2-Chloronaphthalene
- Chrysene
- Dibenz[a,h]anthracene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-cd]pyrene
- Isophorone
- Naphthalene
- Nitrobenzene
- Phenanthrene
- Pyrene

CLP Toxic Substance Mix #4
CLP-HC-SV-MIX4 — **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 7 comps.

- 4-Chloroaniline
- Dibenzofuran
- 3,3'-Dichlorobenzidine
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

CLP OLM 04.1 and 04.2 - Base Neutrals
CLP-HC-SVR-SET — **3 x 1 mL**
(CLP-HC-SV-MIX1, CLP-HC-SV-MIX2, CLP-HC-SV-MIX4)

Phenols
CLP-HC-A-R5 — **1 x 1 mL**
CLP-HC-A-R5-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 14 comps.

- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Chlorophenol
- 2-Methyl-4,6-dinitrophenol
- *o*-Cresol
- *p*-Cresol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Base/Neutral Matrix Spike Solution
CLP-BN-MS — **1 x 1 mL**
CLP-BN-MS-PAK — *SAVE* — **5 x 1 mL**
1000 µg/mL each in MeOH — 4 comps.

- Acenaphthene
- 2,4-Dinitrotoluene
- N-Nitrosodi-*n*-propylamine
- Pyrene

Semi-Volatile Organic Extract Calibration (Screening Mix)
CLP-009-10X — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 3 comps.

- Di-*n*-octylphthalate
- Phenanthrene
- Phenol

Instrument Performance Check Solution
CLP-033 — **1 x 1 mL**
CLP-033-PAK — *SAVE* — **5 x 1 mL**
0.25 mg/mL in CH_2Cl_2

- Decafluorotriphenylphosphine (DFTPP)

Acids
CLP-007-2 — **1 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.

- 2-Chlorophenol
- 4-Chloro-3-methylphenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol

Internal Standards Mixture
Z-014J — **1 x 1 mL**
Z-014J-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Semi-Volatile Surrogate Mixture
CLP-031-R — **1 x 1 mL**
CLP-031-R-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH:CH_2Cl_2 (50:50) — 8 comps.

2-Chlorophenol-d_4	(1.5 mg/mL)	Nitrobenzene-d_5	(1.0 mg/mL)
1,2-Dichlorobenzene-d_4	(1.0 mg/mL)	Phenol-d_5	(1.5 mg/mL)
2-Fluorobiphenyl	(1.0 mg/mL)	*p*-Terphenyl-d_{14}	(1.0 mg/mL)
2-Fluorophenol	(1.5 mg/mL)	2,4,6-Tribromophenol	(1.5 mg/mL)

Pesticides Mixture
Z-014C-R — **1 x 1 mL**
Z-014C-R-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50) — 20 comps.

- Aldrin
- α-BHC
- β-BHC
- γ-BHC
- δ-BHC
- α-Chlordane
- γ-Chlordane
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Endrin ketone
- Heptachlor
- Heptachlor epoxide
- Methoxychlor

Technical Note

Poor recoveries for endrin and DDT can result from injector port liner degradation. Try replacing the liner and seal. Most times this will correct the problem. Removing the first few inches of a capillary column can also help. Since elevated temperatures contribute to the breakdown problem, using a lower injection port temperature may improve this issue.

CLP Surrogate Spiking Solution
CLP-031-R-WL-25ML — **1 x 25 mL**
CLP-031-R-WL-50ML — **1 x 50 mL**
At stated conc. in MeOH — 8 comps.

2-Chlorophenol-d_4	(150 µg/mL)	Nitrobenzene-d_5	(100 µg/mL)
1,2-Dichlorobenzene-d_4	(100 µg/mL)	Phenol-d_6	(150 µg/mL)
2-Fluorobiphenyl	(100 µg/mL)	*p*-Terphenyl-d_{14}	(100 µg/mL)
2-Fluorophenol	(150 µg/mL)	2,4,6-Tribromophenol	(150 µg/mL)

Contract Laboratory Program (CLP)
Pesticide Mixtures

CLP - Pesticide Mixtures

CLP-018-10X — **1 x 1 mL**
CLP-018-10X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Isooctane — 11 comps.

Aldrin	(1.0 µg/mL)	Endosulfan II	(2.0 µg/mL)
γ-BHC	(0.5 µg/mL)	Endrin aldehyde	(2.5 µg/mL)
p,p'-DDT	(2.0 µg/mL)	Heptachlor	(1.0 µg/mL)
Dibutylchlorendate	(5.0 µg/mL)	Heptachlor epoxide	(1.0 µg/mL)
Dieldrin	(1.0 µg/mL)	Methoxychlor	(10 µg/mL)
Endosulfan I	(1.0 µg/mL)		

CLP-019-10X — **1 x 1 mL**
CLP-019-10X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Isooctane — 12 comps.

Aldrin	(1.0 µg/mL)	p,p'-DDD	(2.0 µg/mL)
α-BHC	(0.5 µg/mL)	p,p'-DDE	(1.0 µg/mL)
β-BHC	(1.0 µg/mL)	Dibutylchlorendate	(5.0 µg/mL)
δ-BHC	(1.0 µg/mL)	Endosulfan sulfate	(2.0 µg/mL)
α-Chlordane	(1.0 µg/mL)	Endrin	(1.0 µg/mL)
γ-Chlordane	(1.0 µg/mL)	Endrin ketone	(2.0 µg/mL)

Pesticide Set

CLP-018/019-10X-SET — **2 x 1 mL (CLP-018-10X, CLP-019-10X)**

CLP - Pesticide Surrogates

CLP-032-R — **1 x 1 mL**
CLP-032-R-PAK — *SAVE* — **5 x 1 mL**
200 µg/mL each in Acetone — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

CLP-034 — **1 x 1 mL**
CLP-034-PAK — *SAVE* — **5 x 1 mL**
200 µg/mL each in Acetone — 2 comps.

Dibutylchlorendate — Tetrachloro-*m*-xylene

CLP-PES-A — **1 x 1 mL**
CLP-PES-A-PAK — *SAVE* — **5 x 1 mL**
200 µg/mL in Acetone
CLP-PES-A-20X — **1 x 1 mL**
4000 µg/mL in Acetone

Dibutylchlorendate

Pesticide Calibration Mixtures - Statement of Work 2/88 to 8/94

Working Level Pesticide Standard

At stated conc. (ng/mL) in Isooctane — 11 comps.

Compound	Level 1 CLP-023R	2 (-4X)	3 (-10X)	4 (-30X)	5 (-160X)
α-BHC	50	200	500	1,500	8,000
γ-BHC	50	200	500	1,500	8,000
p,p'-DDD	100	400	1,000	3,000	16,000
p,p'-DDT	100	400	1,000	3,000	16,000
Decachlorobiphenyl	100	400	1,000	3,000	16,000
Dieldrin	100	400	1,000	3,000	16,000
Endosulfan I	50	200	500	1,500	8,000
Endrin	100	400	1,000	3,000	16,000
Heptachlor	50	200	500	1,500	8,000
Methoxychlor	500	2,000	5,000	15,000	80,000
Tetrachloro-*m*-xylene	50	200	500	1,500	8,000

CLP-023R-CAL-SET — **3 x 1 mL (Level 1, Level 2, Level 5)**

Level 1	**CLP-023R**	**1 mL**
Level 2	**CLP-023R-4X**	**1 mL**
Level 3	**CLP-023R-10X**	**1 mL**
Level 4	**CLP-023R-30X**	**1 mL**
Level 5	**CLP-023R-160X**	**1 mL**

Level 2 Daily QC (for mid level curves)

CLP-023R-WL-4X-10ML — **1 x 10 mL**
CLP-023R-WL-4X-25ML — **1 x 25 mL**
CLP-023R-WL-4X-100ML — **1 x 100 mL**
At stated conc. in Isooctane — 11 comps.

α-BHC	(20 ng/mL)	Endosulfan I	(20 ng/mL)
γ-BHC	(20 ng/mL)	Endrin	(40 ng/mL)
p,p'-DDD	(40 ng/mL)	Heptachlor	(20 ng/mL)
p,p'-DDT	(40 ng/mL)	Methoxychlor	(200 ng/mL)
Decachlorobiphenyl	(40 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Dieldrin	(40 ng/mL)		

Ready-to-Inject

Working Level Pesticide Standard

At stated conc. (ng/mL) in Isooctane — 13 comps.

Compound	Level 1 CLP-024R	2 (-4X)	3 (-10X)	4 (-30X)	5 (-160X)
Aldrin	50	200	500	1,500	8,000
β-BHC	50	200	500	1,500	8,000
δ-BHC	50	200	500	1,500	8,000
α-Chlordane	50	200	500	1,500	8,000
γ-Chlordane	50	200	500	1,500	8,000
p,p'-DDE	100	400	1,000	3,000	16,000
Decachlorobiphenyl	100	400	1,000	3,000	16,000
Endosulfan II	100	400	1,000	3,000	16,000
Endosulfan sulfate	100	400	1,000	3,000	16,000
Endrin aldehyde	100	400	1,000	3,000	16,000
Endrin ketone	100	400	1,000	3,000	16,000
Heptachlor epoxide	50	200	500	1,500	8,000
Tetrachloro-*m*-xylene	50	200	500	1,500	8,000

CLP-024R-CAL-SET — **3 x 1 mL (Level 1, Level 2, Level 5)**

Level 1	**CLP-024R**	**1 mL**
Level 2	**CLP-024R-4X**	**1 mL**
Level 3	**CLP-024R-10X**	**1 mL**
Level 4	**CLP-024R-30X**	**1 mL**
Level 5	**CLP-024R-160X**	**1 mL**

Level 2 Daily QC (for mid level curves)

CLP-024R-WL-4X-10ML — **1 x 10 mL**
CLP-024R-WL-4X-25ML — **1 x 25 mL**
CLP-024R-WL-4X-100ML — **1 x 100 mL**
At stated conc. in Isooctane — 13 comps.

Aldrin	(20 ng/mL)	Endosulfan II	(40 ng/mL)
β-BHC	(20 ng/mL)	Endosulfan sulfate	(40 ng/mL)
δ-BHC	(20 ng/mL)	Endrin aldehyde	(40 ng/mL)
α-Chlordane	(20 ng/mL)	Endrin ketone	(40 ng/mL)
γ-Chlordane	(20 ng/mL)	Heptachlor epoxide	(20 ng/mL)
p,p'-DDE	(40 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(40 ng/mL)		

Pesticide Calibration Sets

CLP-023R/024R-SET — **2 x 1 mL (CLP-023R, CLP-024R)**
CLP-023R/024R-4X-SET — **2 x 1 mL (CLP-023R-4X, CLP-024R-4X)**
CLP-023R/024R-40X-SET — **2 x 1 mL (CLP-023R-40X, CLP-024R-40X)**
CLP-023R/024R-160X-SET — **2 x 1 mL (CLP-023R-160X, CLP-024R-160X)**

Pesticides
Working Levels

CLP - Pesticides

Evaluation Standard Mixture
CLP-017 — **1 x 1 mL**
CLP-017-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Isooctane — 4 comps.

Aldrin	(1 µg/mL)	Dibutylchlorendate	(1 µg/mL)
4,4'-DDT	(2 µg/mL)	Endrin	(2 µg/mL)

Florisil Cartridge Check Solution
CLP-FC — **1 x 1 mL**
CLP-FC-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL in Acetone

2,4,5-Trichlorophenol

Pesticide Matrix Spiking Solutions
CLP-026-R2 — **1 x 1 mL**
CLP-026-R2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 6 comps.

Aldrin	(5 µg/mL)	Dieldrin	(10 µg/mL)
γ-BHC	(5 µg/mL)	Endrin	(10 µg/mL)
4,4'-DDT	(10 µg/mL)	Heptachlor	(5 µg/mL)

CLP-026-R2-10X — **1 x 1 mL**
CLP-026-R2-10X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 6 comps.

Aldrin	(50 µg/mL)	Dieldrin	(100 µg/mL)
γ-BHC	(50 µg/mL)	Endrin	(100 µg/mL)
4,4'-DDT	(100 µg/mL)	Heptachlor	(50 µg/mL)

Pesticide Matrix Spiking Solution
CLP-026-R2-WL — **1 x 1 mL**
CLP-026-R2-WL-25ML — **1 x 25 mL**
CLP-026-R2-WL-50ML — **1 x 50 mL**
At stated conc. in Acetone — 6 comps.

Aldrin	(0.5 µg/mL)	Dieldrin	(1.0 µg/mL)
γ-BHC	(0.5 µg/mL)	Endrin	(1.0 µg/mL)
4,4'-DDT	(1.0 µg/mL)	Heptachlor	(0.5 µg/mL)

Resolution Check Solution
CLP-028-WL — **1 x 1 mL**
CLP-028-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 9 comps.

γ-Chlordane	(10 ng/mL)	Endosulfan sulfate	(20 ng/mL)
Endosulfan I	(10 ng/mL)	Endrin ketone	(20 ng/mL)
p,p'-DDE	(20 ng/mL)	Methoxychlor	(100 ng/mL)
Decachlorobiphenyl	(20 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Dieldrin	(20 ng/mL)		

High Conc. Pesticide Matrix Spiking Solutions
For Water
CLP-014-1000X — **1 x 1 mL**
CLP-014-1000X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 6 comps.

Aldrin	(200 µg/mL)	Endrin	(500 µg/mL)
4,4'-DDT	(500 µg/mL)	Heptachlor	(200 µg/mL)
Dieldrin	(500 µg/mL)	Lindane	(200 µg/mL)

For Soil/Sediment
CLP-016-1000X — **1 x 1 mL**
CLP-016-1000X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 6 comps.

Aldrin	(2,000 µg/mL)	Endrin	(5,000 µg/mL)
4,4'-DDT	(5,000 µg/mL)	Heptachlor	(2,000 µg/mL)
Dieldrin	(5,000 µg/mL)	Lindane	(2,000 µg/mL)

Laboratory Control Sample Spiking Solution
CLP-LCS-P-1000X — **1 x 1 mL**
CLP-LCS-P-1000X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 7 comps.

γ-BHC	(100 µg/mL)	Endosulfan sulfate	(200 µg/mL)
γ-Chlordane	(100 µg/mL)	Endrin	(200 µg/mL)
Dieldrin	(200 µg/mL)	Heptachlor epoxide	(100 µg/mL)
4,4'-DDE	(200 µg/mL)		

Performance Evaluation Solution
CLP-025-WL — **1 x 1 mL**
CLP-025-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 8 comps.

α-BHC	(10 ng/mL)	Decachlorobiphenyl	(20 ng/mL)
β-BHC	(10 ng/mL)	Endrin	(50 ng/mL)
γ-BHC	(10 ng/mL)	Methoxychlor	(250 ng/mL)
4,4'-DDT	(100 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)

PREP NOTES

The addition of 1 mL of surrogate spiking mixture to each sample is sufficient to check the extraction efficiency.

Pesticide Surrogate Mixtures
CLP-032R-WL-0.2X-10ML — **1 x 10 mL**
CLP-032R-WL-0.2X-50ML — **1 x 50 mL**
CLP-032R-WL-0.2X-100ML — **1 x 100 mL**
0.2 µg/mL each in Acetone — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

Pesticide and PCBs

Performance Evaluation Solution
CLP-025 — **1 x 1 mL**
CLP-025-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Isooctane — 8 comps.

α-BHC	(100 ng/mL)	Decachlorobiphenyl	(200 ng/mL)
β-BHC	(100 ng/mL)	Endrin	(500 ng/mL)
γ-BHC	(100 ng/mL)	Methoxychlor	(2500 ng/mL)
4,4'-DDT	(1000 ng/mL)	Tetrachloro-*m*-xylene	(200 ng/mL)

Resolution Mixture
CLP-028 — **1 x 1 mL**
CLP-028-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Isooctane — 9 comps.

γ-Chlordane	(100 ng/mL)	Dieldrin	(200 ng/mL)
Endosulfan I	(100 ng/mL)	Endosulfan sulfate	(200 ng/mL)
p,p'-DDE	(200 ng/mL)	Endrin ketone	(200 ng/mL)
Decachlorobiphenyl	(200 ng/mL)	Methoxychlor	(1000 ng/mL)
		Tetrachloro-*m*-xylene	(200 ng/mL)

Polychlorinated Biphenyls, Chlordane & Toxaphene
Each at 1,000 µg/mL in Hexane — *SAVE*

Aroclors #	Cat. No. 1 mL	Cat. No. (5 x 1 mL) PAK
Aroclor 1016	C-216S-H-10X	C-216S-H-10X-PAK
Aroclor 1221	C-221S-H-10X	C-221S-H-10X-PAK
Aroclor 1232	C-232S-H-10X	C-232S-H-10X-PAK
Aroclor 1242	C-242S-H-10X	C-242S-H-10X-PAK
Aroclor 1248	C-248S-H-10X	C-248S-H-10X-PAK
Aroclor 1254	C-254S-H-10X	C-254S-H-10X-PAK
Aroclor 1260	C-260S-H-10X	C-260S-H-10X-PAK
Aroclor 1262	C-262S-H-10X	C-262S-H-10X-PAK
Aroclor 1268	C-268S-H-10X	C-268S-H-10X-PAK
Pesticides		
Chlordane	P-017S-H-10X	P-017S-H-10X-PAK
Toxaphene	P-093S-H-10X	P-093S-H-10X-PAK

Aroclors
Working Levels

Aroclors at Working Levels

Aroclors 1016/1260 with Surrogates

CLP-216/260-WL — **1 x 1 mL**
CLP-216/260-WL-5ML — **1 x 5 mL**
CLP-216/260-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 4 comps.

Aroclor 1016	(100 ng/mL)	Decachlorobiphenyl	(20 ng/mL)
Aroclor 1260	(100 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)

Aroclor 1221 with Surrogates

CLP-221-WL — **1 x 1 mL**
CLP-221-WL-5ML — **1 x 5 mL**
CLP-221-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 3 comps.

Aroclor 1221	(200 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Aroclor 1232 with Surrogates

CLP-232-WL — **1 x1 mL**
CLP-232-WL-5ML — **1 x 5 mL**
CLP-232-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 3 comps.

Aroclor 1232	(100 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Aroclor 1242 with Surrogates

CLP-242-WL — **1 x 1 mL**
CLP-242-WL-5ML — **1 x 5 mL**
CLP-242-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 3 comps.

Aroclor 1242	(100 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Technical Note

The profiles of some Aroclor products may not always look the same, but the percent total chlorine by weight will be identical.

Aroclor 1248 with Surrogates

CLP-248-WL — **1 x 1 mL**
CLP-248-WL-5ML — **1 x 5 mL**
CLP-248-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 3 comps.

Aroclor 1248	(100 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Aroclor 1254 with Surrogates

CLP-254-WL — **1 x 1 mL**
CLP-254-WL-5ML — **1 x 5 mL**
CLP-254-WL-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 3 comps.

Aroclor 1254	(100 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Toxaphene with Surrogates

P-093-WL-10X — **1 x 1 mL**
P-093-WL-10X-5ML — **1 x 5 mL**
P-093-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane — 3 comps.

Toxaphene	(500 ng/mL)	Tetrachloro-*m*-xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Sample Clean-up Solutions at Working Levels

GPC Calibration Solution

CLP-027-WL-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(25 mg/mL)	Perylene	(0.02 mg/mL)
bis(2-Ethylhexyl)phthalate	(1.0 mg/mL)	Sulfur	(0.08 mg/mL)
Methoxychlor	(0.2 mg/mL)		

GPC Calibration Solution for 8/94 SOW OLM03.1

CLP-027-R2-WL-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(25 mg/mL)	Perylene	(0.02 mg/mL)
bis(2-Ethylhexyl)phthalate	(0.5 mg/mL)	Sulfur	(0.08 mg/mL)
Methoxychlor	(0.1 mg/mL)		

AccuStandard provides the solutions to meet sample clean-up parameters!

Florisil Cartridge Check Solution

CLP-FC-WL-10ML — **1 x 10 mL**
0.1 µg/mL in Acetone

2,4,5-Trichlorophenol

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2 — 6 comps.

Aldrin	(0.1 µg/mL)	Dieldrin	(0.2 µg/mL)
γ-BHC *(Lindane)*	(0.1 µg/mL)	Endrin	(0.2 µg/mL)
4,4'-DDT	(0.2 µg/mL)	Heptachlor	(0.1 µg/mL)

GPC-CC-B-WL-10ML — **1 x 10 mL**
0.2 µg/mL each in CH_2Cl_2 — 2 comps.

Aroclor 1016 — Aroclor 1260

Labels, Safety, Storage and Packaging

All organic solutions are in 2 mL Ampules, filled to approxiately 1.2 mL to ensure 1 mL can be transferred.

2-Part Label System

Smudgeproof, tear and solvent resistant * (Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents:
Methylene chloride, Methanol and Acetone

Usage, Handing and Storage

Amber ampules are used to insure the integrity of the contents. The ampule contains at least 120% of the stated volume of a solution, allowing easy transfer. Transfer the required amount using a pipet or clean gastight syringe. Excess solution can be stored in a tightly capped vial.

Expiration dates are determined by short-term and long-term stability studies, experience and knowledge of chemical interactions. As part of our long-term studies, standards are analyzed at the end of their assigned period and sometimes can be recertified for an additional length of time.

All products come with storage conditions listed on the label of the ampule or bottle. Some chemical formulations require refrigeration or freezer storage to inhibit adverse reactions among the components. It is imperative that these conditions are followed to preserve the integrity of the material.

GHS Symbols

GHS-06

- **Acute Toxicity (fatal or toxic)**

GHS-07

- **Irritant**
- **Skin Sensitizer**
- **Acute toxicity (harmful)**
- **Narcotic Effects**
- **Respiratory Tract Irritant**

GHS-09

- **Aquatic Toxicity**

GHS-02

- **Flammables**
- **Self Reactives**
- **Pyrophorics**
- **Self-Heating**
- **Emits Flammable Gas**
- **Organic Peroxides**

GHS-03

- **Oxidizers**

GHS-05

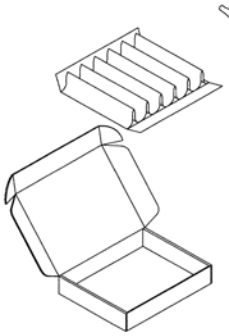
- **Corrosives**
- **Skin corrosion/burns**
- **Eye Damage**
- **Corrosive to Metals**

GHS-08

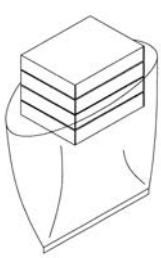
- **Carcingen**
- **Respiratory Sensitizer**
- **Reproductive Toxicity**
- **Mutagenicity**
- **Aspiration Toxicity**

AccuStandard uses recyclable and biogradable material

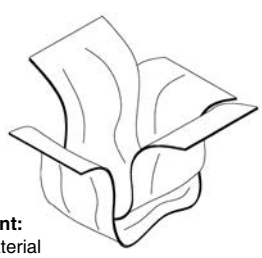
Package compliant with DOT and International regulations.



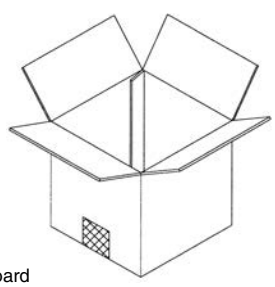
Fluted Tray:
Natural Chipboard



Inside Container:
Corrugated Fiberboard



Cushioning/Absorbent:
Natural Kraft Fiber Material



Shipping Container:
Natural Kraft Corrugated Fiberboard

Standard Mixtures for EPA 500 Series
For Drinking Water

Background Information
In 1974 the Safe Drinking Water Act was passed by the US Congress. Under the Act the USEPA established national standards for drinking water from both surface and ground water sources. The EPA 500 Series Methods have evolved from the passage of the Clean Water Act, and from several amendments to the original Act.

The 500 Series product line contains standards used in proposed and promulgated methods for the identification and quantification of organic compounds in drinking water. The organic compounds listed in the various methods include volatile organic compounds (VOCs), pesticides, synthetic organic compounds (SOCs), and trihalomethane disinfection by-products.

Analytical techniques used in the identification and quantification include gas chromatography with selective detectors (PID, ELCD, ECD, FID, NPD, FPD), gas chromatography/mass spectrometry (GC/MS) and high performance liquid chromatography (HPLC).

Complete analysis of the target compounds with these 500 Series Methods can be accomplished by using the series of standards formulated by AccuStandard for each method along with the required internal and surrogate standards.

For your convenience we offer either large mixes containing all the target analytes, or smaller sub-mixes at higher concentrations to allow for flexibility in your analysis.

Match frequently requested products.

Alternate Source

ASL products can be used as an independent second source.

Methods 502, 505, 508.1, 525.2

Thousands of Standards, just a click away

AccuStandard.com

Method #	Method Description	Pages
501	Trihalomethanes (ECD or PID/ELCD)	141
502.2	Volatiles (PID/ELCD) & Volatile Surrogates & Internal Standards	142-145
503.1	VOC - Aromatics & Alkenes (PID/ELCD)	146
504	EDB & DBCP (ECD)	146
504.1	EDB, DBCP, TCP (ECD)	146
505	Organohalide Pesticides & Aroclors (ECD)	146
506	Phthalate Esters	146
507	Nitrogen/Phosphorous Pesticides (NPD)	147
508 & 508.A	Chlorinated Pesticides & Aroclors (ECD)	148
508.1	Chlorinated Pesticides, Herbicides & Organo-halides (ECD)	149
509	Ethylene thiourea (ECD)	149
515.1 & 515.2	Chlorinated Pesticides (ECD)	150
515.3 & 515.4	Chlorinated Acids (ECD)	151
521	Nitrosamines (SPE & Capillary Column GC)	152
524.2	Volatiles (GC/MS)	152
524.3	Purgeable Organic Compounds (GC/MS)	152
525.1	Semi-Volatiles, PCB Congeners, Chlorinated Pesticides (GC/MS)	153
525.2	Semi-Volatiles, PCB Congeners, Pesticides (GC/MS)	154-156
526	Semi-Volatiles (GC/MS)	157
527	Pesticides & Flame Retardants (SPE & Capillary GC/MS)	157
528	Phenols (GC/MS)	158
529	Explosives & Related Compounds (SPE & Capillary GC/MS)	158
531 & 531.1	Carbamates (HPLC)	159
532	Phenylureas (HPLC)	159
535	Acetamide-Herbicide Degradates (LCMS)	159
547	Glyphosate (HPLC)	160
548	Endothall (ECD)	160
548.1	Endothall (GC/MS)	160
549.1/549.2	Diquat & Paraquat (HPLC)	160
550 & 550.1	Polynuclear Aromatic Hydrocarbons (HPLC)	160
551	Chlorinated Solvents, also Trihalomethanes (ECD)	160
551.1A	Disinfection By-products (ECD)	161
552 & 552.1	Haloacetic Acids (ECD)	162
552.2	Haloacetic Acids & Dalapon (ECD)	163
553	Benzidines & Nitrogen Pesticides (HPLC/MS)	164
554	Derivatized Carbonyl Compounds (HPLC)	164
555	Chlorinated Pesticides (HPLC)	164
556 & 556.1	Carbonyl Compounds (GC/ECD)	164
	National Primary Drinking Water Standards	166-167
	EPA Consent Decree Water Protocol	168
	Hazardous Substances List	141

EPA Hazardous Substances List (Volatiles)

HSL Volatiles Standard Mixture

M-HSL ❄ — **1 x 1 mL**
2.0 mg/mL each in MeOH — 8 comps.

- Acetone
- 2-Butanone
- Carbon disulfide
- 2-Hexanone
- 4-Methyl-2-pentanone
- Styrene
- Vinyl acetate
- *o*-Xylene

❄ ColdPAK required to maintain integrity of product.

Method 501 Trihalomethane Analysis by P&T-GC/ECD or PID

Trihalomethanes

M-501 — **1 x 1 mL**
M-501-PAK *SAVE* **5 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.
M-501-SET — **set of 5 x 1 mL**
Set contain Each component at 0.2 mg/mL in MeOH + **M-501** Mix
M-501-10X — **1 x 1 mL**
M-501-10X-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

- Bromoform
- Chloroform
- Dibromochloromethane
- Dichlorobromomethane

Method 502.2 Volatile Organic Compounds by PID/ELCD

The following solutions represent a breakdown of Method 502 components into groups containing liquid and gaseous components:

54 Liquid Components

Benzene (01)
Bromobenzene (02)
Bromochloromethane (03)
Bromodichloromethane (04)
Bromoform (05)
n-Butylbenzene (07)
sec-Butylbenzene (08)
tert-Butylbenzene (09)
Carbon tetrachloride (10)
Chlorobenzene (11)
Chloroform (13)
2-Chlorotoluene (15)
4-Chlorotoluene (16)
Dibromochloromethane (17)
1,2-Dibromo-3-chloropropane (18)
1,2-Dibromoethane (19)
Dibromomethane (20)
1,2-Dichlorobenzene (21)
1,3-Dichlorobenzene (22)
1,4-Dichlorobenzene (23)
1,1-Dichloroethane (25)
1,2-Dichloroethane (26)
1,1-Dichloroethene (27)
cis-1,2-Dichloroethene (28)
trans-1,2-Dichloroethene (29)
1,2-Dichloropropane (30)
1,3-Dichloropropane (31)
2,2-Dichloropropane (32)
1,1-Dichloropropene (33)
cis-1,3-Dichloropropene (34A) *
trans-1,3-Dichloropropene (34B) **
Ethylbenzene (35)
Hexachlorobutadiene (36)
Isopropylbenzene *(Cumene)* (37)
p-Isopropyltoluene *(p-Cymene)* (38)
Methylene chloride (39)
Naphthalene (40)
n-Propylbenzene (41)
Styrene (42)
1,1,1,2-Tetrachloroethane (43)
1,1,2,2-Tetrachloroethane (44)
Tetrachloroethene (45)
Toluene (46)
1,2,3-Trichlorobenzene (47)
1,2,4-Trichlorobenzene (48)
1,1,1-Trichloroethane (49)
1,1,2-Trichloroethane (50)
Trichloroethene (51)
1,2,3-Trichloropropane (53)
1,2,4-Trimethylbenzene (54)
1,3,5-Trimethylbenzene (55)
o-Xylene (57)
m-Xylene (58)
p-Xylene (59)

*cis (1.06 x conc.) (34A)
**trans (0.94 x conc.) (34B)

6 Gas Components

Bromomethane (06)
Chloroethane (12)
Chloromethane (14)
Dichlorodifluoromethane (24)
Trichlorofluoromethane (52)
Vinyl chloride (56)

54 Liquid Components

M-502A-R	0.2 mg/mL each in MeOH		**1 x 1 mL**
M-502A-R-PAK	0.2 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
M-502A-R-10X	2.0 mg/mL each in MeOH		**1 x 1 mL**
M-502A-R-10X-PAK	2.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**

6 Gas Components

M-502B	0.2 mg/mL each in MeOH		**1 x 1 mL**
M-502B-PAK	0.2 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**
M-502B-10X	2.0 mg/mL each in MeOH		**1 x 1 mL**
M-502B-10X-PAK	2.0 mg/mL each in MeOH	*SAVE*	**5 x 1 mL**

54 Liquid and 6 Gas Component Sets

M-502A-R/B-SET — **2 x 1 mL**
0.2 mg/mL each in MeOH — **(M-502A-R, M-502B)**
M-502A-R/B-10X-SET — **2 x 1 mL**
2.0 mg/mL each in MeOH — **(M-502A-R-10X, M-502B-10X)**

Internal & Surrogate Standard

M-502-IS/SS		**1 x 1 mL**
M-502-IS/SS-PAK	*SAVE*	**5 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

1-Chloro-3-fluorobenzene
2-Chloropropane
Fluorobenzene
α,α,α-Trifluorotoluene

Technical Note

M-502-IS/SS is useful for DB-624/VRX analysis by GC/ELCD/PID. 2-Chloropropane has been included in the standard to be used as an early eluting Internal Standard. The use of this Internal Standard aids in quantitating the gaseous components in purgeable volatiles.

Internal/Surrogate Standard

Alternate Source

M-502-IS-ASL		**1 x 1 mL**
M-502-IS-ASL-PAK	*SAVE*	**5 x 1 mL**
2.0 mg/mL each in MeOH		2 comps.

2-Bromo-1-chloropropane
1-Chloro-2-fluorobenzene

o,m,p-Xylenes Mix

M-502-60	0.2 mg/mL in MeOH	**1 x 1 mL**
M-502-60-10X	2.0 mg/mL in MeOH	**1 x 1 mL**
		3 comps.

o-Xylene (57)
m-Xylene (58)
p-Xylene (59)

Technical Note

Solutions containing volatile components (such as gases) should be chilled before opening to ensure gases are in the solution. In order to maintain high quality standards, any transferred volume should have minimal headspace and PTFE septa caps should be replaced often if pierced.

All 60 liquid & gas components in One Solution

Liquids (54 comps.) and Gases (6 comps.)

M-502		**1 x 1 mL**
M-502-PAK	*SAVE*	**5 x 1 mL**
0.2 mg/mL each in MeOH		60 comps.
M-502-10X		**1 x 1 mL**
M-502-10X-PAK	*SAVE*	**5 x 1 mL**
2.0 mg/mL each in MeOH		60 comps.

Liquids (54 comps.) & Gases (6 comps.) plus MtBE

M-502-R1		**1 x 1 mL** (liquid and gases)
M-502-R1-PAK	*SAVE*	**5 x 1 mL** (liquid and gases)
0.2 mg/mL each in MeOH		61 comps.

Liquids (54 comps.) plus MtBE

M-502A-R3	**1 x 1 mL**
0.2 mg/mL each in MeOH	
M-502A-R3-10X	**1 x 1 mL**
2.0 mg/mL each in MeOH	55 comps.

59 Component Set

As a complete set of each component in individual ampules.

M-502-SET	0.2 mg/mL in MeOH	**59 x 1 mL**
M-502-10X-SET	2.0 mg/mL in MeOH	**59 x 1 mL**

Individual Component Solutions

To order, specify identity (#) and conc. (0.2 or 2.0 mg/mL)

M-502-#	0.2 mg/mL in MeOH	**1 x 1 mL**
M-502-#-10X	2.0 mg/mL in MeOH	**1 x 1 mL**

M-502-34A & M-502-34B only available as mixture: M-502-34R

M-502-34-R	**1 x 1 mL**
0.4 mg/mL each in MeOH	
M-502-34-R-10X	**1 x 1 mL**
4.0 mg/mL each in MeOH	2 comps.

cis-1,3-Dichloropropene
trans-1,3-Dichloropropene

Individual Component Neats

To order, specify identity
M-502-#N — **1 x 1 gram**
except,

1 x 1 gram

M-502-04N
M-502-08N
M-502-17N
M-502-18N
M-502-28N
M-502-29N
M-502-31N
M-502-32N
M-502-34N
M-502-43N
M-502-44N

1 x 1 gram

M-502-49N

Method 502.2 (Continued) VOCs by PID/ELCD

The following solutions represent an alternate source formulation of Method 502/524 components based on similar volatility groups.

M-502-K1-SET — **6 x 1 mL** (**M-502B-10X**, **M-502C-02**, **M-502C-03**, **M-502C-04**, **M-502C-05**, **M-502C-06**)

M-502B-10X — Alternate Source — **1 x 1 mL**
M-502B-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

- Bromomethane
- Chloroethane
- Chloromethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

M-502C-02 — Alternate Source — **1 x 1 mL**
M-502C-02-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

- Bromodichloromethane
- Dibromochloromethane
- 1,1,-Dichloroethylene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- Methylene chloride

M-502C-03 — Alternate Source — **1 x 1 mL**
M-502C-03-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 9 comps.

- Bromochloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromomethane
- 1,1-Dichloroethane
- 2,2-Dichloropropane
- Tetrachloroethylene
- 1,1,1-Trichloroethane

M-502C-04 — Alternate Source — **1 x 1 mL**
M-502C-04-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 14 comps.

- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 1,1-Dichloropropylene
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Hexachlorobutadiene
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- 1,2,3-Trichloropropane

* cis (1.06 x conc.)
** trans (0.94 x conc.)

M-502C-05 — Alternate Source — **1 x 1 mL**
M-502C-05-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 13 comps.

- Benzene
- Bromobenzene
- *n*-Butylbenzene
- Ethylbenzene
- *p*-Isopropyltoluene
- Naphthalene
- Styrene
- Toluene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- *m*-Xylene

M-502C-06 — Alternate Source — **1 x 1 mL**
M-502C-06-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 12 comps.

- *sec*-Butylbenzene
- *tert*-Butylbenzene
- Chlorobenzene
- 2-Chlorotoluene
- 4-Chlorotoluene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Isopropylbenzene
- *n*-Propylbenzene
- *o*-Xylene
- *p*-Xylene

Method 502.2 Volatile Organic Mixtures

Custom Unregulated VOC's

M-502C-09 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 39 comps.

- Bromobenzene
- Bromochloromethane
- Bromodichloromethane
- Bromoform
- Bromomethane
- *n*-Butylbenzene
- *sec*-Butylbenzene
- *tert*-Butylbenzene
- Chloroethane
- Chloroform
- Chloromethane
- 2-Chlorotoluene
- 4-Chlorotoluene
- Dibromochloromethane
- Dibromomethane
- 1,3-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Hexachlorobutadiene
- Isopropylbenzene *(Cumene)*
- *p*-Isopropyltoluene *(p-Cymene)*
- Dichloromethane *(Methylene chloride)*
- Naphthalene
- *n*-Propylbenzene
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 1,1,2-Trichloroethane
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene *(Mesitylene)*

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Wisconsin DNR VOC Mixture

S-989 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 52 comps.

- Benzene
- Bromobenzene
- Bromodichloromethene
- *n*-Butylbenzene
- *sec*-Butylbenzene
- *tert*-Butylbenzene
- Carbon tetrachloride
- Chlorobenzene
- Chlorodibromomethane
- Chloroethane
- Chloroform
- Chloromethane
- 2-Chlorotoluene
- 4-Chlorotoluene
- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *cis*-1,2-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- Diisopropyl ether
- Ethylbenzene
- Hexachlorobutadiene
- Isopropylbenzene
- *p*-Isopropyltoluene
- Methylene chloride
- Methyl tert-butyl ether
- Naphthalene
- n-Propylbenzene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Vinyl chloride
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Match frequently requested products

Alternate Source

ASL products can be used as an independent second source

Method 502.2 (continued) Volatile Organic Compounds

The solutions below have been designed in cooperation with laboratories in the Contract Laboratory Program and have proven useful in this particular configuration for the separation and quantitation of all of the 60 components on a single column.

M-502D/E/F-SET — **set of 3 x 1 mL** (set includes **M-502D**, **M-502E** and **M-502F**)

Mix D

M-502D — **1 x 1 mL**
0.2 mg/mL each in MeOH — 26 comps.

- Benzene
- Bromobenzene
- Bromochloromethane
- Bromoform
- *sec*-Butyl benzene
- Carbon tetrachloride
- Chloroethane
- 4-Chlorotoluene
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- Dichlorodifluoromethane
- 2,2-Dichloropropane
- Ethyl benzene
- Ethylene dibromide
- Isopropylbenzene
- Tetrachloroethene
- 1,1,1,2-Tetrachloroethane
- Toluene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- Trichloroethene
- Vinyl chloride
- *o*-Xylene

Mix E

M-502E — **1 x 1 mL**
0.2 mg/mL each in MeOH — 21 comps.

- Bromomethane
- Chlorobenzene
- Chloromethane
- 2-Chlorotoluene
- Dibromochloromethane
- 1,3-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- *cis*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene*
- *trans*-1,3-Dichloropropene**
- Hexachlorobutadiene
- Methylene chloride
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichlorofluoromethane
- Styrene
- 1,2,3-Trichloropropane
- 1,2,4-Trimethylbenzene
- *m*-Xylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Mix F

M-502F — **1 x 1 mL**
0.2 mg/mL each in MeOH — 13 comps.

- Bromodichloromethane
- *n*-Butyl benzene
- *tert*-Butyl benzene
- Chloroform
- 1,2-Dibromo-3-chloropropane
- 1,3-Dichloropropane
- 1,1-Dichloropropene
- *p*-Isopropyl toluene
- Naphthalene
- *n*-Propyl benzene
- 1,1,2,2-Tetrachloroethane
- 1,3,5-Trimethyl benzene
- *p*-Xylene

Mixtures of Internal, Surrogate Standards & Fortification Solutions

Internal Standard

M-502-IS — **1 x 1 mL**
M-502-IS-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 1-Chloro-2-bromopropane
- Fluorobenzene

Internal Standard 2

M-502-IS-2 — **1 x 1 mL**
M-502-IS-2-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

- 1-Chloro-2-bromopropane
- Methylene chloride-d_2
- Fluorobenzene

Internal Standard 3

M-502-IS-2-3 — **1 x 1 mL**
2.0 mg/mL in MeOH

- Methylene chloride-d_2

Internal Standard

M-524-IS — **1 x 1 mL**
M-524-IS-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

Internal Standard 2

M-524-IS-2 — **1 x 1 mL**
M-524-IS-2-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL in MeOH

- Fluorobenzene

Fortification Solution

M-524-FS — **1 x 1 mL**
M-524-FS-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

- 4-Bromofluorobenzene
- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

Surrogate Standard

M-524-SS — **1 x 1 mL**
M-524-SS-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 4-Bromofluorobenzene
- 1,2-Dichlorobenzene-d_4

Technical Note

Special Considerations for Volatile Analytes
Volatile Analytes, especially gases, can be troublesome to analyze. To provide the best possible standard we suggest the following procedures:

1. Keep the ampules cool (follow the storage conditions on the label).
2. Prior to use, invert the ampule several times to ensure the gases are in the solution, not in the headspace. Mixing too vigorously can cause the gases to be lost as well.
3. Use freshly opened ampules whenever possible.
4. When transferring, take care to avoid losses of the very volatile components. For example, holding the barrel of a syringe in your hand can warm it enough to lose some of the most volatile components.
5. If using the purge and trap (PT) system is giving questionable results, try a direct liquid injection. If the results are not as expected, there may be a problem with the PT apparatus.

Method 502.2 Internal and Surrogate Standards

With more proposed and promulgated methods available, analytical chemists are trying to combine analyte lists and shorten run-time while still demonstrating method equivalence. AccuStandard has formulated a core evaluation deuterated solution, and a second conventional internal/surrogate evaluation solution. Use of these formulations allows the analyst to quickly evaluate new ISTD/SS combinations for PID, Hall, FID or GC/MS applications.

Popular Internal Standards

M-502-IS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

1-Chloro-2-bromopropane
Fluorobenzene

M-524-IS-2 — **1 x 1 mL**
2.0 mg/mL in MeOH

Fluorobenzene

M-524-IS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

1,2-Dichlorobenzene-d_4
Fluorobenzene

M-502-IS-2 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

1-Chloro-2-bromopropane
Fluorobenzene
Methylene chloride-d_2

M-001R — **1 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

M-8020-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 2 comps.

4-Bromofluorobenzene
α,α,α-Trifluorotoluene

M-8240/60-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 5 comps.

Bromochloromethane
Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
1,4-Difluorobenzene
Pentafluorobenzene

M-8260-IS-R — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

2-Bromo-1-chloropropane
1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4
Pentafluorobenzene

M-8260-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

Chlorobenzene-d_5
1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4
Pentafluorobenzene

M-8260A/B-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.

Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
Fluorobenzene

ISTD/SS Evaluation Mixtures

Conventional ISTD/SS Evaluation MIxture

M-CONV-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 15 comps.

2-Bromochlorobenzene
4-Bromochlorobenzene
Bromochloromethane
p-Bromofluorobenzene
2-Bromo-1-chloropropane
1-Chloro-2-fluorobenzene
1-Chloro-3-fluorobenzene
1-Chloro-4-fluorobenzene
2-Chloropropane
Dibromofluoromethane
1,4-Dichlorobutane
1,4-Difluorobenzene
Fluorobenzene
Pentafluorobenzene
α,α,α-Trifluorotoluene

Deuterated ISTD/SS Evaluation Mixture

M-DEUT-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 8 comps.

Benzene-d_6
Chlorobenzene-d_5
1,2-Dichlorobenzene-d_4
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
Ethylbenzene-d_{10}
Methylene chloride-d_2
Toluene-d_8

Popular Surrogate Standards

M-502-IS-ASL — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

2-Bromo-1-chloropropane
1-Chloro-2-fluorobenzene

Alternate Source

M-524-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d_4

M-624-SS-M — **1 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

4-Bromofluorobenzene
Fluorobenzene
Pentafluorobenzene

M-8020-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

4-Bromochlorobenzene
1,4-Difluorobenzene
Fluorobenzene

M-8021-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

4-Bromochlorobenzene
1,4-Dichlorobutane

M-8021-SS-M — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

Bromochloromethane
1,4-Dichlorobutane

M-8021A-SS — **1 x 1 mL**
20 mg/mL each in MeOH — 4 comps.

4-Bromochlorobenzene
Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

M-8240/60-SS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

p-Bromofluorobenzene
Dibromofluoromethane
1,2-Dichloroethane-d_4
Toluene-d_8

Popular ISTD/SS Standards

M-502-IS/SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

1-Chloro-3-fluorobenzene
2-Chloropropane
Fluorobenzene
α,α,α-Trifluorotoluene

M-502-IS-QC — **1 x 1 mL**
1.0 mg/mL each in MeOH — 3 comps.

1-Chloro-2-bromopropane
1-Chloro-2-fluorobenzene
Fluorobenzene

M-524-FS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d_4
Fluorobenzene

M-8010-IS/SS — **1 x 1 mL**
150 µg/mL each in MeOH — 3 comps.

4-Bromochlorobenzene
Bromochloromethane
4-Bromofluorobenzene

M-8020-IS/SS-ASL — **1 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.

4-Bromochlorobenzene
p-Bromofluorobenzene
1,4-Difluorobenzene
Fluorobenzene
α,α,α-Trifluorotoluene

M-8240/60-IS/SS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 9 comps.

Bromochloromethane
p-Bromofluorobenzene
Chlorobenzene-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
1,4-Difluorobenzene
Pentafluorobenzene
Toluene-d_8

M-8260A/B-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 7 comps.

p-Bromofluorobenzene
Chlorobenzene-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
Fluorobenzene
Toluene-d_8

EPA Method 500 Series

Method 503.1 Purgeable Aromatics & Alkenes

Purgeable Aromatics & Alkenes

M-503 — **1 x 1 mL**
M-503-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 28 comps.

Benzene	4-Isopropyltoluene
Bromobenzene	Naphthalene
n-Butylbenzene	*n*-Propylbenzene
sec-Butylbenzene	Styrene
tert-Butylbenzene	Tetrachloroethene
Chlorobenzene	Toluene
2-Chlorotoluene	1,2,3-Trichlorobenzene
4-Chlorotoluene	1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	1,2,4-Trimethylbenzene
1,4-Dichlorobenzene	1,3,5-Trimethylbenzene
Ethylbenzene	*o*-Xylene
Hexachlorobutadiene	*m*-Xylene
Isopropylbenzene	*p*-Xylene

Internal Standard

M-602-SS — **1 x 1 mL**
M-602-SS-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL in MeOH

α,α,α-Trifluorotoluene

Method 504 EDB & DBCP by ECD

EDB & DBCP

M-504 — **1 x 1 mL**
M-504-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH
M-504-10X — **1 x 1 mL**
M-504-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

1,2-Dibromoethane *(EDB)* — 1,2-Dibromo-3-chloropropane *(DBCP)*

Method 504.1 EDB, DBCP & TCP by ECD

Calibration Stock Solution

M-504.1-CSS — **1 x 1 mL**
M-504.1-CSS-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.

1,2-Dibromoethane *(EDB)*
1,2-Dibromo-3-chloropropane *(DBCP)*
1,2,3-Trichloropropane

Laboratory Fortified Blank Sample Concentrate

M-504.1-LFB — **1 x 1 mL**
M-504.1-LFB-PAK — *SAVE* — **5 x 1 mL**
0.25 µg/mL each in MeOH — 3 comps.

1,2-Dibromoethane *(EDB)*
1,2-Dibromo-3-chloropropane *(DBCP)*
1,2,3-Trichloropropane

MDL Check Sample Concentrate

M-504.1-MDL — **1 x 1 mL**
M-504.1-MDL-PAK — *SAVE* — **5 x 1 mL**
0.02 µg/mL each in MeOH — 3 comps.

1,2-Dibromoethane *(EDB)*
1,2-Dibromo-3-chloropropane *(DBCP)*
1,2,3-Trichloropropane

Method 504 Set

M-504.1-SET — **3 x 1 mL**
(M-504.1-CSS, M-504.1-LFB, M-504.1-MDL)

Method 505 Organohalide Pesticides by Microextraction & GC/ECD

M-505R-2 — **1 x 1 mL**
M-505R-2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 16 comps.

Alachlor	(10 µg/mL)	Heptachlor epoxide	(1 µg/mL)
Aldrin	(1 µg/mL)	Hexachlorobenzene	(1 µg/mL)
Atrazine	(250 µg/mL)	Hexachlorocyclopentadiene	(1 µg/mL)
α-Chlordane	(1 µg/mL)	Lindane	(1 µg/mL)
γ-Chlordane	(1 µg/mL)	Methoxychlor	(5 µg/mL)
Dieldrin	(1 µg/mL)	*cis*-Nonachlor	(1 µg/mL)
Endrin	(1 µg/mL)	*trans*-Nonachlor	(1 µg/mL)
Heptachlor	(1 µg/mL)	Simazine	(250 µg/mL)

M-505-ASL — Alternate Source — **1 x 1 mL**
M-505-ASL-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 12 comps.

Alachlor	(50 µg/mL)	Heptachlor	(20 µg/mL)
Aldrin	(20 µg/mL)	Heptachlor epoxide (Isomer B)	(20 µg/mL)
Atrazine	(500 µg/mL)	Hexachlorobenzene	(10 µg/mL)
γ-BHC	(20 µg/mL)	Hexachlorocyclopentadiene	(20 µg/mL)
Dieldrin	(20 µg/mL)	Methoxychlor	(200 µg/mL)
Endrin	(20 µg/mL)	Simazine	(100 µg/mL)

Multi-Component Analytes (Polychlorinated Biphenyls, Chlordane & Toxaphene)

Each at 1,000 µg/mL in Hexane — **AccuPAK™ *(5 x 1 mL)*** — *SAVE*

Aroclors #	Cat. No. 1 mL	Cat. No. PAK
Aroclor 1016	C-216S-H-10X	C-216S-H-10X-PAK
Aroclor 1221	C-221S-H-10X	C-221S-H-10X-PAK
Aroclor 1232	C-232S-H-10X	C-232S-H-10X-PAK
Aroclor 1242	C-242S-H-10X	C-242S-H-10X-PAK
Aroclor 1248	C-248S-H-10X	C-248S-H-10X-PAK
Aroclor 1254	C-254S-H-10X	C-254S-H-10X-PAK
Aroclor 1260	C-260S-H-10X	C-260S-H-10X-PAK
Aroclor 1262	C-262S-H-10X	C-262S-H-10X-PAK
Aroclor 1268	C-268S-H-10X	C-268S-H-10X-PAK
Pesticides		
Chlordane	P-017S-H-10X	P-017S-H-10X-PAK
Toxaphene	P-093S-H-10X	P-093S-H-10X-PAK

Degradation Standard

P-045S — **1 x 1 mL**
100 µg/mL in MeOH

Endrin

Method 506 Phthalate Esters by PID

Phthalate Esters

M-506 — **1 x 1 mL**
M-506-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Isooctane — 7 comps.

Benzyl butyl phthalate	bis(2-Ethylhexyl)adipate
Dimethyl phthalate	bis(2-Ethylhexyl)phthalate
Diethyl phthalate	Di-*n*-octyl phthalate
Di-*n*-butyl phthalate	

M-506-QC — **1 x 1 mL**
M-506-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 7 comps.

Benzyl butyl phthalate	(0.25 mg/mL)	bis(2-Ethylhexyl)adipate	(1.2 mg/mL)
Dimethyl phthalate	(0.1 mg/mL)	bis(2-Ethylhexyl)phthalate	(0.25 mg/mL)
Diethyl phthalate	(0.1 mg/mL)	Di-*n*-octyl phthalate	(0.65 mg/mL)
Di-*n*-butyl phthalate	(0.1 mg/mL)		

Method 507 Nitrogen & Phosphorus Containing Pesticides by GC/NPD

Method 507 Set
M-507-R-SET — **8 x 1 mL (M-507A, M-507B,M-507C, M-507D,M-507E, M-507F-R2,M-507G, M-507H)**

Mix A
M-507A — **1 x 1 mL**
M-507A-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 6 comps.

- Ametryn
- Cycloate
- Disulfoton
- Fenamiphos
- Merphos
- Prometon

Mix B
M-507B — **1 x 1 mL**
M-507B-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 9 comps.

- Atrazine
- Diphenamid
- EPTC
- Ethoprop
- Mevinphos
- Prometryne
- Propazine
- Terbutryn
- Triadimefon

Mix C
M-507C — **1 x 1 mL**
M-507C-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 9 comps.

- Butachlor
- Carboxin
- Diazinon
- Metolachlor
- Metribuzin
- MGK-264
- Norflurazon
- Terbufos
- Vernolate

Mix D
M-507D — **1 x 1 mL**
M-507D-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 10 comps.

- Alachlor
- Atraton
- Bromacil
- Butylate
- Chlorpropham
- Hexazinone
- Molinate
- Pronamide
- Stirofos
- Tricyclazole

Mix E
M-507E — **1 x 1 mL**
M-507E-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 8 comps.

- Dichlorvos
- Fenarimol
- Fluridone
- Napropamide
- Pebulate *(Tillam)*
- Simetryn
- Tebuthiuron
- Terbacil

Mix F
M-507F-R2 — **1 x 1 mL**
M-507F-R2-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in Acetone — 2 comps.

- Methyl paraoxon
- Simazine

Mix G
M-507G — **1 x 1 mL**
M-507G-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 8 comps.

- Benefin
- Isopropalin
- Pendimethalin
- Oxadiazon
- Oxyfluorfen
- Propachlor
- Profluralin
- Trifluralin

Mix H
M-507H — **1 x 1 mL**
M-507H-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE

- DEF (for Merphos quantitation)

Performance Check Solution
M-507-QC — **1 x 1 mL**
M-507-QC-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in MtBE — 6 comps.

Atrazine	(150 ng/mL)	Prometon	(300 ng/mL)
DNB	(2500 ng/mL)	TPP	(2500 ng/mL)
Bromacil	(5000 ng/mL)	Vernolate	(50 ng/mL)

Internal Standard
M-507-IS — **1 x 1 mL**
M-507-IS-PAK — ***SAVE*** — **5 x 1 mL**
0.5 mg/mL in MtBE
M-507-IS-10X — **1 x 1 mL**
5.0 mg/mL in MtBE

- Triphenyl phosphate

Surrogate Standard
M-507-SS — **1 x 1 mL**
M-507-SS-PAK — ***SAVE*** — **5 x 1 mL**
0.25 mg/mL in MtBE
M-507-SS-4X — **1 x 1 mL**
1.0 mg/mL in MtBE

- 1,3-Dimethyl-2-nitrobenzene

Method 508 Chlorinated Pesticides by GC/ECD

Chlorinated Pesticides Mix A

M-508P-A **1 x 1 mL**
M-508P-A-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in MtBE 17 comps.

Aldrin	4,4'-DDE	Endrin
α-BHC	4,4'-DDT	Endrin aldehyde
β-BHC	Dieldrin	Heptachlor
δ-BHC	Endosulfan I	Heptachlor epoxide
γ-BHC	Endosulfan II	Methoxychlor
4,4'-DDD	Endosulfan sulfate	

Technical Note

Endrin & DDT can break down in the injection port at elevated temperatures. Breakdown can be monitored by running the Pesticide Degradation Standard (M-8081-DS). The problem can be alleviated by replacing the dirty injection port liner, or by using a lower injection port temperature.

Internal Standard

M-508-IS **1 x 1 mL**
M-508-IS-PAK ***SAVE*** **5 x 1 mL**
0.1 mg/mL in MtBE
M-508-IS-10X **1 x 1 mL**
1.0 mg/mL in MtBE

Pentachloronitrobenzene

Surrogate Standards

M-508-SS **1 x 1 mL**
M-508-SS-PAK ***SAVE*** **5 x 1 mL**
0.5 mg/mL in MtBE

4,4'-Dichlorobiphenyl

M-508-SS-2 **1 x 1 mL**
M-508-SS-2-PAK ***SAVE*** **5 x 1 mL**
0.5 mg/mL in MtBE

Decachlorobiphenyl

Decomposition Solution

M-508-DS-100X **1 x 1 mL**
M-508-DS-100X-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in MtBE 2 comps.

p,p'-DDT	(200 µg/mL)	Endrin	(100 µg/mL)

Performance Check Solution

M-508-QC **1 x 1 mL**
M-508-QC-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in MtBE 4 comps.

δ-BHC	(40 ng/mL)	Chlorpyrifos	(2 ng/mL)
Chlorothalonil	(50 ng/mL)	Dacthal	(50 ng/mL)

Chlorinated Pesticides Mix B

M-508P-B-R **1 x 1 mL**
M-508P-B-R-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in MtBE 13 comps.

α-Chlordane	Chlorpyrifos	*cis*-Permethrin (0.5 mg/mL)
γ-Chlordane	DCPA	*trans*-Permethrin (1.5 mg/mL)
Chlorobenzilate	Etridiazole	Propachlor
Chloroneb	Hexachlorobenzene	Trifluralin
Chlorothalonil		

Certificate will reflect actual cis/trans permethrin ratio

M-508P-B-R2 **1 x 1 mL**
M-508P-B-R2-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in MtBE 15 comps.

α-Chlordane	Chlorpyrifos	*cis*-Permethrin (0.5 mg/mL)
γ-Chlordane	DCPA	*trans*-Permethrin (1.5 mg/mL)
Chlorobenzilate	Etridiazole	Propachlor
Chloroneb	Hexachlorobenzene	Trifluralin
Chlorothalonil	Cyanazine	trans-Nonachlor

Certificate will reflect actual cis/trans permethrin ratio

Method 508A PCBs by Perchlorination / GC

Aroclor® Stock Solution

M-508A-1 **1 x 1 mL**
M-508A-1-PAK ***SAVE*** **5 x 1 mL**
5.0 mg/mL in MeOH

Aroclor 1260

DCB Stock Solution

M-508A-2 **1 x 1 mL**
M-508A-2-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL in Toluene

Decachlorobiphenyl

Perchlorinated Aromatics

Neats	Cat. No.	Unit
Decachlorobiphenyl	C-209N	10 mg
Hexachlorobenzene	A-012	100 mg
Octachlorodibenzofuran	F-801N	50 mg
Octachlorodibenzo-*p*-dioxin	D-801N	50 mg

Solutions	35 µg/mL in Toluene	1 mL
Octachlorostyrene	PC-001S	
Perchlorinated p,p'-DDE	PC-002S	
Tetradecachloro-*o*-terphenyl	T-004S	
Tetradecachloro-*m*-terphenyl	T-005S	
Tetradecachloro-*p*-terphenyl	T-006S	
Aroclor 5442	T-442S	

Method 508.1 Chlorinated Pesticides, Herbicides & Organo-Halides by Liquid - Solid Extraction & ECD

Chlorinated Pesticide Mix #1

M-508.1-X1 **1 x 1 mL**
M-508.1-X1-PAK *SAVE* **5 x 1 mL**
500 µg/mL each in Ethyl acetate 19 comps.

Aldrin	Dieldrin
α-BHC	Endosulfan I
β-BHC	Endosulfan II
δ-BHC	Endosulfan sulfate
γ-BHC	Endrin
α-Chlordane	Endrin aldehyde
γ-Chlordane	Heptachlor
4,4'-DDD	Heptachlor epoxide (B)
4,4'-DDE	Methoxychlor
4,4'-DDT	

Chlorinated Pesticide Mix #2

M-508.1-X2 **1 x 1 mL**
M-508.1-X2-PAK *SAVE* **5 x 1 mL**
500 µg/mL each in Ethyl acetate 17 comps.

Alachlor	Hexachlorocyclopentadiene
Atrazine	Metolachlor
Chlorobenzilate	Metribuzin
Chloroneb	*cis*-Permethrin
Chlorothalonil	*trans*-Permethrin
Cyanazine	Propachlor
DCPA	Simazine
Etridiazole	Trifluralin
Hexachlorobenzene	

Certificate will reflect actual cis/trans permethrin ratio

Regulated Pesticide Mix (SDWA)

M-508.1-ASL **1 x 1 mL**
M-508.1-ASL-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in MtBE 17 comps.

Alachlor	Dieldrin	Methoxychlor
Aldrin	Endrin	Metolachlor
Atrazine	Heptachlor	Metribuzin
β-BHC	Heptachlor epoxide (Isomer B)	Propachlor
α-Chlordane	Hexachlorobenzene	Simazine
γ-Chlordane	Hexachlorocyclopentadiene	

Decomposition Solution

M-508.1-DS-100X **1 x 1 mL**
M-508.1-DS-100X-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in Ethyl acetate 2 comps.

4,4'-DDT	Endrin

Internal Standard Solution

M-508.1-IS **1 x 1 mL**
M-508.1-IS-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in Ethyl acetate

Pentachloronitrobenzene

Surrogate Standard Solution

M-508.1-SS **1 x 1 mL**
M-508.1-SS-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in Ethyl acetate

4,4'-Dibromobiphenyl

Performance Check Solution

M-508.1-QC **1 x 1 mL**
M-508.1-QC-PAK *SAVE* **5 x 1 mL**
At stated conc. in MtBE 4 comps.

δ-BHC	(400 ng/mL)	Chlorpyrifos	(20 ng/mL)
Chlorothalonil	(500 ng/mL)	DCPA	(500 ng/mL)

Method 509 Ethylene Thiourea by GC/NPD

Performance Check Solution

M-509-PC **1 x 1 mL**
At stated conc. in Ethyl acetate containing 0.1% w/v DTT (scavenger) 3 comps.

Ethylene thiourea	(10 ng/mL)
4-Methylimidazolidine-2-thione	(100 ng/mL)
3,4,5,6-Tetrahydro-2-pyrimidinethiol	(1000 ng/mL)

Ethylene Thiourea Standard

M-509 **1 x 1 mL**
0.1 mg/mL in Ethyl acetate containing 0.1% w/v DTT (scavenger)

Ethylene thiourea

Internal Standard

M-509-IS **1 x 1 mL**
0.1 mg/mL in Ethyl acetate containing 0.1% w/v DTT (scavenger)

3,4,5,6-Tetrahydro-2-pyrimidinethiol *(THP)*

Surrogate Standard

M-509-SS **1 x 1 mL**
0.1 mg/mL in Ethyl acetate containing 0.1% w/v DTT (scavenger)

4-Methylimidazolidine-2-thione

Radical Scavenger Solution

M-509-RS-10ML **1 x 10 mL**
1.0 mg/mL in Ethyl acetate

Dithiothreitol *(DTT)*

Method 515.1 Chlorinated Acids in Water by GC/ECD

Methyl Derivatives

M-515-R — **1 x 1 mL**
M-515-R-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in MtBE as methyl derivatives — 16 comps.

Acifluorfen, ME	3,5-Dichlorobenzoic acid, ME
Bentazon, ME	Dichlorprop, ME
Chloramben, ME	Dinoseb, ME
2,4-D, ME	4-Nitrophenol, ME
Dalapon, ME	Pentachlorophenol, ME
2,4-DB, ME	Picloram, ME
DCPA, Di ME	2,4,5-T, ME
Dicamba, ME	2,4,5-TP, ME

Underivatized Analytes

M-515A-R2 — **1 x 1 mL**
M-515A-R2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 16 comps.

Acifluorfen	(100 µg/mL)	3,5-Dichlorobenzoic acid	(100 µg/mL)
Bentazon	(200 µg/mL)	Dichloroprop	(300 µg/mL)
Chloramben	(100 µg/mL)	Dinoseb	(200 µg/mL)
2,4-D	(200 µg/mL)	4-Nitrophenol	(100 µg/mL)
Dalapon	(1300 µg/mL)	Pentachlorophenol	(100 µg/mL)
2,4-DB	(800 µg/mL)	Picloram	(100 µg/mL)
DCPA acid	(100 µg/mL)	2,4,5-T	(100 µg/mL)
Dicamba	(100 µg/mL)	2,4,5-TP	(100 µg/mL)

Technical Note

If you require the complete absence of partial esterification, we recommend M-515.4A and M-515.3A products.

Performance Check Solution

M-515-QC — **1 x 1 mL**
M-515-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 3 comps.

3,5-Dichlorobenzoic acid methyl ester	(600 ng/mL)
Dinoseb methyl ether	(4 ng/mL)
4-Nitroanisole	(1600 ng/mL)

Performance Check Solution with ISTD & SS

M-515-QC-R — **1 x 1 mL**
M-515-QC-R-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 5 comps.

4,4'-Dibromooctafluorobiphenyl (ISTD)	(250 ng/mL)
3,5-Dichlorobenzoic acid methyl ester	(600 ng/mL)
2,4-Dichlorophenyl acetic acid methyl ester (SS)	(500 ng/mL)
Dinoseb methyl ether	(4 ng/mL)
4-Nitroanisole	(1600 ng/mL)

Internal Standard

M-515-IS — **1 x 1 mL**
M-515-IS-PAK — *SAVE* — **1 x 1 mL**
0.1 mg/mL in MtBE

4,4'-Dibromooctafluorobiphenyl

Surrogate Standards

M-515-SS — **1 x 1 mL**
M-515-SS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in MtBE
M-515-SS-50X — **5 x 1 mL**
5.0 mg/mL in MtBE

2,4-Dichlorophenylacetic acid methyl ester

P-244S — **1 x 1 mL**
0.1 mg/mL in MeOH

2,4-Dichlorophenylacetic acid

Method 515.2 Chlorinated Acids in Water by GC/ECD

Methyl Derivatives

M-515.2-1 — **1 x 1 mL**
M-515.2-1-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 6 comps.

DCPA, ME	(100 µg/mL)	Dinoseb, ME	(200 µg/mL)
3,5-Dichlorobenzoic acid, ME	(500 µg/mL)	Pentachlorophenol, ME	(100 µg/mL)
Dichlorprop, ME	(100 µg/mL)	2,4,5-T, ME	(100 µg/mL)

M-515.2-2 — **1 x 1 mL**
M-515.2-2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 7 comps.

Acifluorfen, ME	(200 µg/mL)	Dicamba, ME	(300 µg/mL)
Bentazon, ME	(1000 µg/mL)	Picloram, ME	(300 µg/mL)
2,4-D, ME	(100 µg/mL)	2,4,5-TP, ME	(100 µg/mL)
2,4-DB, ME	(1000 µg/mL)		

Underivatized Analytes

M-515.2A-1 — **1 x 1 mL**
M-515.2A-1-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 6 comps.

DCPA acid	(100 µg/mL)	Dinoseb	(200 µg/mL)
3,5-Dichlorobenzoic acid	(500 µg/mL)	Pentachlorophenol	(100 µg/mL)
Dichlorprop	(100 µg/mL)	2,4,5-T	(100 µg/mL)

M-515.2A-2 — **1 x 1 mL**
M-515.2A-2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 7 comps.

Acifluorfen	(200 µg/mL)	Dicamba	(300 µg/mL)
Bentazon	(1000 µg/mL)	Picloram	(300 µg/mL)
2,4-D	(100 µg/mL)	2,4,5-TP	(100 µg/mL)
2,4-DB	(1000 µg/mL)		

Method 515.1 & 515.2 Chlorinated Acids in Water by GC/ECD

Laboratory Performance Check Solution

M-8150/51-LPC-5ML — **1 x 5 mL**
At stated conc. in Isooctane — 5 comps.

3,5-Dichlorobenzoic acid	(600 ng/mL)	DCAA	(500 ng/mL)
Dinoseb	(4 ng/mL)	DBOB	(250 ng/mL)
4-Nitrophenol	(1600 ng/mL)		

Method 515.3 Chlorinated Acids in Drinking Water by ECD

Underivatized Acids

M-515.3A — **1 x 1 mL**
M-515.3A-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 17 comps.

Acifluorfen	(50 µg/mL)	3,5-Dichlorobenzoic acid	(50 µg/mL)
Bentazon	(100 µg/mL)	Dichlorprop	(100 µg/mL)
Chloramben	(50 µg/mL)	Dinoseb	(100 µg/mL)
2,4-D	(100 µg/mL)	4-Nitrophenol	(100 µg/mL)
Dalapon	(100 µg/mL)	Pentachlorophenol	(10 µg/mL)
2,4-DB	(100 µg/mL)	Picloram	(100 µg/mL)
DCPA Diacid	(50 µg/mL)	2,4,5-T	(25 µg/mL)
DCPA monoacid	(50 µg/mL)	Silvex	(25 µg/mL)
Dicamba	(50 µg/mL)		

Laboratory Performance Check Methyl Derivatives

M-515.3-LPC — **1 x 1 mL**
M-515.3-LPC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 4 comps.

2,4-DB methyl ester	(25 µg/mL)	Chloramben methyl ester	(12.5 µg/mL)
Dinoseb methyl ether	(25 µg/mL)	4-Nitroanisole	(25 µg/mL)

Independent Check Standard Methyl Derivatives

M-515.3-ICS — **1 x 1 mL**
M-515.3-ICS-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 16 comps.

Acifluorfen methyl ester	(50 µg/mL)	Methyl-3,5-Dichlorobenzoate	(50 µg/mL)
Bentazon methyl	(100 µg/mL)	Dichlorprop methyl ester	(100 µg/mL)
Chloramben methyl ester	(50 µg/mL)	Dinoseb methyl ether	(100 µg/mL)
2,4-D methyl ester	(100 µg/mL)	4-Nitroanisole	(100 µg/mL)
Dalapon methyl ester	(100 µg/mL)	Pentachloroanisole	(10 µg/mL)
2,4-DB methyl ester	(100 µg/mL)	Picloram methyl ester	(100 µg/mL)
Dacthal	(100 µg/mL)	2,4,5-T methyl ester	(25 µg/mL)
Dicamba methyl ester	(50 µg/mL)	Silvex methyl ester	(25 µg/mL)

Internal Standard

M-515-IS — **1 x 1 mL**
M-515-IS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in MtBE

4,4'-Dibromooctafluorobiphenyl

Method 515.4 Chlorinated Acids in Drinking Water by ECD

Underivatized Acids

M-515.4A — **1 x 1 mL**
M-515.4A-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 17 comps.

Acifluorfen	(50 µg/mL)	3,5-Dichlorobenzoic acid	(50 µg/mL)
Bentazon	(100 µg/mL)	Dichlorprop	(100 µg/mL)
Chloramben	(50 µg/mL)	Dinoseb	(100 µg/mL)
2,4-D	(100 µg/mL)	Pentachlorophenol	(10 µg/mL)
Dalapon	(100 µg/mL)	Picloram	(50 µg/mL)
2,4-DB	(100 µg/mL)	2,4,5-T	(25 µg/mL)
DCPA Diacid	(50 µg/mL)	Silvex	(25 µg/mL)
DCPA monoacid	(50 µg/mL)	Quinclorac	(50 µg/mL)
Dicamba	(50 µg/mL)		

Underivatized Surrogate

M-8150B-SS — **1 x 1 mL**
M-8150B-SS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in Acetone

2,4-Dichlorophenylacetic acid

Quality Control Sample Methyl Derivatives

M-515.4-QCS — **1 x 1 mL**
M-515.4-QCS-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 16 comps.

Acifluorfen methyl ester	(50 µg/mL)	Methyl-3,5-Dichlorobenzoate	(50 µg/mL)
Bentazon methyl	(100 µg/mL)	Dichlorprop methyl ester	(100 µg/mL)
Chloramben methyl ester	(50 µg/mL)	Dinoseb methyl ether	(100 µg/mL)
2,4-D methyl ester	(100 µg/mL)	Pentachloroanisole	(10 µg/mL)
Dalapon methyl ester	(100 µg/mL)	Picloram methyl ester	(50 µg/mL)
2,4-DB methyl ester	(100 µg/mL)	2,4,5-T methyl ester	(25 µg/mL)
Dacthal	(100 µg/mL)	Silvex methyl ester	(25 µg/mL)
Dicamba methyl ester	(50 µg/mL)	Quinclorac methyl ester	(50 µg/mL)

Technical Note

M-515.3A and M-515.4A are to be used as procedural standards for the calibration of the method. These standards should be carried through the entire extraction and derivatization procedure associated with the samples.

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 521 Nitrosamines by SPE & Capillary Column GC

Analyte Stock Solution

M-521 — **1 x 1 mL**
200 µg/mL each in CH_2Cl_2 — 7 comps.

N-Nitrosodimethylamine
N-Nitrosomethylethylamine
N-Nitrosodiethylamine
N-Nitrosodi-n-propylamine
N-Nitrosodi-n-butylamine
N-Nitrosopyrrolidine
N-Nitrosopiperidine

Internal Standard Stock Solution

M-521-IS — **1 x 1 mL**
M-521-IS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

N-Nitrosodi-n-propylamine-d_{14}

Surrogate Standard Stock Solution

M-521-SS — **1 x 1 mL**
M-521-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

N-Nitrosodimethylamine-d_6

Method 524.2 Volatile Organic Compounds by GC/MS

See M-502.2 VOCs by PID/ELCD
54 Liquid & 6 Gaseous Compounds

Addition to Method 524.2 (Revision 4.0 August 1992)

M-524R-B ❄ — **1 x 1 mL**
M-524R-B-PAK ❄ — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 24 comps.

Acetone
Acrylonitrile
Allyl chloride
2-Butanone
Carbon disulfide
Chloroacetonitrile
1-Chlorobutane
trans-1,4-Dichloro-2-butene
1,1-Dichloropropanone
Diethyl ether
Ethyl methacrylate
Hexachloroethane
2-Hexanone
Methacrylonitrile
Methylacrylate
Methyl iodide
Methylmethacrylate
4-Methyl-2-pentanone
Methyl-*t*-butyl ether
Nitrobenzene
2-Nitropropane
Pentachloroethane
Propionitrile
Tetrahydrofuran

Technical Note

Standards containing aldehydes and ketones in methanol are given short expiration periods because of their tendency to form acetals and ketals. Stabilizers are added to inhibit this reaction.

Mixtures of Internal, Surrogate Standards & Fortification Solutions

Internal Standards

M-502-IS — **1 x 1 mL**
M-502-IS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

1-Chloro-2-bromopropane
Fluorobenzene

M-502-IS-2 — **1 x 1 mL**
M-502-IS-2-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

1-Chloro-2-bromopropane
Fluorobenzene
Methylene chloride-d_2

M-524-IS — **1 x 1 mL**
M-524-IS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

1,2-Dichlorobenzene-d_4
Fluorobenzene

Method 524.2 VOCs by GC/MS (Continued)

M-524-IS-2 — **1 x 1 mL**
M-524-IS-2-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL in MeOH
M-524-IS-2-10X — **5 x 1 mL**
20 mg/mL in MeOH

Fluorobenzene

Fortification Standard

M-524-FS — **1 x 1 mL**
M-524-FS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d_4
Fluorobenzene

Surrogate Standard

M-524-SS — **1 x 1 mL**
M-524-SS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d_4

GC/MS Tuning Solution

M-624-SS-03-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH

p-Bromofluorobenzene

Method 524.3 Purgeable Organic Compounds by GC/MS

See M-502.2 VOCs by PID/ELCD
54 Liquid & 6 Gaseous Compounds

M-524R-C — **1 x 1 mL**
M-524R-C-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 18 comps.

1,3-Butadiene
1-Chlorobutane
Allyl chloride
Carbon disulfide
Chlorodifluoromethane
Diethyl ether
Diisopropyl ether
Ethyl methacrylate
Hexachloroethane
Methyl acetate
Methyl iodide
Methyl-t-butyl ether
Pentachloroethane
t-Amyl ethyl ether
t-Amyl methyl ether
t-Butyl alcohol
t-Butyl ethyl ether
Tetrahydrofuran

Internal Standard

M-524R-C-IS — **1 x 1 mL**
M-524R-C-IS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

1,4-Difluorobenzene
Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4

Internal and Surrogate Standard

M-524R-C-IS/SS — **1 x 1 mL**
M-524R-C-IS/SS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

1,4-Difluorobenzene
Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
tert-Butyl methyl ether-d_3
p-Bromofluorobenzene
1,2-Dichlorobenzene-d_4

Surrogate Standard

M-524R-C-SS — **1 x 1 mL**
M-524R-C-SS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

tert-Butyl methyl ether-d_3
1,2-Dichlorobenzene-d_4
p-Bromofluorobenzene

❄ ColdPAK required to maintain integrity of product.

Method 525.1 Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

PAH Mixtures

M-525-1 — **1 x 1 mL**
M-525-1-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL each in Acetone — 13 comps.
M-525-1-5X — **1 x 1 mL**
M-525-1-5X-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 13 comps.

- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[a]pyrene
- Benzo[g,h,i]perylene
- Chrysene
- Dibenz[a,h]anthracene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Phenanthrene
- Pyrene

PCB Congener Mixtures

M-525-2 — **1 x 1 mL**
M-525-2-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL each in Acetone — 8 comps.
M-525-2-5X — **1 x 1 mL**
M-525-2-5X-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 8 comps.

- 2-Chlorobiphenyl (#1)
- 2,3-Dichlorobiphenyl (#5)
- 2,2',3,3',4,4',6-Heptachlorobiphenyl (#171)
- 2,2',4,4',5,6'-Hexachlorobiphenyl (#154)
- 2,2',3,3',4,5',6,6'-Octachlorobiphenyl (#200)
- 2,2',3',4,6-Pentachlorobiphenyl (#98)
- 2,2',4,4'-Tetrachlorobiphenyl (#47)
- 2,4,5-Trichlorobiphenyl (#29)

Pesticide Mixtures

M-525-3 — **1 x 1 mL**
M-525-3-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL each in Acetone
M-525-3-5X — **1 x 1 mL**
M-525-3-5X-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 12 comps.

- Alachlor
- Aldrin
- Atrazine
- α-Chlordane
- γ-Chlordane
- Endrin
- Heptachlor
- Heptachlor epoxide
- Lindane
- Methoxychlor
- Simazine
- *trans*-Nonachlor

Semi-Volatile Mixtures

M-525-4 — **1 x 1 mL**
M-525-4-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in Acetone (PCP 0.4 mg/mL)
M-525-4-5X — **1 x 1 mL**
M-525-4-5X-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL in Acetone (PCP 2.0 mg/mL) — 9 comps.

- Butylbenzylphthalate
- di-*n*-Butylphthalate
- Diethylphthalate
- bis(2-Ethylhexyl)adipate
- Dimethylphthalate
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- bis(2-Ethylhexyl)phthalate
- Pentachlorophenol *(PCP)*

Multi-Component / Analyte

M-525-5 — **1 x 1 mL**
M-525-5-PAK — *SAVE* — **5 x 1 mL**
2.5 mg/mL in Acetone

- Toxaphene

Internal Standard

M-525-IS — **1 x 1 mL**
M-525-IS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- Perylene-d_{12}
- Phenanthrene-d_{10}

Fortification Standards

M-525-FS-1 — **1 x 1 mL**
M-525-FS-1-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 4 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- Perylene-d_{12}
- Phenanthrene-d_{10}

M-525-FS-2 — **1 x 1 mL**
M-525-FS-2-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL in CH_2Cl_2

- *p*-Terphenyl-d_{14}

Tuning Standards

CLP-TS — **1 x 1 mL**
CLP-TS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL in CH_2Cl_2

- Perfluorokerosene

M-525-TS — **1 x 1 mL**
M-525-TS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in CH_2Cl_2

- DFTPP

Surrogate Standard

M-525-SS — **1 x 1 mL**
M-525-SS-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL in Acetone

- Pyrene-d_{10}

Buy the Complete Set and Save

Method 525 Organic Compounds in Drinking Water Sets

M-525-R-SET	**5 x 1 mL (M-525-1, M-525-2, M-525-3, M-525-4, M-525-5)**
M-525-R-5X-SET	**5 x 1 mL (M-525-1-5X, M-525-2-5X, M-525-3-5X, M-525-4-5X, M-525-5)**
M-525-SET	**7 x 1 mL (M-525-1-5X, M-525-2-5X, M-525-3-5X, M-525-4-5X, M-525-5, M-525-IS, M-525-TS)**

Method 525.2 (Revision 1.0) Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

All 112 analytes (excluding Disulfoton sulfoxide and Disulfoton sulfone which can be found in the Pesticide section) listed in this revision can be found in the mixes below. We realize that many labs will not be analyzing for all of these analytes at one time since it is not practical or necessary in many instances. If all the analytes must be determined, the following multiple calibration mixes are offered to accomplish this task. Several of these mixes are from our current product line and are grouped as nitrogen/phosphorus pesticides, organochlorine pesticides, semi-volatiles, polyaromatics, PCB congeners, and individual multi-component solutions for the Aroclors and Toxaphene. These solutions can be purchased individually or as a complete set for your laboratory's particular needs. Additionally, the required surrogate, internal, and tuning standards are offered below.

Nitrogen/Phosphorus Pesticides

M-507A — **1 x 1 mL**
1.0 mg/mL each in MtBE — 6 comps.

- Ametryn
- Cycloate
- Disulfoton
- Fenamiphos
- Merphos
- Prometon

M-507B — **1 x 1 mL**
1.0 mg/mL each in MtBE — 9 comps.

- Atrazine
- Diphenamid
- EPTC
- Ethoprop
- Mevinphos
- Prometryne
- Propazine
- Terbutryn
- Triadimefon

M-507C — **1 x 1 mL**
1.0 mg/mL each in MtBE — 9 comps.

- Butachlor
- Carboxin
- Diazinon
- Metolachlor
- Metribuzin
- MGK-264
- Norflurazon
- Terbufos
- Vernolate

M-507D — **1 x 1 mL**
1.0 mg/mL each in MtBE — 10 comps.

- Alachlor
- Atraton
- Bromacil
- Butylate
- Chlorpropham
- Hexazinone
- Molinate
- Pronamide
- Stirofos
- Tricyclazole

M-507E — **1 x 1 mL**
1.0 mg/mL each in MtBE — 8 comps.

- Dichlorvos
- Fenarimol
- Fluridone
- Napropamide
- Pebulate *(Tillam)*
- Simetryn
- Tebuthiuron
- Terbacil

M-507F-R2 — **1 x 1 mL**
1.0 mg/mL each in Acetone — 2 comps.

- Methyl paraoxon
- Simazine

Auxiliary Standards

Internal Standard

M-525.2-IS — **1 x 1 mL**
M-525.2-IS-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 3 comps.

- Acenapthene-d_{10}
- Chrysene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standard

M-525.2-SS — **1 x 1 mL**
M-525.2-SS-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 3 comps.

- 1,3-Dimethyl-2-nitrobenzene
- Perylene-d_{12}
- Triphenylphosphate

Internal/Surrogate Standard

M-525.2-IS/SS — **1 x 1 mL**
M-525.2-IS/SS-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 6 comps.

- Acenapthene-d_{10}
- Chrysene-d_{12}
- 1,3-Dimethyl-2-nitrobenzene
- Perylene-d_{12}
- Phenanthrene-d_{10}
- Triphenylphosphate

Tuning Standard

M-525.2-TS — **1 x 1 mL**
0.5 mg/mL each in CH_2Cl_2 — 3 comps.

- 4,4'-DDT
- DFTPP
- Endrin

Technical Note

Endrin & DDT can break down in the injection port at elevated temperatures. Breakdown can be monitored by running the Pesticide Degradation Standard (M-8081-DS). The problem can be alleviated by replacing the dirty injection port liner, or by using a lower injection port temperature.

Multi-Component Technical Solutions

Toxaphene

M-525-5 — **1 x 1 mL**
2.5 mg/mL in Acetone

Aroclor 1254

C-254S-M-28.5X — **1 x 1 mL**
1.0 mg/mL in MeOH

Aroclor® 1016

C-216S-M-28.5X — **1 x 1 mL**
1.0 mg/mL in MeOH

Aroclor 1260

C-260S-M-28.5X — **1 x 1 mL**
1.0 mg/mL in MeOH

Complete Method 525.2 Set

M-525.2-SET ❄ — **18 x 1 mL**

M-507A	M-507D	M-508P-A	M-525-2-5X	M-525.2-IS	C-216S-M-28.5X
M-507B	M-507E	M-508P-B-R2	M-525-4R-5X	M-525.2-SS	C-254S-M-28.5X
M-507C	M-507F-R2	M-525-1-5X	M-525-5	M-525.2-TS	C-260S-M-28.5X

❄ ColdPAK required to maintain integrity of product.

Method 525.2 (Continued) Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

Chlorinated Pesticides

Mix A

M-508P-A **1 x 1 mL**
M-508P-A-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in MtBE 17 comps.

- Aldrin
- α-BHC
- β-BHC
- δ-BHC
- γ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide
- Methoxychlor

Mix B

M-508P-B-R2 **1 x 1 mL**
M-508P-B-R2-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in MtBE 15 comps.

- α-Chlordane
- γ-Chlordane
- Chlorobenzilate
- Chloroneb
- Chlorothalonil
- Chlorpyrifos
- Cyanazine
- DCPA
- Etridiazole
- Hexachlorobenzene
- *trans*-Nonachlor
- *cis*-Permethrin (0.5 mg/mL)
- *trans*-Permethrin (1.5 mg/mL)
- Propachlor
- Trifluralin

Certificate will reflect actual cis/trans permethrin ratio

Semi-Volatile Analytes

PAH Mixtures

M-525-1-5X **1 x 1 mL**
0.5 mg/mL each in Acetone 13 comps.

- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[a]pyrene
- Benzo[g,h,i]perylene
- Chrysene
- Dibenz[a,h]anthracene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Phenanthrene
- Pyrene

PCB Congener Mixtures

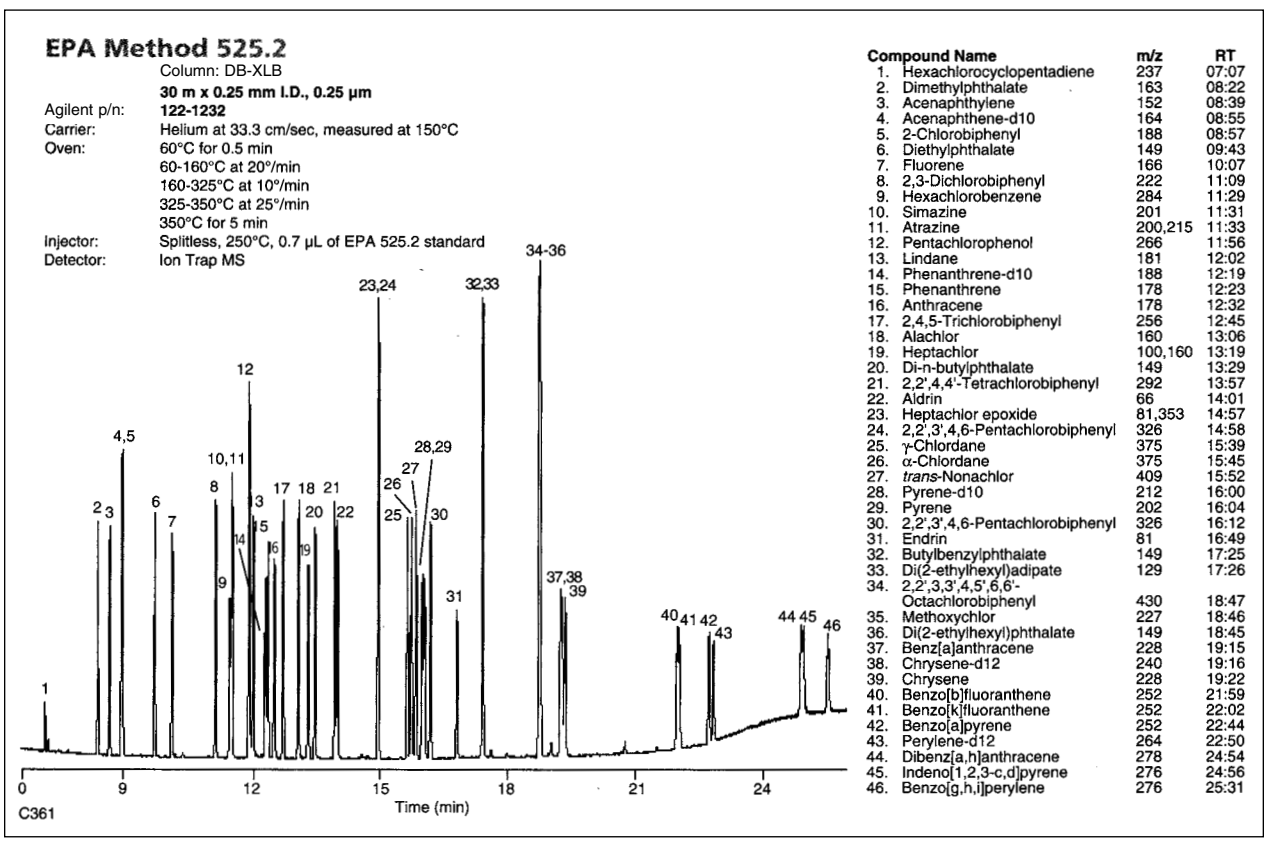
M-525-2-5X **1 x 1 mL**
0.5 mg/mL each in Acetone 8 comps.

- 2-Chlorobiphenyl
- 2,3-Dichlorobiphenyl
- 2,2',3,3',4,4',6-Heptachlorobiphenyl
- 2,2',4,4',5,6'-Hexachlorobiphenyl
- 2,2',3,3',4,5',6,6'-Octachlorobiphenyl
- 2,2',3',4,6-Pentachlorobiphenyl
- 2,2',4,4'-Tetrachlorobiphenyl
- 2,4,5-Trichlorobiphenyl

Semi-Volatile Mixtures

M-525-4-R-5X **1 x 1 mL**
0.5 mg/mL each in Acetone 11 comps.

- Butylbenzylphthalate
- di-*n*-Butylphthalate
- Diethylphthalate
- bis(2-Ethylhexyl)adipate
- Dimethylphthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorocyclopentadiene
- bis(2-Ethylhexyl)phthalate
- Isophorone
- Pentachlorophenol *(2.0 mg/mL)*



	Compound Name	m/z	RT
1.	Hexachlorocyclopentadiene	237	07:07
2.	Dimethylphthalate	163	08:22
3.	Acenaphthylene	152	08:39
4.	Acenaphthene-d10	164	08:55
5.	2-Chlorobiphenyl	188	08:57
6.	Diethylphthalate	149	09:43
7.	Fluorene	166	10:07
8.	2,3-Dichlorobiphenyl	222	11:09
9.	Hexachlorobenzene	284	11:29
10.	Simazine	201	11:31
11.	Atrazine	200,215	11:33
12.	Pentachlorophenol	266	11:56
13.	Lindane	181	12:02
14.	Phenanthrene-d10	188	12:19
15.	Phenanthrene	178	12:23
16.	Anthracene	178	12:32
17.	2,4,5-Trichlorobiphenyl	256	12:45
18.	Alachlor	160	13:06
19.	Heptachlor	100,160	13:19
20.	Di-n-butylphthalate	149	13:29
21.	2,2',4,4'-Tetrachlorobiphenyl	292	13:57
22.	Aldrin	66	14:01
23.	Heptachlor epoxide	81,353	14:57
24.	2,2',3',4,6-Pentachlorobiphenyl	326	14:58
25.	γ-Chlordane	375	15:39
26.	α-Chlordane	375	15:45
27.	*trans*-Nonachlor	409	15:52
28.	Pyrene-d10	212	16:00
29.	Pyrene	202	16:04
30.	2,2',3',4,6-Pentachlorobiphenyl	326	16:12
31.	Endrin	81	16:49
32.	Butylbenzylphthalate	149	17:25
33.	Di(2-ethylhexyl)adipate	129	17:26
34.	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	430	18:47
35.	Methoxychlor	227	18:46
36.	Di(2-ethylhexyl)phthalate	149	18:45
37.	Benz[a]anthracene	228	19:15
38.	Chrysene-d12	240	19:16
39.	Chrysene	228	19:22
40.	Benzo[b]fluoranthene	252	21:59
41.	Benzo[k]fluoranthene	252	22:02
42.	Benzo[a]pyrene	252	22:44
43.	Perylene-d12	264	22:50
44.	Dibenz[a,h]anthracene	278	24:54
45.	Indeno[1,2,3-c,d]pyrene	276	24:56
46.	Benzo[g,h,i]perylene	276	25:31

Method 525.2 (Continued) Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

These solutions are to be used individually or combined for calibration curve development. The Nitrogen Phosphorous Pesticides typically analyzed by NPD were combined into convenient solutions for possible use in other EPA methods such as 507. The Chlorinated Pesticides typically analyzed by ECD were combined into a convenient solution for use in this method or additional methods such as 505 or 508.1.

Nitrogen / Phosphorus Pesticide Mixture

M-525.2-NP1-ASL — **1 x 1 mL**
M-525.2-NP1-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
100 µg/mL each in Acetone — 41 comps.

Alachlor	Ethoprop	Prometryne
Ametryn	Fenarimol	Pronamide
Atraton	Fluridone	Propachlor
Atrazine	Hexazinone	Propazine
Bromacil	Methyl paraoxon	Simetryn
Butachlor	Metolachlor	Tetrachlorvinphos
Butylate	Metribuzin	Tebuthiuron
Chlorpropham	Mevinphos	Terbacil
Dursban	MGK-264	Prebane
Cycloate	Molinate	Triadimefon
Cyanazine	Napropamide	Tricyclazole
Dichlorvos	Norflurazon	Trifluralin
Diphenamid	Pebulate	Vernolate
EPTC	Prometon	

Nitrogen / Phosphorus Pesticide Mix Revision

M-525.2-NP1-ASL-R1 Alternate Source — **1 x 1 mL**
100 µg/mL each in Acetone — 40 comps.

Alachlor	Ethoprop	Prometryne
Ametryn	Fenarimol	Pronamide
Atraton	Fluridone	Propachlor
Atrazine	Hexazinone	Propazine
Bromacil	Methyl paraoxon	Simetryn
Butachlor	Metolachlor	Tetrachlorvinphos
Butylate	Mevinphos	Tebuthiuron
Chlorpropham	MGK-264	Terbacil
Dursban	Molinate	Prebane
Cycloate	Napropamide	Triadimefon
Cyanazine	Norflurazon	Tricyclazole
Dichlorvos	Pebulate	Trifluralin
Diphenamid	Prometon	Vernolate
EPTC		

Nitrogen / Phosphorus Pesticide Mixture

M-525.2-NP2-ASL — **1 x 1 mL**
M-525.2-NP2-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
100 µg/mL each in Acetone — 6 comps.

Carboxin	Fenamiphos
Diazinon	Merphos
Disulfoton	Terbufos

Organochlorine Pesticides

M-525.2-CP-ASL — **1 x 1 mL**
M-525.2-CP-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
100 µg/mL each in Acetone — 30 comps.

Alachlor	Dacthal	Etridiazole
Aldrin	p,p'-DDD	α-Chlordane
Atrazine	p,p'-DDE	γ-Chlordane
α-BHC	p,p'-DDT	Heptachlor
β-BHC	Dieldrin	Heptachlor epoxide (Isomer B)
δ-BHC	Endosulfan I	Methoxychlor
γ-BHC	Endosulfan II	*cis*-Permethrin
Chlorobenzilate	Endosulfan sulfate	*trans*-Permethrin
Chlorothalonil	Endrin	Simazine
Chloroneb	Endrin aldehyde	*trans*-Nonachlor

Match frequently requested products.
Alternate Source
ASL products can be used as an independent second source.

Semi-Volatiles Mixture

M-525.2-SV-ASL — **1 x 1 mL**
M-525.2-SV-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
100 µg/mL each in Acetone — 33 comps.

Acenaphthylene	2,4-Dinitrotoluene
Anthracene	2,6-Dinitrotoluene
Benz[a]anthracene	Fluorene
Benzo[b]fluoranthene	Hexachlorobenzene
Benzo[k]fluoranthene	2,2',4,4',5,6'-Hexachlorobiphenyl
Benzo[g,h,i]perylene	2,2',3,3',4,4',6-Heptachlorobiphenyl
Benzo[a]pyrene	Hexachlorocyclopentadiene
Benzyl butyl phthalate	Indeno[1,2,3-cd]pyrene
2-Chlorobiphenyl	Isophorone
Chrysene	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
Dibenz[a,h]anthracene	2,2',3',4,6-Pentachlorobiphenyl
2,3-Dichlorobiphenyl	Pentachlorophenol (400 µg/mL)
bis(2-Ethylhexyl)adipate	Phenanthrene
bis(2-Ethylhexyl)phthalate	Pyrene
Diethyl phthalate	2,2',4,4'-Tetrachlorobiphenyl
Dimethyl phthalate	2,4,5-Trichlorobiphenyl
Dibutyl phthalate	

Regulated Semi-Volatiles Mixture

M-525-REG-ASL — **1 x 1 mL**
M-525-REG-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 6 comps.

Benzo[a]pyrene	Hexachlorobenzene
bis(2-Ethylhexyl)adipate	Hexachlorocyclopentadiene
bis(2-Ethylhexyl)phthalate	Pentachlorophenol (2.0 mg/mL)

ISTD/SS Fortification Solution

M-525.2-FS-ASL — **1 x 1 mL**
M-525.2-FS-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 7 comps.

Acenaphthene-d_{10}	Phenanthrene-d_{10}
Chrysene-d_{12}	Pyrene-d_{10}
1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
Perylene-d_{12}	

Surrogate Standard

M-525.2-SS2-ASL — **1 x 1 mL**
M-525.2-SS2-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 4 comps.

1,3-Dimethyl-2-nitrobenzene	Pyrene-d_{10}
Perylene-d_{12}	Triphenylphosphate

Regulated Semi-Volatiles Mixture

M-525-REG-EA — **1 x 1 mL**
100 µg/mL each in Ethyl acetate — 25 comps.
M-525-REG-EA-5X — **1 x 1 mL**
500 µg/mL each in Ethyl acetate — 25 comps.

Alachlor	Endrin
Aldrin	Heptachlor
Atrazine	Heptachlor epoxide (isomer B)
Benzo(a)pyrene	Hexachlorobenzene
Butachlor	Hexachlorocyclopentadiene
α-Chlordane	Lindane
γ-Chlordane	Methoxychlor
Cyanazine	Metolachlor
Dieldrin	Metribuzin
2,4-Dinitrotoluene	trans-Nonachlor
2,6-Dinitrotoluene	Propachlor
bis(2-Ethylhexyl)adipate	Simazine
bis(2-Ethylhexyl)phthalate	

Method 526 Semi-Volatiles by GC/MS

Primary Dilution Standard

M-526-0.2X-EA — **1 x 1 mL**
M-526-0.2X-EA-PAK — *SAVE* — **5 x 1 mL**
200 µg/mL each in Ethyl acetate — 11 comps.
M-526 — **1 x 1 mL**
M-526-PAK — *SAVE* — **5 x 1 mL**
1000 µg/mL each in Acetone — 11 comps.

- Acetochlor
- Cyanazine
- Diazinon
- 2,4-Dichlorophenol
- 1,2-Diphenylhydrazine
- Disulfoton
- Dyfonate
- Nitrobenzene
- Prometon
- Terbufos
- 2,4,6-Trichlorophenol

Internal/Surrogate Standards

M-526-IS/SS — **1 x 1 mL**
M-526-IS/SS-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 5 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,3-Dimethyl-2-nitrobenzene
- Phenanthrene-d_{10}
- Triphenylphosphate

M-525-TS-0.05X — **1 x 1 mL**
5 µg/mL in CH_2C_2

- DFTPP

Internal Standard

M-525.2-IS — **1 x 1 mL**
M-525.2-IS-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 3 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standard

M-526-SS — **1 x 1 mL**
M-526-SS-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 2 comps.

- 1,3-Dimethyl-2-nitrobenzene
- Triphenylphosphate

Method 527 Pesticides & Flame Retardants in Drinking Water by SPE & Capillary GC/MS

PBDE Standard

M-527-BDE — **1 x 1 mL**
50 µg/mL each in Isooctane:Ethyl Acetate (80:20) — 5 comps.

- 2,2',4,4'-Tetrabromodiphenyl ether
- 2,2',4,4',6-Pentabromodiphenyl ether
- 2,2',4,4',5-Pentabromodiphenyl ether
- 2,2',4,4',5,5'-Hexabromodiphenyl ether
- 2,2',4,4',5,5'-Hexabromobiphenyl

Pesticide Mix A

M-527-PEST-A — **1 x 1 mL**
500 µg/mL each in MeOH — 11 comps.

- Atrazine
- Bioallethrin, S-cyclopentyl isomer
- Bromacil
- Esfenvalerate
- Fenvalerate
- Hexazinone
- Kepone
- Norflurazon
- Oxychlordane isomer
- Prometryne
- Propazine

Pesticide Mix B

M-527-PEST-B — **1 x 1 mL**
500 µg/mL each in MeOH — 12 comps.

- Bifenthrin
- Dimethoate
- Dursban
- Fenamiphos
- Malathion
- Mirex
- Nitrofen
- Parathion
- Terbufos sulfone
- Thiazopyr
- Thiobencarb
- Vinclozolin

Internal Standard

M-525.2-IS — **1 x 1 mL**
M-525.2-IS-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 3 comps.

- Acenapthene-d_{10}
- Chrysene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standard

M-525.2-SS — **1 x 1 mL**
0.5 mg/mL each in Acetone — 3 comps.

- 1,3-Dimethyl-2-nitrobenzene
- Perylene-d_{12}
- Triphenylphosphate

Method 528 Phenols by GC/MS

Stock Calibration Standard

M-528-CONC **1 x 1 mL**
M-528-CONC-PAK *SAVE* **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 12 comps.

4-Chloro-3-methylphenol	2-Methyl-4,6-Dinitrophenol
2-Chlorophenol	2-Nitrophenol
o-Cresol	4-Nitrophenol
2,4-Dichlorophenol	Pentachlorophenol
2,4-Dimethylphenol	Phenol
2,4-Dinitrophenol	2,4,6-Trichlorophenol

Internal Standard

M-528-IS **1 x 1 mL**
M-528-IS-PAK *SAVE* **5 x 1 mL**
At stated conc. in CH_2Cl_2 2 comps.

1,2-Dimethyl-3-nitrobenzene	(1000 µg/mL)
2,3,4,5-Tetrachlorophenol	(2000 µg/mL)

Peak Tailing Factor Standard

M-528-PTF **1 x 1 mL**
M-528-PTF-PAK *SAVE* **5 x 1 mL**
10 µg/mL each in CH_2Cl_2 4 comps.

2,4-Dimethylphenol	4-Nitrophenol
2-Methyl-4,6-dinitrophenol	Pentachlorophenol

Analyte Fortification Solution

M-528-AFS **1 x 1 mL**
M-528-AFS-PAK *SAVE* **5 x 1 mL**
At stated conc. in MeOH 12 comps.

4-Chloro-3-methylphenol	(100 µg/mL)	2-Methyl-4,6-Dinitrophenol	(500 µg/mL)
2-Chlorophenol	(100 µg/mL)	2-Nitrophenol	(100 µg/mL)
o-Cresol	(100 µg/mL)	4-Nitrophenol	(500 µg/mL)
2,4-Dichlorophenol	(100 µg/mL)	Pentachlorophenol	(500 µg/mL)
2,4-Dimethylphenol	(100 µg/mL)	Phenol	(100 µg/mL)
2,4-Dinitrophenol	(500 µg/mL)	2,4,6-Trichlorophenol	(100 µg/mL)

Surrogate Standards

M-528-SS **1 x 1 mL**
M-528-SS-PAK *SAVE* **5 x 1 mL**
At stated conc. in MeOH 3 comps.

2-Chlorophenol-d_4	(1000 µg/mL)
2,4-Dimethylphenol-3,5,6-d_3	(1000 µg/mL)
2,4,6-Tribromophenol	(2500 µg/mL)

M-528-SS2 **1 x 1 mL**
M-528-SS2-PAK *SAVE* **5 x 1 mL**
At stated conc. in MeOH 3 comps.

2-Chlorophenol-d_4	(1000 µg/mL)
2,4-Dimethylphenol-3,5,6-d_3	(1000 µg/mL)
2,4,6-Tribromophenol	(2000 µg/mL)

Method 529 Explosive & Related Compounds by SPE & Capillary Column GC/MS

Method 529 Calibration Curve

All in µg/mL in Ethyl acetate Storage Cond.: Freeze (<-10°C)

M-529-	01	02	03	04	05	06	07	08	09
2-Amino-4,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Amino-2,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3,5-Dinitroaniline	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3-Dinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,4-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,6-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
RDX	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Nitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3,5-Trinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Tetryl	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
TNT	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10

Full Scan MS Calibration Set

M-529-MS-SET **6 x 1 mL**
M-529-03, M-529-05, M-529-06, M-529-07, M-529-08, M-529-09

SIM Calibration Set

M-529-SIM-SET **7 x 1 mL**
M-529-01, M-529-02, M-529-03, M-529-04, M-529-05, M-529-06, M-529-07

Storage Condition.: Freeze (<-10°C)

Internal Standard Stock Solution

M-529-IS **1 x 1 mL**
2.0 mg/mL Ethyl acetate

3,4-Dinitrotoluene

Internal Standard Fortification Solution

M-529-ISFS **1 x 1 mL**
200 µg/mL Ethyl acetate:AcCN (96:4) 14 comps.

2-Amino-4,6-dinitrotoluene	Nitrobenzene
4-Amino-2,6-dinitrotoluene	2-Nitrotoluene
3,5-Dinitroaniline	3-Nitrotoluene
1,3-Dinitrobenzene	4-Nitrotoluene
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
2,6-Dinitrotoluene	Tetryl
RDX	TNT

Surrogate Analyte Stock Solutions

M-529-SS1 **1 x 1 mL**
M-529-SS1-PAK *SAVE* **5 x 1 mL**
1000 µg/mL each in MeOH 2 comps.

1,3,5-Trimethyl-2-nitrobenzene	1,2,4-Trimethyl-5-nitrobenzene

M-529-SS2 **1 x 1 mL**
M-529-SS2-PAK *SAVE* **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

Nitrobenzene-d_5

Surrogate Analyte Fortification Solution

M-529-SAFS **1 x 1 mL**
100 µg/mL each in MeOH 3 comps.

1,3,5-Trimethyl-2-nitrobenzene	Nitrobenzene-d_5
1,2,4-Trimethyl-5-nitrobenzene	

Method 531 + 531.1 N-Methyl carbamoyl oximes & N-Methyl carbamates by HPLC

M-531-SET — **set of 11 x 1 mL**
Each at 0.1 mg/mL in AcCN — Analytes listed below

Each at 0.1 mg/mL in AcCN	Cat. No.	1 mL
Aldicarb sulfoxide	M-531-01	
Aldicarb sulfone	M-531-02	
Oxamyl	M-531-03	
Methomyl	M-531-04	
3-Hydroxycarbofuran	M-531-05	
Aldicarb	M-531-06	
Propoxur	M-531-07	
Carbofuran	M-531-08	
Carbaryl	M-531-09	
1-Naphthol	M-531-10	
Methiocarb	M-531-11	

M-531M — **1 x 1 mL**
M-531M-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL each in AcCN — 11 comps.

Performance Check Solution

M-531-QC-R — **1 x 1 mL**
At stated conc. in AcCN — 4 comps.

Aldicarb sulfoxide	(100 µg/mL)	3-Hydroxycarbofuran	(2 µg/mL)
BDMC	(10 µg/mL)	Methiocarb	(20 µg/mL)

Internal Standard

M-531-IS — **1 x 1 mL**
0.1 mg/mL in AcCN

4-Bromo-3,5-dimethylphenyl N-methylcarbamate *(BDMC)*

Carbamate Pesticide Mix

M-531-REG-ASL — **1 x 1 mL**
M-531-REG-ASL-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL in MeOH — 2 comps.

Carbofuran — Oxamyl

Method 532 Phenylureas by HPLC

Phenylurea Concentrate Standard

M-532-CONC1 — **1 x 1 mL**
M-532-CONC1-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL each in MeOH — 6 comps.

Karmex	Propanil
Fluometuron	Siduron
Linuron	Tebuthiuron

Phenylurea Concentrate Standard

M-532-CONC2 — **1 x 1 mL**
M-532-CONC2-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL each in Acetone — 2 comps.

Diflubenzuron — Thidiazuron

Phenylurea Primary Dilution Standard

M-532 — **1 x 1 mL**
M-532-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL each in MeOH, except Siduron — 8 comps.

Diflubenzuron	Propanil
Karmex	Siduron (200 µg/mL)
Fluometuron	Tebuthiuron
Linuron	Thidiazuron

Phenylurea Surrogate Standard

M-532-SS — **1 x 1 mL**
M-532-SS-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in MeOH — 2 comps.

Carbazole — Monuron

Method 535 Acetanilide/Acetamide Herbicide Degradates

Ethanesulfonic acid (ESA) and oxanilic acid (OA) degradation products of acetanilide/acetamide herbicides have been found in U.S. ground waters and surface waters. The substitution of the sulfonic acid or the carbonic acid for the chlorine atom greatly increases the water solubility of degradates relative to the parent compound and contributes to the increased potential for leaching into groundwater. As a result, alachlor ESA and other acetanilide degradation products were listed on the 1998 Safe Drinking Water Act Contaminant Candidate List (CCL). One acetamide and five acetanilide herbicides are currently registered for agricultural use in the U.S. The next step in the CCL-process is to collect data on the concentrations and occurrence of these compounds in the nation's drinking water supplies. However, the existing analytical methods for measuring chloroacetanilide degradates do not address issues specific to analyzing these compounds in drinking water. Because many of the methods were developed for ground water, dechlorination was not addressed nor was the method tested in all types of drinking water matrices. In addition, existing methods do not address all twelve ESA and OA degradates of the six U.S. registered acetanilide/acetamide herbicides. The focus of this research was to develop a sensitive and specific analytical method for the analysis of alachlor ESA and other chloroacetanilide degradates in drinking water.

M-535-SET — **14 x 1 mL**
At stated conc. in MeOH

Acetochlor ESA	50 µg/mL	Propachlor ESA	20 µg/mL
Acetochlor OA	50 µg/mL	Propachlor OA	20 µg/mL
Alachlor ESA	50 µg/mL	Dimethenamid ESA	10 µg/mL
Alachlor OA	50 µg/mL	Dimethenamid OA	10 µg/mL
Flufenacet ESA	20 µg/mL	**Internal Standard**	
Flufenacet OA	20 µg/mL	Butachlor ESA sodium salt	20 µg/mL
Metolachlor ESA	50 µg/mL	**Surrogate Standard**	
Metolachlor OA	50 µg/mL	Dimethachlor ESA sodium salt	20 µg/mL

EPA Method 500 Series

Method 547 Glyphosate by HPLC

M-547 **1 x 1 mL**
0.1 mg/mL in Deionized water
M-547-10X **1 x 1 mL**
1.0 mg/mL in Deionized water

Glyphosate

Glyphosate Metabolite
M-547-02 **1 x 1 mL**
0.1 mg/mL in Deionized water

Aminomethyl phosphonic acid (AMPA)

Method 548 Endothall by GC/ECD

M-548A **1 x 1 mL**
10 µg/mL in Deionized water
M-548B **1 x 1 mL**
50 µg/mL in Deionized water

Endothall

Internal Standard
M-548-IS **1 x 1 mL**
10 µg/mL in MtBE

Endosulfan I

Calibration Standard
M-548-CAL **1 x 1 mL**
100 µg/mL in MtBE

Endothall pentafluorophenyl hydrazine derivative

Method 548.1 Endothall by GC/MS

P-183S **1 x 1 mL**
100 µg/mL in MeOH

Endothall

Internal Standard
M-548.1-IS **1 x 1 mL**
500 µg/mL in MeOH

Acenaphthene-d_{10}

Methyl Derivative
M-548.1-ME **1 x 1 mL**
100 µg/mL in MeOH

Dimethyl endothall

Method 549.1/549.2 Diquat & Paraquat Liquid - Solid Extraction & HPLC

M-549.1 **1 x 1 mL**
1.0 mg/mL each in Deionized water as non-hydrated species 2 comps.

Diquat dibromide - H_2O (1.97 mg/mL)
Paraquat dichloride - 4 H_2O (1.77 mg/mL)

Method 550 + 550.1 PAHs by HPLC & Internal Standard

M-550-QC **1 x 1 mL**
At stated conc. in AcCN 16 comps.

Acenaphthene	(1000 µg/mL)	Chrysene	(50 µg/mL)
Acenaphthylene	(1000 µg/mL)	Dibenz[a,h]anthracene	(10 µg/mL)
Anthracene	(50 µg/mL)	Fluoranthene	(2.5 µg/mL)
Benz[a]anthracene	(1 µg/mL)	Fluorene	(100 µg/mL)
Benzo[a]pyrene	(5 µg/mL)	Indeno[1,2,3-cd]pyrene	(10 µg/mL)
Benzo[b]fluoranthene	(1 µg/mL)	Naphthalene	(1000 µg/mL)
Benzo[g,h,i]perylene	(5 µg/mL)	Phenanthrene	(50 µg/mL)
Benzo[k]fluoranthene	(1 µg/mL)	Pyrene	(50 µg/mL)

Internal Standard
M-550-IS **1 x 1 mL**
0.1 mg/mL in AcCN

4,4'-Difluorobiphenyl

Method 551 Chlorinated Organic Solvents + Trihalomethanes by GC/ECD

M-551A **1 x 1 mL**
M-551A-PAK ***SAVE*** **5 x 1 mL**
5.0 mg/mL each in MeOH 10 comps.

Bromodichloromethane	1,2-Dibromoethane
Bromoform	1,2-Dibromo-3-chloropropane
Carbon tetrachloride	Tetrachloroethene
Chlorodibromomethane	1,1,1-Trichloroethane
Chloroform	Trichloroethene

Disinfection By-products
M-551B **1 x 1 mL**
5.0 mg/mL each in Acetone 8 comps.
M-551B-SET **set of 8 x 1 mL**
Each at 5.0 mg/mL in Acetone

	Cat. No.	1 mL
Bromochloroacetonitrile	M-551B-1	
Chloral hydrate	M-551B-2	
Chloropicrin	M-551B-3	
Dibromoacetonitrile	M-551B-4	
Dichloroacetonitrile	M-551B-5	
1,1-Dichloro-2-propanone	M-551B-6	
Trichloroacetonitrile	M-551B-7	
1,1,1-Trichloro-2-propanone	M-551B-8	

Method 551.1A Chlorinated Solvents, Trihalomethanes Disinfection By-products & Halogenated Pesticides/ Herbicides in Drinking Water by GC/ECD

Chlorinated Organic Solvents + Trihalomethanes

M-551.1A — **1 x 1 mL**
M-551.1A-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 12 comps.

Bromodichloromethane	(1000 µg/mL)
Bromoform	(1000 µg/mL)
Carbon tetrachloride	(500 µg/mL)
Chloroform	(1000 µg/mL)
Dibromochloromethane	(1000 µg/mL)
1,2-Dibromo-3-chloropropane	(1000 µg/mL)
1,2-Dibromoethane	(1000 µg/mL)
Tetrachloroethene	(500 µg/mL)
1,1,1-Trichloroethane	(1000 µg/mL)
1,1,2-Trichloroethane	(10,000 µg/mL)
Trichloroethene	(1000 µg/mL)
1,2,3-Trichloropropane	(10,000 µg/mL)

Disinfection By-products

M-551.1B — **1 x 1 mL**
M-551.1B-PAK — *SAVE* — **5 x 1 mL**
1000 µg/mL each in Acetone — 8 comps.

Bromochloroacetonitrile	Dichloroacetonitrile
Chloral hydrate	1,1-Dichloro-2-propanone
Chloropicrin	Trichloroacetonitrile
Dibromoacetonitrile	1,1,1-Trichloro-2-propanone

Pesticide/Herbicide Mixture

M-551.1C — **1 x 1 mL**
M-551.1C-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 17 comps.

Alachlor	(10 µg/mL)	Hexachlorobenzene	(1 µg/mL)
Atrazine	(200 µg/mL)	Hexachlorocyclopentadiene	(1 µg/mL)
Bromacil	(10 µg/mL)	Lindane	(1 µg/mL)
Cyanazine	(30 µg/mL)	Methoxychlor	(5 µg/mL)
Endrin	(2 µg/mL)	Metolachlor	(10 µg/mL)
Endrin aldehyde	(2 µg/mL)	Metribuzin	(5 µg/mL)
Endrin ketone	(2 µg/mL)	Simazine	(200 µg/mL)
Heptachlor	(1 µg/mL)	Trifluralin	(1 µg/mL)
Heptachlor epoxide (isomer B)	(1 µg/mL)		

Technical Note

1. Method 551.1A analytes are formulated into **3 separate solutions** to meet various analytical laboratory testing requirements. Each solution is intended for use as a stand-alone formulation or in combination with the other two solutions.
2. **Chloral hydrate** is a DEA schedule IV drug. AccuStandard has the necessary license and exemption approval to offer this analyte in a multi-component formulation. This multi-component formulation containing chloral hydrate is tested for stability. In addition, the solution is manufactured in small batches to insure the freshest product.

Using the 3 mixture version not only provides versatility but also eliminates running two separate 5 point calibration curves (one for the core analytes and a separate Chloral hydrate curve).

Method 551.1A Auxiliary Standards by ECD

Laboratory Performance Check Solutions

Pentane Extracts

M-551.1-LPC-P — **1 x 1 mL**
M-551.1-LPC-P-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Pentane — 7 comps.

Alachlor	(83 µg/mL)	Hexachlorocyclopentadiene	(20 µg/mL)
Bromacil	(83 µg/mL)	Lindane	(0.2 µg/mL)
Bromodichloromethane	(30 µg/mL)	Trichloroethene	(30 µg/mL)
Endrin	(30 µg/mL)		

MtBE Extracts

M-551.1-LPC — **1 x 1 mL**
M-551.1-LPC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 7 comps.

Alachlor	(83 µg/mL)	Hexachlorocyclopentadiene	(20 µg/mL)
Bromacil	(83 µg/mL)	Lindane	(0.2 µg/mL)
Bromodichloromethane	(30 µg/mL)	Trichloroethene	(30 µg/mL)
Endrin	(30 µg/mL)		

Internal Standard Solutions

M-551.1-IS — **1 x 1 mL**
M-551.1-IS-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL in Acetone
M-551.1-IS-100X — **1 x 1 mL**
M-551.1-IS-100X-PAK — *SAVE* — **5 x 1 mL**
10,000 µg/mL in Acetone

p-Bromofluorobenzene

Modified Laboratory Performance Check Solutions

Pentane Extracts

M-551.1-MLPC-P — **1 x 1 mL**
M-551.1-MLPC-P-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Pentane — 4 comps.

γ-BHC	(0.2 µg/mL)	Hexachlorocyclopentadiene	(20 µg/mL)
Bromodichloromethane	(30 µg/mL)	Trichloroethene	(30 µg/mL)

MtBE Extracts

M-551.1-MLPC — **1 x 1 mL**
M-551.1-MLPC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MtBE — 4 comps.

γ-BHC	(0.2 µg/mL)	Hexachlorocyclopentadiene	(20 µg/mL)
Bromodichloromethane	(30 µg/mL)	Trichloroethene	(30 µg/mL)

Surrogate Standard Solutions

M-551.1-SS — **1 x 1 mL**
M-551.1-SS-PAK — *SAVE* — **5 x 1 mL**
10 µg/mL in Acetone
M-551.1-SS-100X — **1 x 1 mL**
M-551.1-SS-100X-PAK — *SAVE* — **5 x 1 mL**
1,000 µg/mL in Acetone

Decafluorobiphenyl

Method 552 Haloacetic Acids by ECD

Methyl Derivatives

M-552-R **1 x 1 mL**
1.0 mg/mL each in MtBE 8 comps.
M-552-R-SET **set of 8 x 1 mL**
Each at 1.0 mg/mL in MtBE

	Cat. No.	1 mL
2,4-Dichloroanisole	M-552-R-01	
Methyl bromoacetate	M-552-R-02	
Methy bromochloroacetate	M-552-R-03	
Methyl chloroacetate	M-552-R-04	
Methyl dibromoacetate	M-552-R-05	
Methyl dichloroacetate	M-552-R-06	
Methyl trichloroacetate	M-552-R-07	
2,4,6-Trichloroanisole	M-552-R-08	

Underivatized Analytes

M-552A-R **1 x 1 mL**
1.0 mg/mL each in MtBE 8 comps.
M-552A-R-SET **set of 8 x 1 mL**
Each at 1.0 mg/mL in MtBE

	Cat. No.	1 mL
Bromoacetic acid	M-552A-R-01	
Bromochloroacetic acid	M-552A-R-02	
Chloroacetic acid	M-552A-R-03	
Dibromoacetic acid	M-552A-R-04	
Dichloroacetic acid	M-552A-R-05	
2,4-Dichlorophenol	M-552A-R-06	
Trichloroacetic acid	M-552A-R-07	
2,4,6-Trichlorophenol	M-552A-R-08	

Internal Standards

APP-9-208-10X **1 x 1 mL**
APP-9-208-10X-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in MeOH

1,2,3-Trichloropropane

M-552-IS **1 x 1 mL**
M-552-IS-PAK *SAVE* **5 x 1 mL**
5.0 mg/mL in MeOH

1,2-Dibromopropane

Surrogate Standards as Acids & Methyl esters

P-242S-10X **1 x 1 mL**
P-242S-10X-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in MeOH

3,5-Dichlorobenzoic acid

P-247S-10X **1 x 1 mL**
P-247S-10X-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in MeOH

3,5-Dichlorobenzoic acid methyl ester

M-552-SS **1 x 1 mL**
M-552-SS-PAK *SAVE* **5 x 1 mL**
20 mg/mL in MtBE

2,3-Dibromopropionic acid

M-552-SS-ME **1 x 1 mL**
M-552-SS-ME-PAK *SAVE* **5 x 1 mL**
20 mg/mL in MtBE

2,3-Dibromopropionic acid methyl ester

Method 552.1 Haloacetic Acids by ECD

Methyl Derivatives

M-552.1 **1 x 1 mL**
At stated conc. in MeOH 7 comps.
M-552.1-SET **set of 7 x 1 mL**
Each at stated conc. in MeOH

		Cat. No.	1 mL
Dalapon ME	(200 µg/mL)	M-552.1-01	
Methyl bromoacetate	(200 µg/mL)	M-552.1-02	
Methyl bromochloroacetate	(200 µg/mL)	M-552.1-03	
Methyl chloroacetate	(300 µg/mL)	M-552.1-04	
Methyl dibromoacetate	(100 µg/mL)	M-552.1-05	
Methyl dichloroacetate	(300 µg/mL)	M-552.1-06	
Methyl trichloroacetate	(100 µg/mL)	M-552.1-07	

Underivatized Analytes

M-552.1A **1 x 1 mL**
At stated conc. in MeOH 7 comps.
M-552.1A-SET **set of 7 x 1 mL**
Each at stated conc. in MeOH

Dalapon	(200 µg/mL)
Bromoacetic acid	(200 µg/mL)
Bromochloroacetic acid	(200 µg/mL)
Chloroacetic acid	(300 µg/mL)
Dibromoacetic acid	(100 µg/mL)
Dichloroacetic acid	(300 µg/mL)
Trichloroacetic acid	(100 µg/mL)

Internal Standard

M-552.1-IS **1 x 1 mL**
M-552.1-IS-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in MtBE

1,2,3-Trichloropropane

Surrogate Standards

M-552.1-SS **1 x 1 mL**
M-552.1-SS-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in MtBE

2-Bromopropanoic acid

M-552.1-SS-ME **1 x 1 mL**
M-552.1-SS-ME-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in MtBE

Methyl 2-bromopropionate

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 552.2 Haloacetic Acids & Dalapon in Drinking Water by L-L extraction, Derivatization & GC by ECD

These convenient sets of 10 individual ampules for Method 552.2, each containing a single analyte or its methyl derivative, were formulated with both the acids & their methyl derivatives and with and without the surrogate.

Methyl Derivatives

Haloacetic Acid Methyl Derivatives without Surrogates

M-552.2-R1 **1 x 1 mL**
At stated conc. in MtBE 10 comps.
M-552.2-SET **set of 10 x 1 mL**
M-552.3-R1 **1 x 1 mL**
100 µg/mL each in MtBE

		Cat. No.	1 mL
Dalapon methyl ester	(40 µg/mL)	M-552.2-01	
Methyl bromoacetate	(40 µg/mL)	M-552.2-02	
Methyl bromochloroacetate	(40 µg/mL)	M-552.2-03	
Methyl bromodichloroacetate	(40 µg/mL)	M-552.2-04	
Methyl chloroacetate	(60 µg/mL)	M-552.2-05	
Methyl chlorodibromoacetate	(100 µg/mL)	M-552.2-06	
Methyl dibromoacetate	(20 µg/mL)	M-552.2-07	
Methyl dichloroacetate	(60 µg/mL)	M-552.2-08	
Methyl tribromoacetate	(200 µg/mL)	M-552.2-09 ❄	
Methyl trichloroacetate	(20 µg/mL)	M-552.2-10	

Haloacetic Acid Methyl Derivatives with Surrogate (Methyl-2,3-dibromopropionate)

M-552.2 **1 x 1 mL**
At stated conc. in MtBE 11 comps.
M-552.3 **1 x 1 mL**
100 µg/mL each in MtBE 11 comps.

Dalapon methyl ester	(40 µg/mL)
Methyl bromoacetate	(40 µg/mL)
Methyl bromochloroacetate	(40 µg/mL)
Methyl bromodichloroacetate	(40 µg/mL)
Methyl chloroacetate	(60 µg/mL)
Methyl chlorodibromoacetate	(100 µg/mL)
Methyl dibromoacetate	(20 µg/mL)
Methyl dichloroacetate	(60 µg/mL)
Methyl tribromoacetate	(200 µg/mL)
Methyl trichloroacetate	(20 µg/mL)
Methyl 2,3-dibromopropionate (Surr.)	(100 µg/mL)

Surrogate Standard - Haloacetic Acid Methyl Derivative

M-552.2-SS-ME **1 x 1 mL**
1000 µg/mL in MtBE

Methyl 2,3-dibromopropionate

Laboratory Performance Check Solution

M-552.2-LPC **1 x 1 mL**
M-552.2-LPC-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in MtBE 4 comps.

Methyl bromochloroacetate	(4 µg/mL)
Methyl chloroacetate	(6 µg/mL)
Methyl chlorodibromoacatate	(10 µg/mL)
Methyl 2,3-dibromopropionate	(10 µg/mL)

Working Level

M-552.2-LPC-WL-25ML **1 x 25 mL**
M-552.2-LPC-WL-50ML **1 x 50 mL**
At stated conc. in MtBE 4 comps.

Methyl bromochloroacetate	(0.004 µg/mL)
Methyl chloroacetate	(0.006 µg/mL)
Methyl chlorodibromoacatate	(0.010 µg/mL)
Methyl 2,3-dibromopropionate	(0.010 µg/mL)

Haloacetic Acids

Haloacetic Acid without Surrogate

M-552.2A-R1 **1 x 1 mL**
At stated conc. in MtBE 10 comps.
M-552.2A-SET **set of 10 x 1 mL**
M-552.3A-R1 **1 x 1 mL**
100 µg/mL each in MtBE

		Cat. No.	1 mL
Dalapon acid	(40 µg/mL)	M-552.2A-04	
Monobromoacetic acid	(40 µg/mL)	M-552.2A-07	
Bromochloroacetic acid	(40 µg/mL)	M-552.2A-01	
Bromodichloroacetic acid	(40 µg/mL)	M-552.2A-02	
Monochloroacetic acid	(60 µg/mL)	M-552.2A-08	
Chlorodibromoacetic acid	(100 µg/mL)	M-552.2A-03	
Dibromoacetic acid	(20 µg/mL)	M-552.2A-05	
Dichloroacetic acid	(60 µg/mL)	M-552.2A-06	
Tribromoacetic acid	(200 µg/mL)	M-552.2A-09	
Trichloroacetic acid	(20 µg/mL)	M-552.2A-10	

Haloacetic Acid Mix with Surrogate (2,3-Dibromopropionic acid)

M-552.2A **1 x 1 mL**
At stated conc. in MtBE 11 comps.

Dalapon acid	(40 µg/mL)
Monobromoacetic acid	(40 µg/mL)
Bromochloroacetic acid	(40 µg/mL)
Bromodichloroacetic acid	(40 µg/mL)
Monochloroacetic acid	(60 µg/mL)
Chlorodibromoacetic acid	(100 µg/mL)
Dibromoacetic acid	(20 µg/mL)
Dichloroacetic acid	(60 µg/mL)
Tribromoacetic acid	(200 µg/mL)
Trichloroacetic acid	(20 µg/mL)
2,3-Dibromopropionic acid (Surr.)	(100 µg/mL)

Surrogate Standards - Haloacetic Acid

M-552.2-SS **1 x 1 mL**
1000 µg/mL in MtBE

2,3-Dibromopropionic acid

M-552.2-SS2 **1 x 1 mL**
10 mg/mL in MtBE

2-Bromobutanoic acid

Internal Standard

M-552.2-IS **1 x 1 mL**
1000 µg/mL in MtBE

1,2,3-Trichloropropane

❄ ColdPAK required to maintain integrity of product.

EPA Method 500 Series

Method 553 Benzidines & Nitrogen containing Pesticides by L-L or L-S Extraction & RP HPLC/Particle Beam/MS

Analytes

M-553 ❄ — **1 x 1 mL**
At stated conc. in AcCN:MeOH (50:50) — 13 comps.

Benzidine	(250 µg/mL)	3,3'-Dimethylbenzidine	(350 µg/mL)
Benzoylprop ethyl	(350 µg/mL)	Diuron	(450 µg/mL)
Caffeine	(300 µg/mL)	Linuron	(1,300 µg/mL)
Carbaryl	(1,000 µg/mL)	Monuron	(400 µg/mL)
o-Chlorophenyl thiourea	(750 µg/mL)	Rotenone	(3,200 µg/mL)
3,3'-Dichlorobenzidine	(250 µg/mL)	Siduron	(450 µg/mL)
3,3'-Dimethoxybenzidine	(750 µg/mL)		

Performance Check Solution

M-553-PC — **1 x 1 mL**
0.1 mg/mL in AcCN

DFTPPO *(Decafluorotriphenylphosphine oxide)*

❄ ColdPAK required to maintain integrity of product.

Method 554 Carbonyl Compounds as DNPH Derivatives by HPLC

Carbonyl Compounds

M-554-R1 — **1 x 1 mL**
1.0 mg/mL each in AcCN — 12 comps.

Acetaldehyde	Heptanal
Butanal	Hexanal
Crotonaldehyde	Nonanal
Cyclohexanone	Octanal
Decanal	Pentanal
Formaldehyde	Propanal

DNPH Derivatives

M-554-DNPH — **1 x 1 mL**
1.0 mg/mL each in MeOH:AcCN (95:5) — 12 comps.
M-554-DNPH-SET — **set of 12 x 1 mL**
Each at 1.0 mg/mL in MeOH:AcCN (95:5)

	Cat. No.	1 mL
Acetaldehyde-DNPH ❄	M-554-DNPH-01	
Butanal-DNPH	M-554-DNPH-02	
Crotonaldehyde-DNPH ❄	M-554-DNPH-03	
Cyclohexanone-DNPH	M-554-DNPH-04	
Decanal-DNPH	M-554-DNPH-05	
Formaldehyde-DNPH	M-554-DNPH-06	
Heptanal-DNPH	M-554-DNPH-07	
Hexanal-DNPH	M-554-DNPH-08	
Nonanal-DNPH	M-554-DNPH-09	
Octanal-DNPH	M-554-DNPH-10	
Pentanal-DNPH	M-554-DNPH-11	
Propanal-DNPH	M-554-DNPH-12	

Method 555 Chlorinated Acids by HPLC

Mix A

M-555A — **1 x 1 mL**
1.0 mg/mL each in AcCN — 8 comps.

Acifluorfen	Dicamba
Bentazon	Dichlorprop
Chloramben	Picloram
2,4-D	2,4,5-TP

Mix B

M-555B — **1 x 1 mL**
1.0 mg/mL each in AcCN — 8 comps.

2,4-DB	MCPP
3,5-Dichlorobenzoic acid	4-Nitrophenol
Dinoseb	Pentachlorophenol
MCPA	2,4,5-T

Method 556/556.1 Carbonyl Compounds by PFBHA Derivative with analysis by GC/ECD

Mix A

M-556-MIXA — **1 x 1 mL**
1.0 mg/mL each in AcCN — 13 comps.

Acetaldehyde	Heptanal
Benzaldehyde	Hexanal
Butanal	Nonanal
Crotonaldehyde	Octanal
Cyclohexanone	Pentanal
Decanal	Propanal
Formaldehyde	

Mix B

M-556-MIXB — **1 x 1 mL**
1.0 mg/mL each in AcCN — 2 comps.

Glyoxal	Methyl glyoxal

Technical Note

Difference between Method 556 & 556.1
This product (M-556) was designed to meet both versions of the carbonyl methods. The primary difference between method 556 and 556.1 is that crotonaldehyde has been removed from the analyte list in the 556.1 method. If you require a formulation without the crotonaldehyde, we can custom formulate a standard to meet your exact requirements.

Procedural Calibration Standard
M-556 is to be used as a procedural standard for calibration of the method. As a procedural calibration standard it should be carried through the entire extraction and derivatization procedure associated with the samples. The oxime derivatives are analyzed by GC/ECD.

We have the capability to manufacture the actual oxime derivatives if required.

Internal Standard

M-556-IS — **1 x 1 mL**
M-556-IS-PAK — *SAVE* — **5 x 1 mL**
10 mg/mL in Hexane

1,2-Dibromopropane

Surrogate Standards

M-556-SS — **1 x 1 mL**
M-556-SS-PAK — *SAVE* — **5 x 1 mL**
20 µg/mL in AcCN
M-556-SS-100X — **1 x 1 mL**
M-556-SS-100X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL in AcCN

2',4',5'-Trifluoroacetophenone

PFBHA Reagent

M-556-DER-10ML — **1 x 10 mL**
M-556-DER-10ML-PAK — *SAVE* — **5 x 10 mL**
15 mg/mL in Water

O-(2,3,4,5,6-Pentafluorobenzyl)hydroxylamine hydrochloride

Working Level (Internal Standard)

M-556-IS-WL-5ML-VAP — **10 x 5 mL**
400 µg/L in Hexane

1,2-Dibromopropane

❄ ColdPAK required to maintain integrity of product.

Custom Services

Custom Synthesis

The AccuStandard Synthesis Department employs several PhD. Organic Chemists with many years of pertinent academic and industrial experience. The experienced staff has developed hundreds of pure chemical compounds for companies and governmental agencies around the world. The very well-equipped synthetic laboratory with significant analytical support has made many notable synthesis projects possible. We specialize in synthesizing chemicals of high purity to be used as reference standards, and also offer custom synthesis capability on milligram to kilogram scales.

Analytical Capabilities

- GC-MS, GC-FID, GC-ECD, GC-NPD
- HPLC, LC-MS
- ICP, ICP-MS
- access to more anlytical instrumentation if necessary

Synthesis and Purification

- Milligram to Kilogram Glassware
- Inert Conditions Equipment
- High Performance Flash Chromatography
- Distillation Equipment - High Vacuum, Molecular (Kugelrohr), and Spinning Band Columns Preparative TLC
- Parr Pressure and Hydrogenation Reactor

Custom Synthesized Products

- PCBs (all 209 congeners), & hydroxy, methoxy, and methylsulfonyl metabolites
- Halo-Dibenzodioxins and Furans
- PBDEs (all 209 congeners) & hydroxy, methoxy, chloro metabolites
- Fluorinated PBDEs
- Other Brominated Flame Retardants
- PBBs
- PAHs, Nitro-PAHs, Methyl-PAHs
- Pesticides and metabolites
- Explosives and metabolites
- Nonyl- and Octylphenol Ethoxylates
- Mono- and Diester Phthalates
- Organophosphates
- Other Rare Chemicals

AccuStandard is renowned for its quick response to the needs for new compounds. The company's especially strong Synthesis Department allows the synthesis of important and unique products. Featured in its history of firsts are all of the 209 congeners of polychlorinated biphenyls (PCBs), 209 congeners of polybrominated diphenyl ethers (PBDEs) as well as many halogenated dioxins and dibenzofurans, PAHs, pesticides and fluorinated surrogates substituting the expensive isotopically labelled compounds.

Among the more recent introductions are the hydroxy and methoxy PBDE congeners, mixed bromo/chloro hydroxy and methoxy diphenyl ethers, organophosphate flame retardants, biofuels, plastic additives (AccuStandard authored the Handbook for the Chemical Analysis of Plastic and Polymer Additives published by CRC Press), EPA Method 535 pesticide derivatives and previously unavailable explosive standards.

Custom Formulations

With over 30,000+ custom and 10,000+ listed standards, there is a good chance that AccuStandard will have a standard to meet your needs. However, if your laboratory requires something specific, our Chemists will manufacture a Custom Standard to meet your unique requirements. Custom Standards are an economical and time saving way to have a Standard prepared for your individual needs.

Custom QC options

1. Gravimetric/Volumetric Certification: Each purity is measured gravimetrically and QC verified instrumentally (where available). Every component in the Standard is guaranteed to be within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis. The solutions are diluted to volume using Class A glassware. A Certificate of Analysis accompanies each Standard and documents the gravimetric values used.
2. Full Quantitative Certification: This QA/QC method includes extended GC analysis using both internal calibration standards plus statistical analysis. A data package containing analytical and gravimetric data can be provided if requested during the quotation phase (Organic Customs only).

Custom Packaging and Bulk Quantity Requirements

AccuStandard has the resources and equipment to meet your custom packaging requirements.

- Automated ampule filling & sealing 0.2 mL up to 20 mL and ampule sizes from 1 mL to 20 mL
- Quantities from 500 to over 500,000 ampules
- Homogeneity testing
- Amber ampules for added product stability
- Private labeling and packaging (OEM)

We can reduce your costs using the Cozzoli Auto Filling/Sealing Machine to package just the right size product for your application. OEM Standards - Privately labeled standards manufactured and tested to your specifications. Cold and under Nitrogen sealing available.

National Primary Drinking Water Standards

EPA Safe Drinking Water Act (SDWA) Amendment National Primary Drinking Water Standards

The Safe Drinking Water Act (SDWA) amendment of 1996 established a new charter for the Nation's public water systems. The Environmental Protection Agency sets standards for protecting the safety of drinking water. The regulatory section of this act eliminates the requirement for the EPA to regulate 25 additional contaminants every three years. Instead, every 5 years from enactment of the amendment, the EPA will determine whether or not to regulate at least 5 new contaminants from a list being published within 18 months of the enactment of the amendment. The following two pages of National Primary Drinking Water Standards are formulated to provide convenience and flexibility when analyzing regulated contaminants from the Drinking Water Priority list.

Volatiles

Phase I

VOCs

M-502C-07 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 12 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromochloromethane
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- 1,1,1-Trichloroethane
- Trichloroethylene
- Vinyl chloride

Phase II

VOCs

M-502C-08 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 12 comps.

- Chlorobenzene
- 1,2-Dichlorobenzene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- Ethylbenzene
- Styrene
- Tetrachloroethylene
- Toluene
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Phase V

Additions

M-502C-10 — **1 x 1 mL**
2.0 mg/mL in MeOH — 3 comps.

- Dichloromethane
- 1,2,4-Trichlorobenzene
- 1,1,2-Trichloroethane

Phase VIB

Additions

M-502C-11 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 7 comps.

- Acrylonitrile
- Bromomethane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Hexachlorobutadiene
- 1,1,1,2-Tetrachloroethane
- 1,2,3-Trichloropropane

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Technical Note

If you require formulations with additional analytes found on the contaminant list, please contact our Technical Department.

Combined Phase I, Phase II, Phase V

Volatiles

M-502-REG — **1 x 1 mL**
M-502-REG-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 27 comps.
M-502-REG-10X — **1 x 1 mL**
M-502-REG-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 27 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- Dichloromethane
- 1,2-Dichloropropane
- Ethylbenzene
- Styrene
- Tetrachloroethylene
- Toluene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Vinyl chloride
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene

Method 504 EDB & DBCP

M-504 — **1 x 1 mL**
M-504-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 2 comps.

- 1,2-Dibromoethane *(EDB)*
- 1,2-Dibromo-3-chloropropane *(DBCP)*

Method Specific Individual Standards

Compounds	Method	Concentration	Cat. No.
Diquat	549.1	100 µg/mL in MeOH	P-231S
Endothall	548.1	100 µg/mL in MeOH	P-183S
Ethylene thiourea ††	509	0.1 mg/mL in 0.17 w/v DTT in Ethyl acetate	M-509
Glyphosate	547	100 µg/mL in H_2O	M-547
2,3,7,8-TCDD	525	500 µg/mL in Toluene	D-404S
Toxaphene	525	2.5 mg/mL in Acetone	M-525-5
Water Treatment Chemicals			
Acrylamide	8032	1.0 mg/mL in MeOH	M-8032
Epichlorohydrin	8260B	2000 µg/mL in MeOH	M-8260B-02

†† Proposed Phase VIB Additions, 0.1% w/v DDT as a scavenger

EPA Safe Drinking Water Act (SDWA) Amendment National Primary Drinking Water Standards (continued)

Regulated Herbicide Mixture (Non-derivatized)

M-515-REG — **1 x 1 mL**
At stated conc. in Acetone — 8 comps.

Acifluorfen ††	(100 µg/mL)	Dinoseb	(200 µg/mL)
2,4-D	(300 µg/mL)	Pentachlorophenol	(100 µg/mL)
Dalapon	(1000 µg/mL)	Picloram	(100 µg/mL)
Dicamba ††	(100 µg/mL)	2,4,5-TP	(100 µg/mL)

Regulated Herbicide Mixtures (Methyl Derivatives)

M-515-REG-ME — **1 x 1 mL**
At stated conc. MtBE — 8 comps.

Acifluorfen methyl ester ††	(250 ng/mL)	Dinoseb methyl ether	(500 ng/mL)
2,4-D methyl ester	(500 ng/mL)	Pentachloroanisole	(100 ng/mL)
Dalapon methyl ester	(2000 ng/mL)	Picloram methyl ester	(250 ng/mL)
Dicamba methyl ester ††	(500 ng/mL)	2,4,5-TP methyl ester	(500 ng/mL)

M-515-REG-ME-1000X — **1 x 1 mL**
At stated conc. MtBE — 8 comps.

Acifluorfen methyl ester ††	(250 µg/mL)	Dinoseb methyl ether	(500 µg/mL)
2,4-D methyl ester	(500 µg/mL)	Pentachloroanisole	(100 µg/mL)
Dalapon methyl ester	(2000 µg/mL)	Picloram methyl ester	(250 µg/mL)
Dicamba methyl ester ††	(500 µg/mL)	2,4,5-TP methyl ester	(500 µg/mL)

Regulated Semi-Volatiles Mixture

M-525-REG-EA — **1 x 1 mL**
0.1 mg/mL each in Ethyl Acetate — 25 comps.
M-525-REG-EA-5X — **1 x 1 mL**
0.5 mg/mL each in Ethyl Acetate — 25 comps.

Alachlor	Endrin
Aldrin †	Heptachlor
Atrazine	Heptachlor epoxide
Benzo[a]pyrene	Hexachlorobenzene
Butachlor †	Hexachlorocyclopentadiene
α-Chlordane	Lindane
γ-Chlordane	Methoxychlor
Cyanazine ††	Metolachlor ††
Dieldrin †	Metribuzin ††
2,4-Dinitrotoluene ††	*trans*-Nonachlor
2,6-Dinitrotoluene ††	Propachlor †
bis(2-Ethylhexyl)adipate	Simazine
bis(2-Ethylhexyl)phthalate	

† **Unregulated Additions**
†† **Proposed Phase VIB Additions**

Regulated Pesticide Mixture

M-531-REG — **1 x 1 mL**
0.1 mg/mL each in Acetonitrile — 8 comps.

Aldicarb	Carbofuran
Aldicarb sulfone	3-Hydrocarbofuran †
Aldicarb sulfoxide	Methomyl ††
Carbaryl †	Oxamyl

Proposed Phase VIA Additions

Disinfectant By-products

Bromoform ††
Chloroform ††
Dibromochloromethane ††
Dichlorobromomethane ††
} see Method 501 Total Trihalomethanes; Method 551, Chlorinated Solvents + Disinfectant By-products

Bromoacetic acid ††
Chloroacetic acid ††
Dibromoacetic acid ††
Dichloroacetic acid ††
Trichloroacetic acid ††
} Haloacetic acids see Method 552.2

Regulated Pesticide Mixture

M-508.1-ASL — **1 x 1 mL**
M-508.1-ASL-PAK — Alternate Source — *SAVE* — **5 x 1 mL**
100 µg/mL each in MtBE — 17 comps.

Alachlor	Heptachlor epoxide (Isomer B)
Aldrin	Hexachlorobenzene
Atrazine	Hexachlorocyclopentadiene
γ-BHC	Methoxychlor
α-Chlordane	Metolachlor
γ-Chlordane	Metribuzin
Dieldrin	Propachlor
Endrin	Simazine
Heptachlor	

Regulated Semi-Volatiles Mixture

M-525-REG-ASL — **1 x 1 mL**
M-525-REG-ASL-PAK — Alternate Source — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Acetone — 6 comps.

Benzo[a]pyrene	Hexachlorobenzene
bis(2-Ethylhexyl)adipate	Hexachlorocyclopentadiene
bis(2-Ethylhexyl)phthalate	Pentachlorophenol (2.0 mg/mL)

Carbamate Pesticide Mixture

M-531-REG-ASL — **1 x 1 mL**
M-531-REG-ASL-PAK — Alternate Source — *SAVE* — **5 x 1 mL**
100 µg/mL each in MeOH — 2 comps.

Carbofuran	Oxamyl

Match frequently requested products.
Alternate Source
ASL products can be used as an independent second source.

Water Protocol EPA Consent Decree

Purgeable A
M-001A **1 x 1 mL**
0.2 mg/mL each in MeOH 11 comps.

Carbon tetrachloride
Chlorobenzene
Chloroform
Dibromochloromethane
1,1-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloropropane
Methylene chloride
Tetrachloroethylene
1,1,2-Trichloroethane
Trichloroethylene

Purgeable B
M-001B-R **1 x 1 mL**
0.2 mg/mL each in MeOH 13 comps.

Benzene
Bromodichloromethane
Bromoform
2-Chloroethyl vinyl ether
1,2-Dichloroethane
trans-1,2-Dichloroethylene
cis-1,3-Dichloropropene *
trans-1,3-Dichloropropene **
Ethylbenzene
1,1,2,2-Tetrachloroethane
Toluene
1,1,1-Trichloroethane
Trichlorofluoromethane

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Purgeable C (Gases)
M-001C **1 x 1 mL**
0.2 mg/mL each in MeOH 5 comps.

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane
Vinyl chloride

Base/Neutral 1
M-001D **1 x 1 mL**
At stated conc. in MeOH
M-001D-D **1 x 1 mL**
At stated conc. in CH_2Cl_2 12 comps.

Acenaphthylene	(0.2 mg/mL)
Benzo[b]fluoranthene	(0.1 mg/mL)
4-Bromophenyl phenyl ether	(0.2 mg/mL)
bis(2-Chloroethyl) ether	(0.2 mg/mL)
bis(2-Chloro-1-methylethyl) ether	(0.2 mg/mL)
1,4-Dichlorobenzene	(0.2 mg/mL)
3,3-Dichlorobenzidine	(0.2 mg/mL)
Dimethyl phthalate	(0.2 mg/mL)
Di-n-butyl phthalate	(0.2 mg/mL)
2,6-Dinitrotoluene	(0.2 mg/mL)
bis(2-Ethylhexyl)phthalate	(0.2 mg/mL)
Nitrobenzene	(0.2 mg/mL)

Base/Neutral 2
M-001E **1 x 1 mL**
At stated conc. in MeOH
M-001E-D **1 x 1 mL**
At stated conc. in CH_2Cl_2 15 comps.

Acenaphthene	(0.2 mg/mL)
Anthracene	(0.2 mg/mL)
Benz[a]anthracene	(0.1 mg/mL)
Chrysene	(0.1 mg/mL)
Dibenz[a,h]anthracene	(0.1 mg/mL)
1,2-Dichlorobenzene	(0.2 mg/mL)
1,3-Dichlorobenzene	(0.2 mg/mL)
Diethyl phthalate	(0.2 mg/mL)
2,4-Dinitrotoluene	(0.2 mg/mL)
Fluorene	(0.2 mg/mL)
Hexachlorobenzene	(0.2 mg/mL)
Hexachlorobutadiene	(0.2 mg/mL)
Naphthalene	(0.2 mg/mL)
bis(2-Chloroethoxy)methane	(0.2 mg/mL)
Pyrene	(0.1 mg/mL)

Base/Neutral 3
M-001F-D **1 x 1 mL**
At stated conc. in CH_2Cl_2 11 comps.

Butyl benzyl phthalate	(0.2 mg/mL)
2-Chloronaphthalene	(0.2 mg/mL)
1,2-Diphenylhydrazine	(0.2 mg/mL)
Fluoranthene	(0.1 mg/mL)
Hexachlorocyclopentadiene	(0.2 mg/mL)
Hexachloroethane	(0.2 mg/mL)
Isophorone	(0.2 mg/mL)
N-Nitroso-*di*-*n*-propylamine	(0.2 mg/mL)
N-Nitrosodiphenylamine	(0.2 mg/mL)
Phenanthrene	(0.2 mg/mL)
1,2,4-Trichlorobenzene	(0.2 mg/mL)

Base/Neutral 4
M-001G **1 x 1 mL**
At stated conc. in $MeOH:CH_2Cl_2(50:50)$
M-001G-D **1 x 1 mL**
At stated conc. in CH_2Cl_2 9 comps.

Benzidine	(0.2 mg/mL)
Benzo[k]fluoranthene	(0.1 mg/mL)
Benzo[g,h,i]perylene	(0.1 mg/mL)
Benzo[a]pyrene	(0.1 mg/mL)
2-Chloroethyl vinyl ether	(0.2 mg/mL)
4-Chlorophenylphenyl ether	(0.2 mg/mL)
Di-*n*-octyl phthalate	(0.2 mg/mL)
Indeno[1,2,3-cd]pyrene	(0.1 mg/mL)
N-Nitrosodimethylamine	(0.2 mg/mL)

Pesticide Mixture
M-001H **1 x 1 mL**
At stated conc. in MeOH 16 comps.

Aldrin	(0.1 mg/mL)
α-BHC	(0.1 mg/mL)
β-BHC	(0.1 mg/mL)
γ-BHC	(0.1 mg/mL)
δ-BHC	(0.1 mg/mL)
p,p'-DDT	(0.6 mg/mL)
p,p'-DDE	(0.2 mg/mL)
p,p'-DDD	(0.6 mg/mL)
Dieldrin	(0.2 mg/mL)
Endosulfan I	(0.2 mg/mL)
Endosulfan II	(0.2 mg/mL)
Endosulfan sulfate	(0.6 mg/mL)
Endrin	(0.2 mg/mL)
Endrin aldehyde	(0.6 mg/mL)
Heptachlor	(0.1 mg/mL)
Heptachlor epoxide	(0.1 mg/mL)

Phenol Mixture
M-001P **1 x 1 mL**
At stated conc. in MeOH
M-001P-D **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 11 comps.

4-Chloro-3-methylphenol	(2.5 mg/mL)
2-Chlorophenol	(0.5 mg/mL)
2,4-Dichlorophenol	(0.5 mg/mL)
2,4-Dimethylphenol	(0.5 mg/mL)
2,4-Dinitrophenol	(1.5 mg/mL)
2-Nitrophenol	(0.5 mg/mL)
4-Nitrophenol	(2.5 mg/mL)
2-Methyl-4,6-dinitrophenol	(2.5 mg/mL)
Pentachlorophenol	(2.5 mg/mL)
Phenol	(0.5 mg/mL)
2,4,6-Trichlorophenol	(1.5 mg/mL)

Polychlorinated Biphenyls
Each Aroclor® is a mixture of numerous comps., and considerable overlap in composition occurs between Aroclors.
Both at 0.2 mg/mL each in MeOH

Aroclor Mix 1
M-001K **1 x 1 mL**

Aroclor 1016
Aroclor 1232
Aroclor 1248
Aroclor 1260

Aroclor Mix 2
M-001L **1 x 1 mL**

Aroclor 1221
Aroclor 1242
Aroclor 1254

Chlordane & Toxaphene
M-001J **1 x 1 mL**
At stated conc. in MeOH 2 comps.

Chlordane	(0.02 mg/mL)
Toxaphene	(0.20 mg/mL)

Acrolein & Acrylonitrile
M-603 **1 x 1 mL**
1.0 mg/mL each in H_2O 2 comps.

Internal Standard - Anthracene-d_{10}
M-001N **1 x 1 mL**
2.0 mg/mL in CH_2Cl_2

Used as a GC/MS internal standard in the analysis of the base/neutral extractables.

M-001R **1 x 1 mL**
20 mg/mL each in MeOH 3 comps.

Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

Recommended for use as internal standards for purgeables.

Complete Water Standard Kit
Z-009-R-SET **15 x 1 mL**
(M-001A,M-001B-2,M-001C,M-001D,M-001E,M-001F,M-001G,M-001H, M-001P,M-001K,M-001L,M-001J,M-603A,M-001N,M-001R)

Purgeable A
Purgeable B
Purgeable C (Gases)
Base/Neutral 1
Base/Neutral 2
Base/Neutral 3
Base/Neutral 4
Pesticide Mixture
Phenol Mixture
Chlordane & Toxaphene
Aroclor Mix 1
Aroclor Mix 2
Acrolein-Acrylonitrile
Anthracene-d_{10}
Internal Standard

Standard Mixtures for EPA 600 Series
For Waste Water

Background Information
The EPA Methods for evaluating municipal and industrial wastewater pollutants are designated in the EPA 600 Series. This Series of methods evolved from the 1976 agreement by the EPA to study and, if necessary, to regulate 65 "priority pollutants". Several laboratories within the EPA collaborated on research projects that led to the 600 Series Methods.

Methods 601-612 were first published in 1979, along with a GC/MS method for the measurement of TCDD. AccuStandard followed the expansion of the 600 series methods by formulating analytical standards for additional 600 series methods listed in the EPA book "Methods for the Determination of Nonconventional Pesticides in Municipal and Industrial Wastewater."

The 600 Series product line contains standards used in the proposed and promulgated methods for the identification and quantification of organic compounds in municipal and industrial waste water. The organic compounds listed in the various methods include volatile organic compounds (VOCs), pesticides and synthetic organic compounds (SOCs).

Instrumentation
Analytical techniques used in the identification and quantification of the above compounds include gas chromatography with selective detectors (PID, ELCD, ECD, FID, NPD, FPD), gas chromatography/mass spectrometry (GC/MS) and high performance liquid chromatography (HPLC). The 600 series methods typically utilize packed columns, but chromatographic conditions can be modified (i.e. incorporation of advances in technology like capillary columns) if the modifications do not decrease the accuracy or lessen the precision of the method.

Comprehensive
Complete analysis of the target compounds by these 600 Series Methods can be accomplished using the series of standards formulated by AccuStandard for each method along with the suggested internal and surrogate standards. Formulations have been developed as easy to use large core mixes containing the target compounds and as high concentration sub-mixes for combination with other formulations to meet laboratory specific analyte detection requirements.

Match frequently requested products.

Alternate Source

ASL products can be used as an independent second source.

Methods 601, 608, 615

Method #	Method Descriptions	169-180
601	Purgeable Halocarbons (ELCD)	170-171
601/602	Purgeable Aromatics (ELCD)	171
603	Acrolein & Acrylonitrile (FID)	172
604	Phenols (FID), Phenols as PFB Derivatives (ECD)	172
604.1	Hexachlorophene & Dichloroprene (HPLC)	172
605	Benzidines (HPLC)	172
606	Phthalate Esters (ECD)	172
607	Nitrosamines (NPD)	172
608	Pesticides & PCBs (ECD)	172
608.1, 608.2	Pesticides (ECD)	173
609	Nitroaromatics & Isophorone (ECD/FID)	173
610	Polynuclear Aromatic Hydrocarbons (FID/HPLC)	173
611	Haloethers (ECD/ELCD)	173
612	Chlorinated Hydrocarbons (ECD)	173
613	Dioxin (2,3,7,8-TCDD) (GC/MS)	173
614, 614.1	Organophosphorus Pesticides (NPD)	173
615	Chlorinated Herbicides (ECD)	174
617	Chlorinated Pesticides & PCBs (ECD)	174
618	Volatile Pesticides (ECD)	174
619	Triazine Herbicides (NPD)	174
620	Diphenylamine (NPD)	174
622	Organophosphorus Pesticides (NPD)	174
622.1	Thiophosphate Pesticides (NPD)	175
624	Purgeable Volatiles (GC/MS)	175
625	BN/A Semivolatiles, Pesticides, Aroclors (GC/MS)	176-176
627	Dinitroaniline Pesticides (ECD)	179
629	Cyanazine (HPLC)	180
631	Carbendazim (HPLC)	180
632	Carbamates & Urea Pesticides (HPLC)	179
632.1	Carbamates & Amides (HPLC)	179
633	Organonitrogen Pesticides (NPD)	179
634	Thiocarbamate Pesticides (NPD)	179
635	Rotenone (HPLC)	180
636	Bensulide (HPLC)	180
638	Oryzalin (HPLC)	180
639	Bendiocarb (HPLC)	180
640	Mercaptobenzothiazole (HPLC)	180
641	Thiabendazole (HPLC)	180
642	Biphenyl & Phenylphenol (HPLC)	180
643	Bentazon (HPLC)	180
644	Picloram (HPLC)	180
645	Amine Pesticides & Lethane (NPD)	180
680	Pesticides & PCB Congeners (GC/MS)	180

Method 601 Purgeable Halocarbons by Purge & Trap - GC/MS

Liquids

M-601A		**1 x 1 mL**
M-601A-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		
M-601A-10X		**1 x 1 mL**
M-601A-10X-PAK	***SAVE***	**5 x 1 mL**
20 mg/mL each in MeOH		18 comps.

Carbon tetrachloride
Chlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
trans-1,2-Dichloroethylene
1,2-Dichloropropane
cis-1,3-Dichloropropylene *
trans-1,3-Dichloropropylene **
Methylene chloride
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Gases

M-502B		**1 x 1 mL**
M-502B-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		
M-502B-10X		**1 x 1 mL**
M-502B-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		6 comps.

Bromomethane
Chloromethane
Chloroethane
Dichlorodifluoromethane
Trichlorofluoromethane
Vinyl chloride

Liquid Component

M-601C ❄		**1 x 1 mL**
M-601C-PAK ❄	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		
M-601C-10X ❄		**1 x 1 mL**
M-601C-10X-PAK ❄	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		

2-Chloroethylvinyl ether

Trihalomethanes

M-501		**1 x 1 mL**
M-501-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		
M-501-10X		**1 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

Bromoform
Chloroform
Dichlorobromomethane
Dibromochloromethane

Purgeable Halocarbon Sets

M-601-SET ❄	**4 x 1 mL**
0.2 mg/mL each in MeOH	**(M-601A, M-502B, M-601C, M-501)**
M-601-10X-SET ❄	**4 x 1 mL**
2.0 mg/mL each in MeOH	**(M-601A-10X,M-502B-10X,M-601C-10X,M-501-10X)**

Technical Note

Bromoform, Chloroform and other light volatiles may exhibit reduced response from a contaminated trap, un-optimized purge & trap conditions, i.e. purge flow too high / low, or contamination / cold spot in the transfer line.

❄ ColdPAK required to maintain integrity of product.

Purgeable Internal Standards

M-001R		**1 x 1 mL**
M-001R-PAK	***SAVE***	**5 x 1 mL**
20 mg/ml each in MeOH		3 comps.

Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

Purgeable Halocarbon Mix

Alternate Source

M-601-ASL		**1 x 1 mL**
M-601-ASL-PAK	***SAVE***	**5 x 1 mL**
100 µg/mL each in MeOH		28 comps.

Bromodichloromethane
Bromoform
Bromomethane
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Dibromochloromethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Dichloromethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
Vinyl chloride

Performance Check Solution

Alternate Source

S-532-ASL		**1 x 1 mL**
S-532-ASL-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		8 comps.

Benzene
Carbon tetrachloride
1,4-Dichlorobenzene
1,2-Dichloroethane
1,1-Dichloroethene
1,1,1-Trichloroethane
Trichloroethene
Vinyl chloride

Technical Note

2 alternate approaches to perform Method 601 analysis:

Option 1 Use of the 4 ampule set (M-601) allows you to differentiate the more volatile analytes (M-502B) or less stable analytes (M-601C) and the THMs from the stable Method 601 liquids, which can then be ordered less frequently to optimize economy.

Option 2 The M-601-ASL formulation will serve as a convenient single injection standard for all analytes other than 2-chloroethylvinyl ether. It can also be used as a second source or QC standard.

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 601/602 Purgeable Halocarbons by GC/MS

Purgeable Halocarbons & Aromatics

M-601/602 — **1 x 1 mL**
M-601/602-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 25 comps.

- Benzene
- Bromoform
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- trans-1,3-Dichloropropylene **
- Ethylbenzene
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Gases

M-601B — **1 x 1 mL**
M-601B-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 6 comps.

- Bromomethane
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

Liquids

M-601C ❄ — **1 x 1 mL**
M-601C-PAK ❄ — *SAVE* — **5 x 1 mL**
0.2 mg/mL in MeOH
M-601C-10X ❄ — **1 x 1 mL**
M-601C-10X-PAK ❄ — *SAVE* — **5 x 1 mL**
2.0 mg/mL in MeOH

- 2-Chloroethylvinyl ether

Purgeable Aromatics

M-602 — **1 x 1 mL**
M-602-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 7 comps.

- Benzene
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Toluene

Purgeable Aromatics - Gasoline ID

M-602-GAS — **1 x 1 mL**
M-602-GAS-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH
M-602-GAS-10X — **1 x 1 mL**
M-602-GAS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 11 comps.

- Benzene
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Toluene
- *o*-Xylene
- *p*-Xylene
- *m*-Xylene
- MtBE

Surrogate Standard

M-602-SS — **1 x 1 mL**
M-602-SS-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL in MeOH
M-602-SS-100X — **1 x 1 mL**
20 mg/mL in MeOH

- α,α,α-Trifluorotoluene

Combined 601/602 Purgeable Halocarbon & Aromatic Gasoline ID Mixture with MtBE

M-601-CHG — **1 x 1 mL**
M-601-CHG-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL each in MeOH — 35 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Dichloromethane
- Ethylbenzene
- MtBE
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene
- Vinyl chloride

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Technical Note

AccuStandard designed two sets of formulations for those laboratories analyzing Method 601/602 analytes by PID/HALL in series allowing for simultaneous screening for gasoline contamination:

M-601/602 The first set of formulations provide the analytical chemist with the method analytes in a core mix of liquids and a separate mix of the more volatile gases. By providing the six gases in a separate solution the chemist can replace the volatile gases on a more frequent basis.

M-601-CHG The second formulation has the Method 601/602 analytes plus the oxygenate MtBE in one convenient solution. Since the oxygenate MtBE is added to gasoline, its presence on a chromatogram can provide early detection of gasoline contamination at the monitoring well.

Target Analytes

M-601/602/BTEX — **1 x 1 mL**
0.2 mg/mL each in MeOH
M-601/602/BTEX-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 26 comps.

- Benzene
- Carbon tetrachloride
- Chlorobenzene
- Ethylbenzene
- Methyl-t-butyl ether
- Methylene chloride
- Tetrachloroethene
- Toluene
- Trichloroethene
- cis-1,3-Dichloropropene
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- trans-1,3-Dichloropropene
- 1,1,1-Trichloroethane
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- 1,1-Dichloroethane
- 1,1-Dichloroethene
- 1,2-Dichlorobenzene
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- o-Xylene
- m-Xylene
- p-Xylene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene

Technical Note

Tetrachloroethane and 1,1-Dichloroethane can degrade on contaminated purge & trap transfer lines or old traps.

Gasoline Oxygenate - MtBE

S-078 — **1 x 1 mL**
200 µg/mL in MeOH
S-078-10X — **1 x 1 mL**
2.0 mg/mL in MeOH

- Methyl t-butyl ether (*MtBE*)

❄ ColdPAK required to maintain integrity of product.

EPA Method 600 Series

Method 603 Acrolein & Acrylonitrile by GC/FID

M-603 — **1 x 1 mL**
M-603-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Water — 2 comps.
M-603-10X — **1 x 1 mL**
10 mg/mL each in Water — 2 comps.
M-603-M-0.1X ❄ — **1 x 1 mL**
0.1 mg/mL each in MeOH:Water 90:10 — 2 comps.
M-603-M-5X ❄ — **1 x 1 mL**
5.0 mg/mL each in MeOH:Water 90:10 — 2 comps.

Acrolein
Acrylonitrile

Method 604 Phenols by GC/FID

M-604 — **1 x 1 mL**
M-604-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in MeOH — 11 comps.

4-Chloro-3-methylphenol
2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2-Methyl-4,6-dinitrophenol
2-Nitrophenol
4-Nitrophenol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol

Surrogate Standard

M-604-SS — **1 x 1 mL**
M-604-SS-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH

2,4,6-Tribromophenol

Phenol as Pentafluorobenzyl Derivatives by GC/ECD

M-604-PFB — **1 x 1 mL**
M-604-PFB-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 11 comps.

4-Chloro-3-methylphenol
2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2-Methyl-4,6-dinitrophenol
2-Nitrophenol
4-Nitrophenol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol

Surrogate Standard

M-604-SS-PFB — **1 x 1 mL**
M-604-SS-PFB-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH

2,4,6-Tribromophenol-PFB

Method 604.1 Hexachlorophene & Dichlorophene by HPLC

M-604.1 — **1 x 1 mL**
1.0 mg/mL each in AcCN — 2 comps.

Hexachlorophene
Dichlorophene

Method 605 Benzidines by HPLC

M-605-10X — **1 x 1 mL**
M-605-10X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in MeOH — 2 comps.

Benzidine
3,3'-Dichlorobenzidine

Method 606 Phthalate Esters by GC/ECD

M-606 — **1 x 1 mL**
M-606-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 6 comps.

Benzyl butyl phthalate
Dimethyl phthalate
Diethyl phthalate
Di-*n*-butyl phthalate
Di-*n*-octyl phthalate
bis(2-Ethylhexyl)phthalate

Method 607 Nitrosamines by GC/NPD

M-607 — **1 x 1 mL**
M-607-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 3 comps.

N-Nitrosodimethylamine (0.2 mg/mL)
N-Nitrosodiphenylamine (0.4 mg/mL)
N-Nitrosodi-*n*-propylamine (0.2 mg/mL)

Method 608 Pesticides and PCBs by GC/ECD

M-001H — **1 x 1 mL**
At stated conc. in MeOH — 16 comps.

Aldrin	(0.1 mg/mL)	Dieldrin	(0.2 mg/mL)
α-BHC	(0.1 mg/mL)	Endosulfan I	(0.2 mg/mL)
β-BHC	(0.1 mg/mL)	Endosulfan II	(0.2 mg/mL)
δ-BHC	(0.1 mg/mL)	Endosulfan sulfate	(0.6 mg/mL)
γ-BHC	(0.1 mg/mL)	Endrin	(0.2 mg/mL)
4,4'-DDD	(0.6 mg/mL)	Endrin aldehyde	(0.6 mg/mL)
4,4'-DDE	(0.2 mg/mL)	Heptachlor	(0.1 mg/mL)
4,4'-DDT	(0.6 mg/mL)	Heptachlor epoxide	(0.1 mg/mL)

M-001J — **1 x 1 mL**
At stated conc. in MeOH — 2 comps.

Chlordane (0.02 mg/mL)
Toxaphene (0.20 mg/mL)

M-001K — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

Aroclor 1016
Aroclor 1232
Aroclor 1248
Aroclor 1260

M-001L — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.

Aroclor 1221
Aroclor 1242
Aroclor 1254

Pesticides and PCBs Set

M-608-SET — **4 x 1 mL**
(M-001H, M-001J, M-001K, M-001L)

Performance Check Solution

M-608-QC ❄ — **1 x 1 mL**
M-608-QC-PAK ❄ — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 17 comps.

Aldrin	(0.02 mg/mL)	Endosulfan I	(0.02 mg/mL)
α-BHC	(0.02 mg/mL)	Endosulfan II	(0.10 mg/mL)
β-BHC	(0.02 mg/mL)	Endosulfan sulfate	(0.10 mg/mL)
δ-BHC	(0.02 mg/mL)	Endrin	(0.10 mg/mL)
γ-BHC	(0.02 mg/mL)	Endrin aldehyde	(0.02 mg/mL)
4,4'-DDD	(0.10 mg/mL)	Heptachlor	(0.02 mg/mL)
4,4'-DDE	(0.02 mg/mL)	Heptachlor epoxide	(0.02 mg/mL)
4,4'-DDT	(0.10 mg/mL)	Methoxychlor	(0.02 mg/mL)
Dieldrin	(0.02 mg/mL)		

Pesticides

Alternate Source

M-608-ASL — **1 x 1 mL**
M-608-ASL-PAK — *SAVE* — **5 x 1 mL**
20 µg/mL each in MeOH — 16 comps.

Aldrin	γ-BHC	Dieldrin	Endrin
α-BHC	p,p'-DDD	Endosulfan I	Endrin aldehyde
β-BHC	p,p'-DDE	Endosulfan II	Heptachlor
δ-BHC	p,p'-DDT	Endosulfan sulfate	Heptachlor epoxide (Isomer B)

Technical Mix Analytes - Aroclors (Polychlorinated Biphenyls)

Each at 1,000 µg/mL in Hexane

AccuPAK™ *(5 x 1 mL)*
SAVE

Aroclors #	Cat. No.	1 mL	Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	

❄ ColdPAK required to maintain integrity of product.

EPA Method 600 Series

Method 608.1 & 608.2 Organochlorine Pesticides in Municipal & Industrial Wastewater by GC/ECD

M-608.1 — **1 x 1 mL**
M-608.1-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL each in Isooctane — 7 comps.

- Chlorobenzilate
- Chloroneb
- Chloropropylate
- Dibromochloropropane
- Etridiazole
- PCNB
- Propachlor

M-608.2 — **1 x 1 mL**
M-608.2-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL each in Isooctane — 6 comps.

- Chlorothalonil
- DCPA
- Dichloram
- Methoxychlor
- *cis*-Permethrin *
- *trans*-Permethrin *

*** Actual concentrations stated on Certificate of Product Data**

Method 609 Nitroaromatics & Isophorone by GC/ECD/FID

M-609A-R — **1 x 1 mL**
1.0 mg/mL each in Hexane — 2 comps.

- Isophorone
- Nitrobenzene

M-609B-R — **1 x 1 mL**
1.0 mg/mL each in Hexane — 2 comps.

- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene

M-609-R-SET — **2 x 1 mL (M-609A-R, M-609B-R)**

Performance Check Solution

M-609-QC — **1 x 1 mL**
At stated conc. in Acetone — 4 comps.

Isophorone	(100 µg/mL)	2,4-Dinitrotoluene	(20 µg/mL)
Nitrobenzene	(100 µg/mL)	2,6-Dinitrotoluene	(20 µg/mL)

Method 610 PAHs by GC/FID or HPLC

M-610 — **1 x 1 mL**
At stated conc. in MeOH:CH_2Cl_2 (50:50) — 16 comps.
M-610A — **1 x 1 mL**
At stated conc. in MeOH:CH_2Cl_2 (50:50) — 16 comps.
M-610-QC — **1 x 1 mL**
At stated conc in AcCN — 16 comps.

Compound	M-610 (mg/mL)	M-610A (mg/mL)	M-610-QC (mg/mL)
Acenaphthene	0.1	1.0	0.1
Acenaphthylene	0.1	2.0	0.1
Anthracene	0.1	0.1	0.1
Benzo[a]anthracene	0.1	0.1	0.01
Benzo[a]pyrene	0.1	0.1	0.01
Benzo[b]fluoranthene	0.1	0.2	0.01
Benzo[g,h,i]perylene	0.1	0.2	0.01
Benzo[k]fluoranthene	0.1	0.1	0.005
Chrysene	0.1	0.1	0.01
Dibenz[a,h]anthracene	0.1	0.2	0.01
Fluoranthene	0.1	0.2	0.01
Fluorene	0.1	0.2	0.1
Indeno[1,2,3-cd]pyrene	0.1	0.1	0.01
Naphthalene	0.1	1.0	0.1
Phenanthrene	0.1	0.1	0.1
Pyrene	0.1	0.1	0.01

Matrix Spiking Solution

M-610-MS — **1 x 1 mL**
M-610-MS-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in AcCN — 6 comps.

Benz[a]pyrene	(0.5 mg/mL)	2-Methylnaphthalene	(5.0 mg/mL)
Chrysene	(0.5 mg/mL)	Phenanthrene	(0.5 mg/mL)
1-Methylnaphthalene	(5.0 mg/mL)	Pyrene	(0.5 mg/mL)

Method 611 Haloethers by GC/ECD or ECLD

M-611 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 5 comps.

- bis(2-Chloroethyl) ether
- bis(2-Chloroethoxy)methane
- bis(2-Chloro-1-methylethyl) ether
- 4-Bromophenyl phenyl ether
- 4-Chlorophenyl phenyl ether

Method 612 Chlorinated Hydrocarbons by GC/ECD

M-612 — **1 x 1 mL**
At stated conc. in Isooctane — 9 comps.

2-Chloronaphthalene	(400 µg/mL)	Hexachlorobutadiene	(1 µg/mL)
1,2-Dichlorobenzene	(200 µg/mL)	Hexachloroethane	(1 µg/mL)
1,3-Dichlorobenzene	(200 µg/mL)	Hexachlorocyclopentadiene	(1 µg/mL)
1,4-Dichlorobenzene	(400 µg/mL)	1,2,4-Trichlorobenzene	(40 µg/mL)
Hexachlorobenzene	(1 µg/mL)		

Method 613 2,3,7,8-TCDD by GC/MS

M-613 — **1 x 1 mL**
M-613-PAK — ***SAVE*** — **5 x 1 mL**
10 µg/mL in Toluene

- 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin

Method 614 & 614.1 Organophosphorus Pesticides by GC/NPD

M-614 — **1 x 1 mL**
1,000 µg/mL each in Acetone:Hexane (50:50) — 8 comps.

- Azinphos methyl
- Demeton (mix of O & S isomers)
- Diazinon
- Disulfoton
- Ethion
- Malathion
- Parathion
- Parathion methyl

M-614.1 — **1 x 1 mL**
1,000 µg/mL each in Acetone:Hexane (50:50) — 4 comps.

- Dioxathion
- EPN
- Ethion
- Terbufos

M-614.1-ASL — Alternate Source — **1 x 1 mL**
At stated conc. in Hexane — 4 comps.

- Dioxathion (10 µg/mL)
- EPN (200 µg/mL)
- Ethion (100 µg/mL)
- Terbufos (4 µg/mL)

For additional formulations also see Method 8310

Method 615 Chlorinated Herbicides

Chlorinated Herbicides

Each at 0.2 mg/mL * Compound	Herbicide Acids In MeOH Cat. No.	Methyl Derivatives In Hexane Cat. No.	1 mL
2,4-D	M-8150S-A-01	M-8150-01	
2,4-DB	M-8150S-A-02	M-8150-02	
2,4,5-T	M-8150S-A-03	M-8150-03	
2,4,5-TP	M-8150S-A-04	M-8150-04	
Dalapon	M-8150S-A-05	M-8150-05	
Dicamba	M-8150S-A-06	M-8150-06	
Dichlorprop	M-8150S-A-07	M-8150-07	
Dinoseb	M-8150S-A-08	M-8150-08	
MCPA (2.0 mg/mL) *	M-8150S-A-09	M-8150-09	
MCPP (2.0 mg/mL) *	M-8150S-A-10	M-8150-10	
Set of 10 x 1 mL	**M-8150A-SET**	**M-8150-SET**	
Each Solution at 0.2 mg/mL, * except MCPA & MCPP			Above analytes

Underivatized

M-8150A — **1 x 1 mL**
0.1 mg/mL in MEOH, except MCPA and MCPP — 10 comps.

2,4-D	Dinoseb
Dalapon	MCPA (10 mg/mL)
2,4-DB	MCPP (10 mg/mL)
Dicamba	2,4,5-TP
Dichlorprop	2,4,5-T

Methyl Derivatives

M-8150 — **1 x 1 mL**
0.1 mg/mL in MEOH, except MCPA and MCPP — 10 comps.

2,4-D	Dinoseb
Dalapon	MCPA (10 mg/mL)
2,4-DB	MCPP (10 mg/mL)
Dicamba	2,4,5-TP
Dichlorprop	2,4,5-T

Method 615 Underivatized Chlorinated Herbicides

M-615A-ASL — **1 x 1 mL**
M-615A-ASL-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 10 comps.

Method 615 Methyl Derivatives of Chlorinated Herbicides

M-615-ASL — **1 x 1 mL**
M-615-ASL-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 10 comps.

2,4-D	(100 µg/mL)	Dicamba	(10 µg/mL)
2,4-DB	(100 µg/mL)	Dichlorprop	(100 µg/mL)
2,4,5-T	(10 µg/mL)	Dinoseb	(50 µg/mL)
2,4,5-TP	(10 µg/mL)	MCPA	(10,000 µg/mL)
Dalapon	(250 µg/mL)	MCPP	(10,000 µg/mL)

Method 617 Chlorinated Pesticides & PCBs by GC/ECD

Mix #1 - Analytes

Z-014C-R2 — **1 x 1 mL**
Z-014C-R2-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Hexane:Toluene (50:50) — 18 comps.

Aldrin	4,4'-DDE	Endrin
α-BHC	4,4'-DDT	Endrin ketone
β-BHC	Dieldrin	Endrin aldehyde
γ-BHC	Endosulfan I	Heptachlor
δ-BHC	Endosulfan II	Heptachlor epoxide
4,4'-DDD	Endosulfan sulphate	Methoxychlor

Mix #2 - Analytes

M-617-2 — **1 x 1 mL**
2.0 mg/mL each in Hexane:Toluene (50:50) — 9 comps.

Captan	Dicofol	PCNB
Carbophenothion	Isodrin	Perthane
Dichloran	Mirex	Trifluralin

Method 617 Chlorinated Pesticides & PCBs (Cont.)

Chlordane

P-017S-20X — **1 x 1 mL**
2.0 mg/mL in MeOH

Toxaphene

P-093S-40X — **1 x 1 mL**
4.0 mg/mL in MeOH

Method 618 Volatile Pesticides by GC/ECD

Volatile Pesticides

M-618 — **1 x 1 mL**
20 mg/mL each in Isooctane — 2 comps.

Chloropicrin — Ethylene dibromide

Internal Standard

M-618-IS — **1 x 1 mL**
20 mg/mL in Isooctane

Bromoform

Method 619 Triazine Herbicides by GC/NPD

Triazine Herbicides

Each at 0.1 mg/mL in MeOH

Compound	Cat. No.	1 mL	Compound	Cat. No.	1 mL
Ametryn	M-619-01		Secbumeton	M-619-07	
Atraton	M-619-02		Simetryn	M-619-08	
Atrazine	M-619-03		Simazine	M-619-09	
Prometon	M-619-04		Terbuthylazine	M-619-10	
Prometryn	M-619-05		Terbutryn	M-619-11	
Propazine	M-619-06				

M-619-SET — **11 x 1 mL**
Each at 0.1 mg/mL in MeOH — Above 11 compounds
M-619M — **1 x 1 mL**
0.1 mg/mL each in MeOH — Above 11 compounds

Method 620 Diphenylamine by GC/NPD

Diphenylamine

M-620 ❄ — **1 x 1 mL**
1000 µg/mL each in MeOH

Diphenylamine

Method 622 Organophosphorus Pesticides by GC/NPD

Organophosphorus Pesticides

M-622-SET — **27 x 1 mL**
1000 µg/mL each in Hexane

Azinphos methyl (01)	Merphos (15)
Bolstar *(Sulprofos)* (02)	Mevinphos (16)
Chlorpyrifos (03)	Monocrotophos (17)
Coumaphos (04)	Naled (18)
Demeton, O & S (05)	Parathion ethyl (19)
Diazinon (06)	Parathion methyl (20)
Dichlorvos (07)	Phorate (21)
Dimethoate (08)	Ronnel (22)
Disulfoton (09)	Stirophos (23)
EPN (10)	Sulfotep (24)
Ethoprop (11)	TEPP (25)
Fensulfothion (12)	Tokuthion (26)
Fenthion (13)	Trichloronate (27)
Malathion (14)	

❄ ColdPAK required to maintain integrity of product.

Method 622.1 Thiophosphate Pesticides by GC/NPD

Thiophosphate Pesticides

M-622.1 — **1 x 1 mL**
1.0 mg/mL each in MtBE — 7 comps.

- Aspon
- Dichlofenthion
- Famphur
- Fenitrothion
- Fonophos
- Phosmet
- Thionazin

Method 624 Purgeables by GC/MS

Purgeables

M-624 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 31 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- 2-Chloroethylvinyl ether
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Ethylbenzene
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- Vinyl chloride

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Technical Note

Tetrachloroethane and 1,1-Dichloroethane can degrade on contaminated purge & trap transfer lines or old traps.

Surrogates

Each at 0.2 mg/mL in MeOH

Component	Cat. No.	1 mL
Benzene-d_6	M-624-SS-01	
Bromochloromethane	M-624-SS-02	
4-Bromofluorobenzene	M-624-SS-03	
1-Chloro-2-bromopropane	M-624-SS-04	
1,4-Dichlorobutane	M-624-SS-05	
1,2-Dichloroethane-d_4	M-624-SS-06	
1,4-Difluorobenzene	M-624-SS-07	
Ethylbenzene-d_{10}	M-624-SS-08	
Fluorobenzene	M-624-SS-09	
Pentafluorobenzene	M-624-SS-10	
1,2-Dichlorobenzene-d_4	M-624-SS-11	
2-Bromochlorobenzene	M-624-SS-12	
4-Chlorofluorobenzene	M-624-SS-13	
a,a,a-Trichlorotoluene	M-624-SS-14	

Surrogate Standards

M-624-SS-M — **1 x 1 mL**
M-624-SS-M-PAK — ***SAVE*** — **5 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

- 4-Bromofluorobenzene
- Fluorobenzene
- Pentafluorobenzene

Internal Standard

M-001R — **1 x 1 mL**
M-001R-PAK — ***SAVE*** — **5 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

- Bromochloromethane
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

Tens of thousands of Standards Ready-to-Ship

Method 625 Semi-Volatiles Analysis by GC/MS

The following composite mixtures were formulated to allow the flexibility of preparing a complete semi-volatile mix to meet your laboratory's specific needs. These Base/Neutral analytes are also available in a two-ampule set to extend the useful life of your stock calibration standards.

M-625-BN — **1 x 1 mL**
M-625-BN-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL each in CH_2Cl_2 — 44 Base-Neutrals and 2 Benzidines

M-625-BN-5X — **1 x 1 mL**
M-625-BN-5X-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in CH_2Cl_2 — 44 Base-Neutrals and 2 Benzidines

CLP-HC-BN — **1 x 1 mL**
CLP-HC-BN-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Benzene : CH_2Cl_2 : AcCN (40:40:20) — 44 Base-Neutrals and 2 Benzidines

CLP-HC-BN-SET — **2 x 1 mL**
CLP-HC-BN-SET-PAK — *SAVE* — **5 x (2 x 1 mL)**
CLP-HC-BN-R & Z-014F

Base-Neutral Analytes (44 comps.)

- Acenaphthene
- Acenaphthylene
- Anthracene
- Azobenzene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[a]pyrene
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz[a,h]anthracene
- Di-*n*-butyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Diethyl phthalate
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-*cd*]pyrene
- Isophorone
- Naphthalene
- Nitrobenzene
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- Phenanthrene
- Pyrene
- 1,2,4-Trichlorobenzene

Benzidine Analytes (2 comps.)

- Benzidine
- 3,3'-Dichlorobenzidine

Base-Neutral Mix

CLP-HC-BN-R — **1 x 1 mL**
2.0 mg/mL each in Benzene : CH_2Cl_2 : AcCN (40:40:20) — 44 comps.
CLP-HC-BN-R-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Benzene : CH_2Cl_2 : AcCN (40:40:20) — 44 comps.

Benzidine Analytes (2 comps.)

Z-014F — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

Method 625 Modification Standard

M-625-MOD — **1 x 1 mL**
M-625-MOD-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 17 comps.

- Acetophenone
- Aniline
- Benzoic acid
- Carbazole
- *p*-Cresol
- *o*-Cresol
- 2,3-Dichloroaniline
- *n*-Decane
- *n*-Docosane
- *n*-Dodecane
- *n*-Eicosane
- *n*-Hexadecane
- 1-Methylphenanthrene
- *n*-Octadecane
- Pyridine
- *a*-Terpineol
- *n*-Tetradecane

Daily QA/QC Standards

M-625-BN-1 — **1 x 1 mL**
M-625-BN-1-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in CH_2Cl_2 — 12 comps.

- Acenaphthylene
- Benzo[b]fluoranthene
- 4-Bromophenylphenyl ether
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 1,4-Dichlorobenzene
- 3,3'-Dichlorobenzidine
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- 2,6-Dinitrotoluene
- bis(2-Ethylhexyl)phthalate
- Nitrobenzene

M-625-BN-2 — **1 x 1 mL**
M-625-BN-2-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in CH_2Cl_2 — 15 comps.

- Acenaphthene
- Anthracene
- Benz[a]anthracene
- bis(2-Chloroethoxy)methane
- Chrysene
- Dibenz[a,h]anthracene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- Diethyl phthalate
- 2,4-Dinitrotoluene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Naphthalene
- Pyrene

M-625-BN-3 — **1 x 1 mL**
M-625-BN-3-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in CH_2Cl_2 — 11 comps.

- Azobenzene
- Benzyl butyl phthalate
- 2-Chloronaphthalene
- Fluoranthene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Isophorone
- N-Nitrosodi-*n*-propylamine
- N-Nitrosodiphenylamine
- Phenanthrene
- 1,2,4-Trichlorobenzene

Technical Note

n-Nitrosodiphenylamine will decompose to form diphenylamine in a heated injection port.

M-625-BN-4 — **1 x 1 mL**
M-625-BN-4-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in CH_2Cl_2 — 8 comps.

- Benzidine
- Benzo[a]pyrene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- 4-Chlorophenylphenyl ether
- Di-*n*-octyl phthalate
- Indeno[1,2,3-cd]pyrene
- N-Nitrosodimethylamine

Technical Note

The above 4 standards can be combined for use in daily QA/QC, as a second source lot or as spike and spike duplicate.

High Concentration Acid Extractables Phenol Mix

Z-014H — **1 x 1 mL**
Z-014H-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 11 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Method 625 Semi-Volatiles Analysis by GC/MS (Continued)

Acid Extractables Mixture

M-625A — **1 x 1 mL**
M-625A-PAK — *SAVE* — **5 x 1 mL**
20 µg/mL each in MeOH — 11 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 4,6-Dinitro-2-methylphenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Single Component Surrogates & Internal Standards

Base/Neutrals

Individual solutions at 0.2 mg/mL in CH_2Cl_2

Component	Cat. No.	1 mL
Aniline-d_5	M-625-01	
Anthracene-d_{10}	M-625-02	
Benz[a]anthracene-d_{12}	M-625-03	
Decafluorobiphenyl	M-625-04	
4,4'-Dibromobiphenyl	M-625-05	
4,4'-Dibromooctafluorobiphenyl	M-625-06	
2,2'-Difluorobiphenyl	M-625-07	
4-Fluoroaniline	M-625-08	
2-Fluorobiphenyl	M-625-09	
1-Fluoronaphthalene	M-625-10	
2-Fluoronaphthalene	M-625-11	
Naphthalene-d_8	M-625-12	
Nitrobenzene-d_5	M-625-13	
Phenanthrene-d_{10}	M-625-14	
Pyridine-d_5	M-625-15	

Acids

Individual solution at 0.2 mg/mL in CH_2Cl_2

Component	Cat. No.	1 mL
2-Fluorophenol	M-625-16	
Pentafluorophenol	M-625-17	
Phenol-d_5	M-625-18	
2,4,6-Tribromophenol	M-625-19	
2-Chlorophenol-d_4	M-625-20	

Pesticide Extractables Mixture

M-625P — **1 x 1 mL**
M-625P-PAK — *SAVE* — **5 x 1 mL**
20 µg/mL each in MeOH — 11 comps.

- Aldrin
- β-BHC
- δ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan sulfate
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide

GC/MS Calibration Standards

M-625C-SET — **set of 5 x 1 mL**
5 solutions each at stated conc. in CH_2Cl_2

Component	Cat. No.	1 mL
Benzidine (50 µg/mL)	M-625C-1	
Pentachlorophenol (25 µg/mL)	M-625C-2	
Decafluorotriphenylphosphine (DFTPP) (25 µg/mL)	M-625C-3	
Benzidine (50 µg/mL) + DFTPP (25 µg/mL)	M-625C-4	
Pentachlorophenol(25 µg/mL) + DFTPP(25 µg/mL)	M-625C-5	

GC/MS Tuning Standards

M-625-TS — **1 x 1 mL**
M-625-TS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL each in CH_2Cl_2 — 4 comps.
M-625-TS-20X — **1 x 1 mL**
M-625-TS-20X-PAK — *SAVE* — **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 4 comps.

- Benzidine
- p,p'-DDT
- DFTPP
- Pentachlorophenol

CLP-TS — **1 x 1 mL**
CLP-TS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL in CH_2Cl_2

- Perfluorokerosene

Multi-Component Analytes (Polychlorinated Biphenyls, Chlordane & Toxaphene)

Each at 1,000 µg/mL in Hexane

Aroclors #	Cat. No.	1 mL	SAVE Cat. No.	AccuPAK™ (5 x 1 mL) PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	
Pesticides				
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK	
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK	

Chlordane and Toxaphene

M-001J — **1 x 1 mL**
M-001J-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 2 comps.

- Chlordane (0.02 mg/mL)
- Toxaphene (0.20 mg/mL)

Polychlorinated Biphenyls

Aroclor Mix #1

M-001K — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

- Aroclor 1016
- Aroclor 1232
- Aroclor 1248
- Aroclor 1260

Aroclor Mix #2

M-001L — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.

- Aroclor 1221
- Aroclor 1242
- Aroclor 1254

Internal Standard Mix

Z-014J — **1 x 1 mL**
Z-014J-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Method 625 Priority Pollutant Standards

The EPA procedures call for fused silica capillary column analysis of priority pollutants. AccuStandard has assembled the following mixtures to be used in calibrating this analytical system. These mixtures are highly concentrated to aid in the establishment of response factors.

Base/Neutrals - Mix #1

Z-014A — **1 x 1 mL**
Z-014A-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 14 comps.

- 4-Bromophenylphenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 4-Chlorophenylphenyl ether
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- N-Nitrosodimethylamine
- N-Nitrosodi-*n*-propylamine
- N-Nitrosodiphenylamine

Base/Neutrals - Mix #2

Z-014B — **1 x 1 mL**
Z-014B-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 14 comps.

- Azobenzene
- 2-Chloronaphthalene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Isophorone
- Nitrobenzene
- 1,2,4-Trichlorobenzene

Toxic Substances - Mix #1

Z-014D — **1 x 1 mL**
Z-014D-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- Benzoic acid
- 2-Methylphenol
- 4-Methylphenol
- 2,4,5-Trichlorophenol

Toxic Substances - Mix #2

Z-014E — **1 x 1 mL**
Z-014E-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

Benzidine Mix

Z-014F — **1 x 1 mL**
Z-014F-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- Benzidine
- 3,3'-Dichlorobenzidine

PAH Mix

Z-014G — **1 x 1 mL**
Z-014G-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene (50:50) — 16 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

PAH Mix

Z-014G-R — **1 x 1 mL**
Z-014G-R-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene (50:50) — 17 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Carbazole
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

Phenols Mix

Z-014H — **1 x 1 mL**
Z-014H-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 11 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Internal Standard Mix

Z-014J — **1 x 1 mL**
Z-014J-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Method 625 Priority Pollutant Set

Order a complete Set *SAVE 25%*

Z-014R-SET — **set of 9 x 1 mL**

Set includes:
- **Z-014A** Base/Neutrals - Mix #1
- **Z-014B** Base/Neutrals - Mix #2
- **Z-014C** Pesticides - Mix #1
- **Z-014D** Toxic Substances - Mix #1
- **Z-014E** Toxic Substances -Mix #2
- **Z-014F** Benzidine Mix
- **Z-014G-R** PAH Mix
- **Z-014H** Phenols Mix
- **Z-014J** Internal Standard Mix

Z-014R-1-SET — **set of 9 x 1 mL**

Set includes:
- **Z-014A** Base/Neutrals - Mix #1
- **Z-014B** Base/Neutrals - Mix #2
- **Z-014C-R** Pesticides - Mix #2
- **Z-014D** Toxic Substances - Mix #1
- **Z-014E** Toxic Substances - Mix #2
- **Z-014F** Benzidine Mix
- **Z-014G-R** PAH Mix
- **Z-014H** Phenols Mix
- **Z-014J** Internal Standard Mix

Z-014R-2-SET — **set of 7 x 1 mL**

Set includes:
- **Z-014A** Base/Neutrals - Mix #1
- **Z-014B** Base/Neutrals - Mix #2
- **Z-014D** Toxic Substances - Mix #1
- **Z-014E** Toxic Substances - Mix #2
- **Z-014F** Benzidine Mix
- **Z-014G** PAH Mix
- **Z-014H** Phenols Mix

Z-014R-3-SET — **set of 7 x 1 mL**

Set includes:
- **Z-014A** Base/Neutrals - Mix #1
- **Z-014B** Base/Neutrals - Mix #2
- **Z-014D** Toxic Substances - Mix #1
- **Z-014E** Toxic Substances - Mix #2
- **Z-014F** Benzidine Mix
- **Z-014G-R** PAH Mix
- **Z-014H** Phenols Mix

Method 625 (continued) Priority Pollutant Standards

Pesticides - Mix #1

Z-014C **1 x 1 mL**
Z-014C-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50) 16 comps.

Aldrin	4,4'-DDE	Endosulfan sulfate
α-BHC	4,4'-DDT	Endrin
β-BHC	Dieldrin	Endrin aldehyde
γ-BHC	Endosulfan I	Heptachlor
δ-BHC	Endosulfan II	Heptachlor epoxide
4,4'-DDD		

Pesticides - Mix #2

Z-014C-R **1 x 1 mL**
Z-014C-R-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps.

Aldrin	4,4'-DDD	Endrin
α-BHC	4,4'-DDE	Endrin aldehyde
β-BHC	4,4'-DDT	Endrin ketone
γ-BHC	Dieldrin	Heptachlor
δ-BHC	Endosulfan I	Heptachlor epoxide
α-Chlordane	Endosulfan II	Methoxychlor
γ-Chlordane	Endosulfan sulfate	

Pesticides - Mix #3

Z-014C-R2 **1 x 1 mL**
Z-014C-R2-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50) 18 comps.

Aldrin	4,4'-DDE	Endrin
α-BHC	4,4'-DDT	Endrin aldehyde
β-BHC	Dieldrin	Endrin ketone
γ-BHC	Endosulfan I	Heptachlor
δ-BHC	Endosulfan II	Heptachlor epoxide
4,4'-DDD	Endosulfan sulfate	Methoxychlor

Tuning Standards

M-625-TS **1 x 1 mL**
M-625-TS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL each in CH_2Cl_2 4 comps.

Benzidine	DFTPP
p,p'-DDT	Pentachlorophenol

CLP-TS **1 x 1 mL**
CLP-TS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL in CH_2Cl_2

Perfluorokerosene

EPA Method 625 GC/MS Calibration Standards

M-625C-SET **set of 5 x 1 mL**
5 solutions each at stated conc. in CH_2Cl_2

Compound	Cat. No.
Benzidine (50 µg/mL)	M-625C-1
Pentachlorophenol (25 µg/mL)	M-625C-2
Decafluorotriphenylphosphine *(DFTPP)* (25 µg/mL)	M-625C-3
Benzidine (50 µg/mL) + DFTPP (25 µg/mL)	M-625C-4
Pentachlorophenol (25 µg/mL) + DFTPP(25 µg/mL)	M-625C-5

Method 627 Dinitroaniline Pesticides by GC/ECD

Dinitroaniline Pesticide Mixes

M-627 **1 x 1 mL**
1.0 mg/mL each in MeOH 4 comps.

Ethalfluralin	Tolban *(Profluralin)*
Paarlan *(Isopropalin)*	Trifluralin

M-627-R **1 x 1 mL**
1.0 mg/mL each in MeOH 5 comps.

Benfluralin	Tolban *(Profluralin)*
Ethalfluralin	Trifluralin
Paarlan *(Isopropalin)*	

Method 632 Carbamates & Urea Pesticides in Waste Water by HPLC

Carbamates & Urea Pesticides in Waste Water

M-632-SET **set of 21 x 1 mL**
Individual Solutions, in 0.1 mg/mL in AcCN
M-632M **1 x 1 mL**
Mixture containing the 21 analytes @ 0.1 mg/mL each in AcCN
M-632M-10X **1 x 1 mL**
Mixture containing the 21 analytes @ 1.0 mg/mL each in AcCN

	Cat. No.		Cat. No.
Aminocarb	M-632-01	Methomyl	M-632-12
Barban	M-632-02	Mexacarbate	M-632-13
Carbaryl	M-632-03	Monuron	M-632-14
Carbofuran	M-632-04	Monuron-TCA	M-632-15
Chlorpropham	M-632-05	Neburon	M-632-16
Diuron	M-632-06	Oxamyl	M-632-17
Fenuron	M-632-07	Propham	M-632-18
Fenuron-TCA	M-632-08	Propoxur	M-632-19
Fluometuron	M-632-09	Siduron	M-632-20
Linuron	M-632-10	Swep	M-632-21
Methiocarb	M-632-11		

Method 632.1 Carbamates & Amides in Waste Water by HPLC

Carbamates & Amides in Waste Water

M-632.1-SET **set of 4 x 1 mL**
Each in 0.1 mg/mL in AcCN

Vacor	M-632.1-1	Napropamide	M-632.1-3
Propanil	M-632.1-2	Carbaryl	M-632.1-4

Method 633 Organonitrogen Pesticides by GC/NPD

Organonitrogen Pesticides Mix

M-633 **1 x 1 mL**
0.1 mg/mL each in MeOH 6 comps.

Bromacil	Hexazinone	Terbacil
Deet	Metribuzin	Triadimefon

Method 634 Thiocarbamate Pesticides by GC/NPD

Thiocarbamate Pesticides Mix

M-634 **1 x 1 mL**
1.0 mg/mL each in MeOH 6 comps.

Butylate	EPTC	Pebulate
Cycloate	Molinate	Vernolate

Internal Standard

M-634-IS **1 x 1 mL**
1.0 mg/mL in MeOH

Carbazole

Method 645 Amino Pesticides & Lethane by GC/NPD

Amino Pesticides Mix

M-645 **1 x 1 mL**
1.0 mg/mL each in Hexane 6 comps.

Alachlor	Diphenamid	Lethane
Butachlor	Fluridone	Norflurazon

HPLC 600's Additional Methods for Pesticides in Waste Water by HPLC

Method	Solutions at 0.1 mg/mL in AcCN	Cat. No.
604.1	Hexachlorophene & Dichlorophene	M-604.1
629	Cyanazine	M-629
631	Carbendazim	M-631
635	Rotenone	M-635
636	Bensulide	M-636
638	Oryzalin	M-638

Method	Solutions at 0.1 mg/mL in AcCN	Cat. No.
639	Bendiocarb	M-639
640	Mercaptobenzothiazole	M-640
641	Thiabendazole	M-641
642	Biphenyl & *o*-Phenylphenol	M-642
643	Bentazon *(Basagran)*	M-643
644	Picloram	M-644

Method 680 Determination of Pesticides & PCBs in Water & Soil/Sediment by GC/MS

PCB Isomer Calibration Mix

M-680A **1 x 1 mL**
At stated conc. in Hexane 9 comps.

2-Chlorobiphenyl	(50 µg/mL)
2,3-Dichlorobiphenyl	(50 µg/mL)
2,4,5-Trichlorobiphenyl	(50 µg/mL)
2,2',4,6-Tetrachlorobiphenyl	(100 µg/mL)
2,2',3,4,5'-Pentachlorobiphenyl	(100 µg/mL)
2,2',4,4',5,6'-Hexachlorobiphenyl	(100 µg/mL)
2,2',3,4',5,6,6'-Heptachlorobiphenyl	(150 µg/mL)
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	(150 µg/mL)
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(250 µg/mL)

Internal Standard

M-680B **1 x 1 mL**
250 µg/mL in Toluene

Chrysene-d_{12}

Method 680 PCB Isomer Calibration Set

M-680-SET **2 x 1 mL**
(M-680A, M-680B)

Technical Note

The EPA has designated 3,3',4,4'-tetrachlorobiphenyl (#77), 2,2',4,6,6'-pentachlorobiphenyl (#104), & 2,2',3,3',4,5,5',6,6'-nonachlorobiphenyl (# 208) for use in quantifying PCBs by GC/MS. All response factors are calculated using Chrysene-d_{12}, which is also included in the set.

The EPA has designated the following isomers for use in quantifying PCB's by GC/MS. The PCBs are identified and measured as isomer groups (i.e., by level of chlorination). A concentration is measured for each PCB isomer group; total PCB concentration in each sample extract is obtained by summing isomer group.

Level of Chlorination	Isomer Selected	Congener Number	RF Value vs. Chrysene-d_{12}	Mean RF Value vs.* Chrysene-d_{12}
1	2-mono	1	0.899	0.925
2	2,3-di	5	0.651	0.642
3	2,4,5-tri	29	0.411	0.411
4	2,2',4,6-tetra	50	0.305	0.431
5	2,2',3,4,5'-penta	87	0.299	0.287
6	2,2',4,4',5,6'-hexa	154	0.254	0.254
7	2,2',3,4',5,6,6'-hepta	188	0.164	0.160
8	2,2',3,3',4,5',6,6'-octa	201	0.207	0.191
9,10	2,2',3,3',4,4',5,5',6,6'-deca	209	0.144	0.150

Pesticide Mix

M-680P **1 x 1 mL**
M-680P-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in Toluene:Hexane (50:50) 22 comps.

Aldrin	(1,000 µg/mL)	Endosulfan I	(2,000 µg/mL)
α-BHC	(1,000 µg/mL)	Endosulfan II	(2,000 µg/mL)
β-BHC	(1,000 µg/mL)	Endosulfan sulfate	(1,000 µg/mL)
γ-BHC	(1,000 µg/mL)	Endrin	(1,000 µg/mL)
δ-BHC	(1,000 µg/mL)	Endrin aldehyde	(1,000 µg/mL)
α-Chlordane	(1,000 µg/mL)	Endrin ketone	(1,000 µg/mL)
γ-Chlordane	(1,000 µg/mL)	Heptachlor	(1,000 µg/mL)
4,4'-DDD	(1,000 µg/mL)	Heptachlor epoxide (Isomer B)	(1,000 µg/mL)
4,4'-DDE	(1,000 µg/mL)	Methoxychlor	(1,000 µg/mL)
4,4'-DDT	(1,000 µg/mL)	*cis*-Nonachlor	(1,000 µg/mL)
Dieldrin	(1,000 µg/mL)	*trans*-Nonachlor	(1,000 µg/mL)

Pesticide Mid-Level Check

M-680P-MLC **1 x 1 mL**
M-680P-MLC-PAK ***SAVE*** **5 x 1 mL**
At stated conc. Toluene:Hexane (50:50) 21 comps.

Aldrin	(1,000 µg/mL)	Endosulfan I	(2,000 µg/mL)
α-BHC	(1,000 µg/mL)	Endosulfan II	(2,000 µg/mL)
β-BHC	(1,000 µg/mL)	Endosulfan sulfate	(1,000 µg/mL)
γ-BHC	(1,000 µg/mL)	Endrin	(1,000 µg/mL)
δ-BHC	(1,000 µg/mL)	Endrin ketone	(1,000 µg/mL)
α-Chlordane	(1,000 µg/mL)	Heptachlor	(1,000 µg/mL)
γ-Chlordane	(1,000 µg/mL)	Heptachlor epoxide (Isomer B)	(1,000 µg/mL)
4,4'-DDD	(1,000 µg/mL)	Methoxychlor	(1,000 µg/mL)
4,4'-DDE	(1,000 µg/mL)	*cis*-Nonachlor	(1,000 µg/mL)
4,4'-DDT	(1,000 µg/mL)	*trans*-Nonachlor	(1,000 µg/mL)
Dieldrin	(1,000 µg/mL)		

Internal Standard

M-680-IS **1 x 1 mL**
M-680-IS-PAK ***SAVE*** **5 x 1 mL**
75 µg/mL each in Toluene:Hexane (50:50) 2 comps.
M-680-IS-10X **1 x 1 mL**
M-680-IS-10X-PAK ***SAVE*** **5 x 1 mL**
750 µg/mL each in Hexane:CH_2Cl_2 (50:50) 2 comps.

Chrysene-d_{12} Phenanthrene-d_{10}

Tuning Standard

M-680-TS **1 x 1 mL**
M-680-TS-PAK ***SAVE*** **5 x 1 mL**
10 µg/mL in CH_2Cl_2

Decafluorotriphenylphosphine *(DFTPP)*

Retention Time Calibration Standard

M-680-RT **1 x 1 mL**
M-680-RT-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in Hexane 3 comps.

3,3',4,4'-Tetrachlorobiphenyl (100 µg/mL)
2,2',4,6,6'-Pentachlorobiphenyl (100 µg/mL)
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (200 µg/mL)

Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)

Volatile Spiking Mixture

TCLP-VOC — **1 x 1 mL**
5.0 mg/mL each in MeOH, except 2-Butanone — 11 comps.

- Benzene
- 2-Butanone *(10 mg/mL)*
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- Tetrachloroethene
- Trichloroethene
- Vinyl chloride

Semi-Volatile Spiking Mix

TCLP-BNA — **1 x 1 mL**
TCLP-BNA-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 13 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- Nitrobenzene
- Pentachlorophenol
- Pyridine
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Semi-Volatile Spiking Set

TCLP-BNA-SET — **set of 2 x 1 mL** (**TCLP-A** and **TCLP-BN**)

TCLP-A — **1 x 1 mL**
TCLP-A-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- Pentachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

TCLP-BN — **1 x 1 mL**
TCLP-BN-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in Acetone — 7 comps.

- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- Nitrobenzene
- Pyridine

2-Part Label System

Smudgeproof, tear and solvent resistant *

(Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents: Methylene chloride, Methanol and Acetone

Pesticide Spiking Mix

TCLP-PES — **1 x 1 mL**
TCLP-PES-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH, except Toxaphene — 7 comps.

- Chlordane
- Endrin
- Heptachlor
- Heptachlor epoxide
- Lindane
- Methoxychlor
- Toxaphene (4.0 mg/mL)

Pesticide Spiking Set

TCLP-PES-1/2-SET — **set of 2 x 1 mL** (**CLP-PES-1** and **TCLP-PES-2**)

TCLP-PES-1 — **1 x 1 mL**
TCLP-PES-1-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

- Endrin
- Heptachlor
- Heptachlor epoxide
- Lindane
- Methoxychlor

TCLP-PES-2 — **1 x 1 mL**
TCLP-PES-2-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in MeOH — 2 comps.

- Chlordane (2.0 mg/mL)
- Toxaphene (4.0 mg/mL)

Herbicide, PFB Derivative Mix

TCLP-HERB-PFB — **1 x 1 mL**
0.1 mg/mL each in MtBE — 2 comps.

- 2,4-D-PFB
- 2,4,5-TP-PFB

Herbicide, PFB Derivatives

M-8150-02-PFB — **1 x 1 mL**
0.1 mg/mL in MtBE

- 2,4-D-PFB

M-8150-04-PFB — **1 x 1 mL**
0.1 mg/mL in MtBE

- 2,4,5-TP-PFB

Herbicide Spiking Mixes

TCLP-HERB — **1 x 1 mL**
TCLP-HERB-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 2,4-D
- 2,4,5-TP

TCLP-HERB-ME — **1 x 1 mL**
TCLP-HERB-ME-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 2,4-D, Me
- 2,4,5-TP, Me

Method 1311 TCLP continued on next page

EPA Method 1311, 1312

Method 1311 TCLP Regulatory Level Mixtures

Volatiles

TCLP-QC ❄ — **1 x 1 mL**
TCLP-QC-PAK ❄ — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 10 comps.

Benzene	(5 µg/mL)	1,2-Dichloroethane	(5 µg/mL)
2-Butanone	(2000 µg/mL)	1,1-Dichloroethene	(7 µg/mL)
Carbon tetrachloride	(5 µg/mL)	Tetrachloroethene	(7 µg/mL)
Chlorobenzene	(1000 µg/mL)	Trichloroethene	(5 µg/mL)
Chloroform	(60 µg/mL)	Vinyl chloride	(2 µg/mL)

Pesticides

TCLP-PES-1-QC — **1 x 1 mL**
TCLP-PES-1-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 5 comps.

Endrin	(0.2 µg/mL)	Lindane	(4.0 µg/mL)
Heptachlor	(0.4 µg/mL)	Methoxychlor	(100 µg/mL)
Heptachlor epoxide	(0.04 µg/mL)		

TCLP-PES-2-QC — **1 x 1 mL**
TCLP-PES-2-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 2 comps.

Chlordane (0.3 µg/mL) Toxaphene (5.0 µg/mL)

Pesticide Set

TCLP-PES-1/2-QC-SET — **set of 2 x 1 mL**
(includes **TCLP-PEST-1-QC** & **TCLP-PEST-2-QC**)

Semi-Volatiles

TCLP-BNA-QC — **1 x 1 mL**
At stated conc. in CH_2Cl_2 — 13 comps.

o-Cresol	(2000 µg/mL)	Hexachloroethane	(30 µg/mL)
m-Cresol	(2000 µg/mL)	Nitrobenzene	(20 µg/mL)
p-Cresol	(2000 µg/mL)	Pentachlorophenol	(1000 µg/mL)
1,4-Dichlorobenzene	(75 µg/mL)	Pyridine	(50 µg/mL)
2,4-Dinitrotoluene	(1.3 µg/mL)	2,4,5-Trichlorophenol	(4000 µg/mL)
Hexachlorobenzene	(1.3 µg/mL)	2,4,6-Trichlorophenol	(20 µg/mL)
Hexachlorobutadiene	(5 µg/mL)		

Herbicides

TCLP-HERB-ME-QC — **1 x 1 mL**
TCLP-HERB-ME-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 2 comps.

	Concentration as Methyl Derivative	as Acid
2,4-D, ME	(106.3 µg/mL)	(100 µg/mL)
2,4,5-TP, ME	(10.5 µg/mL)	(10 µg/mL)

❄ ColdPAK required to maintain integrity of product.

Method 1312 Synthetic Leaching Procedure

Semi-Volatiles

TCLP-BNA-1312 — **1 x 1 mL**
TCLP-BNA-1312-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 14 comps.

Acenaphthene	2,4-Dinitrophenol
β-BHC	2,4-Dinitrotoluene
γ-BHC	*o*-Cresol
bis-2-Chloroethyl ether	2,4-Dimethylphenol
2-Chlorophenol	Hexachlorobenzene
1,2-Dichlorobenzene	Hexachlorobutadiene
1,4-Dichlorobenzene	Nitrobenzene

Method 1613 Dioxins & Furans by HRGC/HRMS

Precision and Recovery Standard

M-1613-PAR Bold (-04) **1 x 1 mL**
M-1613-PAR-PAK **5 x 1 mL**
All units in ng/mL in Nonane 17 comps.

M-1613-CAL	-01	-02	-03	-04	-05
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.5	2	10	**40**	200
2,3,7,8-Tetrachlorodibenzofuran	0.5	2	10	**40**	200
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,7,8-Pentachlorodibenzofuran	2.5	10	50	**200**	1000
2,3,4,7,8-Pentachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,4,7,8-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,6,7,8-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,7,8,9-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
2,3,4,6,7,8-Hexachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2.5	10	50	**200**	1000
1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.5	10	50	**200**	1000
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	5	20	100	**400**	2000
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	5	20	100	**400**	2000

Calibration Set

M-1613-CAL-SET **5 x 1 mL**
All in ng/mL in Nonane **M-1613-CAL-01, M-1613-CAL-02, M-1613-CAL-03, M-1613-CAL-04, M-1613-CAL-05**

Technical Note

Native Solutions of the USEPA Method 1613 analytes can also be used for USEPA Method 23, 8280, 8290, EU Method EN-1948 and Japanese Methods JIS-K0311 and JIS-K0312.

2,3,7,8 Isomers only Mix

This solution is for those labs only determining the concentration of the two most toxic isomers.

M-1613-DF **1 x 1 mL**
40 ng/mL each in Nonane 2 comps.

2,3,7,8-Tetrachlorodibenzo-p-dioxin
2,3,7,8-Tetrachlorodibenzofuran

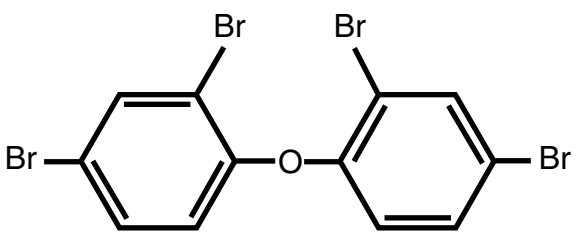
Method 1614 Bromodiphenyl Ether Mixtures

Responding to the need for the analysis of polybrominated diphenyl ether (PBDE) congeners, the EPA has developed Method 1614. Method 1614 is recommended for analysis of aqueous, solid, tissue, and multi-phase environmental samples. AccuStandard has the largest offering of synthesized PBDEs - see Flame Retardant section for complete listing.

PBDEs Standard Solution for Accuracy & Precision

At stated conc. in Isooctane — 39 comps.

	BDE-AAP-A 1 mL ng/mL	BDE-AAP-A-15X 1 mL µg/mL
2-Bromodiphenyl ether (#1)	100	1.5
3-Bromodiphenyl ether (#2)	100	1.5
4-Bromodiphenyl ether (#3)	100	1.5
2,4-Dibromodiphenyl ether (#7)	100	1.5
2,4'-Dibromodiphenyl ether (#8)	100	1.5
2,6-Dibromodiphenyl ether (#10)	100	1.5
3,3'-Dibromodiphenyl ether (#11)	100	1.5
3,4-Dibromodiphenyl ether (#12)	100	1.5
3,4'-Dibromodiphenyl ether (#13)	100	1.5
4,4'-Dibromodiphenyl ether (#15)	100	1.5
2,2',4-Tribromodiphenyl ether (#17)	100	1.5
2,3',4-Tribromodiphenyl ether (#25)	100	1.5
2,4,4'-Tribromodiphenyl ether (#28)	100	1.5
2,4,6-Tribromodiphenyl ether (#30)	100	1.5
2,4',6-Tribromodiphenyl ether (#32)	100	1.5
2',3,4-Tribromodiphenyl ether (#33)	100	1.5
3,3',4-Tribromodiphenyl ether (#35)	100	1.5
3,4,4'-Tribromodiphenyl ether (#37)	100	1.5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	100	1.5
2,2',4,5'-Tetrabromodiphenyl ether (#49)	100	1.5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	100	1.5
2,3',4',6-Tetrabromodiphenyl ether (#71)	100	1.5
2,4,4',6-Tetrabromodiphenyl ether (#75)	100	1.5
3,3',4,4'-Tetrabromodiphenyl ether (#77)	100	1.5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	150	2.25
2,2',4,4',5-Pentabromodiphenyl ether (#99)	150	2.25
2,2',4,4',6-Pentabromodiphenyl ether (#100)	150	2.25
2,3,4,5,6-Pentabromodiphenyl ether (#116)	150	2.25
2,3',4,4',5-Pentabromodiphenyl ether (#118)	150	2.25
2,3',4,4',6-Pentabromodiphenyl ether (#119)	150	2.25
3,3',4,4',5-Pentabromodiphenyl ether (#126)	150	2.25
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	200	3.0
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	200	3.0
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	200	3.0
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	200	3.0
2,3,4,4',5,6-Hexabromodiphenyl ether (#166)	200	3.0
2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	250	3.75
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	250	3.75
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	250	3.75



Commonly Occurring PBDE Congeners for Precision and Recovery

BDE-COC — **1 x 1 mL**

At stated conc. in Isooctane — 14 comps.

	µg/mL
2,2',4-Tribromodiphenyl ether (#17)	5
2,4,4'-Tribromodiphenyl ether (#28)	5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	5
2,3',4',6-Tetrabromodiphenyl ether (#71)	5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	5
2,2',4,4',5-Pentabromodiphenyl ether (#99)	5
2,2',4,4',6-Pentabromodiphenyl ether (#100)	5
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	5
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	5
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	5
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	5
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	5
Decabromodiphenyl ether (#209)	25

PBDE Congeners of Primary Interest

BDE-CSM — **1 x 1 mL**

At stated conc. in Isooctane:Toluene — 8 comps.

	µg/mL
2,4,4'-Tribromodiphenyl ether (#28)	20
2,2',4,4'-Tetrabromodiphenyl ether (#47)	20
2,2',4,4',5-Pentabromodiphenyl ether (#99)	20
2,2',4,4',6-Pentabromodiphenyl ether (#100)	20
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	20
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	20
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	20
Decabromodiphenyl ether (#209)	200

Calibration Mix

BDE-CM — **1 x 1 mL**

At stated conc. in Isooctane — 8 comps.

Matrix Spiking Solution

BDE-MS — **1 x 1 mL**

At stated conc. in Isooctane — 8 comps.

	BDE-CM µg/mL	BDE-MS ng/mL
2,4,4'-Tribromodiphenyl ether (#28)	2.5	1
2,2',4,4'-Tetrabromodiphenyl ether (#47)	2.5	1
2,2',4,4',5-Pentabromodiphenyl ether (#99)	2.5	1
2,2',4,4',6-Pentabromodiphenyl ether (#100)	2.5	1
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	2.5	1
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	2.5	1
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	2.5	1
Decabromodiphenyl ether (#209)	25	10

Method 1618 Organo-halide, Organo-phosphorus Pesticides and Phenoxyacid Herbicides by Wide Bore Capillary Column GC

Method 1618 was developed by the Industrial Technology Division (ITD) within the United States Environmental Protection Agency's (US EPA) Office of Water Regulations and Standards (OWRS) to provide improved precision and accuracy of analysis of pollutants in aqueous and solid matrices in order to determine the level of these pollutants in industrial discharges. Method 1618 is used with wide bore GC columns to analyze for organo-halide and organo-phosphorus pesticides, phenoxy-acid herbicides and herbicide esters, polychlorinated biphenyls (PCBs) and other compounds amenable to extraction and analysis by wide bore capillary column gas chromatography with halogen-specific and organo-phosphorus detectors.

The chemical compounds in the AccuStandard mixtures that follow may be determined in waters, soils, sediments and sludges by this method. The method is a consolidation of EPA Methods 608, 608.1, 614, 615, 617, 622 and 701.

Organochlorine Pesticides

M-1618-1 — **1 x 1 mL**
M-1618-1-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in Isooctane — 14 comps.

Aldrin	(100 ng/mL)	Endosulfan II	(200 ng/mL)
Captan	(200 ng/mL)	Endrin aldehyde	(100 ng/mL)
Chlorobenzilate	(500 ng/mL)	Heptachlor	(100 ng/mL)
Diallate	(250 ng/mL)	Heptachlor epoxide	(100 ng/mL)
p,p'-DDE	(200 ng/mL)	Lindane	(100 ng/mL)
p,p'-DDT	(200 ng/mL)	Methoxychlor	(200 ng/mL)
Endosulfan I	(200 ng/mL)	Isodrin	(100 ng/mL)

M-1618-2 — **1 x 1 mL**
At stated conc. in Isooctane — 16 comps.

α-BHC	(100 ng/mL)	Dichlone	(100 ng/mL)
β-BHC	(100 ng/mL)	Dieldrin	(100 ng/mL)
δ-BHC	(100 ng/mL)	Endrin	(100 ng/mL)
α-Chlordane	(100 ng/mL)	Endosulfan sulfate	(100 ng/mL)
γ-Chlordane	(100 ng/mL)	Endrin ketone	(100 ng/mL)
Carbophenothion	(1000 ng/mL)	Mirex	(100 ng/mL)
Captafol	(200 ng/mL)	PCNB	(100 ng/mL)
p,p'-DDD	(100 ng/mL)	Trifluralin	(200 ng/mL)

Organophosphate Pesticides

M-1618-3 — **1 x 1 mL**
At stated conc. in Isooctane — 19 comps.

Azinphos methyl	(100 ng/mL)	Merphos	(200 ng/mL)
Coumaphos	(50 ng/mL)	Methyl parathion	(100 ng/mL)
Diazinon	(100 ng/mL)	Malathion	(100 ng/mL)
Dichlorvos	(50 ng/mL)	Phorate	(100 ng/mL)
Dimethoate	(100 ng/mL)	Ronnel	(100 ng/mL)
EPN	(100 ng/mL)	Sulprofos	(50 ng/mL)
Ethyl parathion	(100 ng/mL)	Terbufos	(100 ng/mL)
Ethoprop	(100 ng/mL)	Tetrachlorvinphos	(100 ng/mL)
Ethyl azinphos	(100 ng/mL)	Trichlorofon	(100 ng/mL)
Fensulfothion	(200 ng/mL)		

M-1618-4 — **1 x 1 mL**
At stated conc. in Isooctane — 16 comps.

Chlorfenvinphos	(50 ng/mL)	Ethion	(100 ng/mL)
Chlorpyrifos	(50 ng/mL)	Famphur	(200 ng/mL)
Chlorpyrifos methyl	(100 ng/mL)	Fenthion	(100 ng/mL)
Crotoxyphos	(200 ng/mL)	Leptophos	(100 ng/mL)
Dichlorofenthion	(100 ng/mL)	Mevinphos	(100 ng/mL)
Demeton	(400 ng/mL)	Naled	(100 ng/mL)
Dioxathion	(600 ng/mL)	Phosmet	(200 ng/mL)
Disulfoton	(100 ng/mL)	Sulfotep	(50 ng/mL)

Phenoxyacid Herbicides

M-8150M — **1 x 1 mL**
M-8150M-PAK — ***SAVE*** — **5 x 1 mL**
20 µg/mL each in Hexane — 8 comps.

2,4-D	Dalapon
2,4-DB	Dicamba
2,4,5-T	Dichlorprop
2,4,5-TP	Dinoseb

M-8150M-2 — **1 x 1 mL**
M-8150M-2-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL in Hexane — 2 comps.

MCPA	MCPP

Surrogate Standards

Organochlorine Pesticide

M-1618-SS — **1 x 1 mL**
M-1618-SS-PAK — ***SAVE*** — **5 x 1 mL**
2 µg/mL in Acetone

Dibutylchlorendate

Organophosphate Pesticide

M-1618-SP — **1 x 1 mL**
2 µg/mL each in Acetone — 2 comps.

Tributyl phosphate	Triphenyl phosphate

Phenoxyacid Herbicide

M-1618-SA — **1 x 1 mL**
2 µg/mL in Acetone

2,4-Dichlorophenyl acetic acid

Decomposition Solution

M-1618D ❄ — **1 x 1 mL**
M-1618D-PAK ❄ — ***SAVE*** — **5 x 1 mL**
At stated conc. in Acetone — 2 comps.

p,p'-DDT (2.0 µg/mL)	Endrin (1.0 µg/mL)

GPC Calibration Solution

M-1618-GP-5ML — **1 x 5 mL**
At stated conc. in Acetone — 5 comps.

Corn oil	(300.0 mg/mL)	Perylene	(0.1 mg/mL)
bis(2-Ethylhexyl)phthalate	(15.0 mg/mL)	Sulfur	(0.5 mg/mL)
Pentachlorophenol	(1.4 mg/mL)		

SPE Cartridge Calibration Solution

M-1618-SE — **1 x 1 mL**
M-1618-SE-PAK — ***SAVE*** — **5 x 1 mL**
0.1 µg/mL in Acetone

2,4,6-Trichlorophenol

❄ ColdPAK required to maintain integrity of product.

EPA Method 1600 Series
Chlorinated Phenolics and Pesticides

Method 1653 Chlorinated Phenolics in Pulp and Paper Effluents

Method 1653 is designed to determine Chlorinated Phenolics (chlorinated phenols, guaiacols, catechols, vanillins, syringaldehydes) and other compounds in wastewater amenable to in-situ acetylation and analysis by GC/MS.

M-1653A-D-R-SET — set of 4 x 1 mL
(M-1653A, M-1653B, M-1653C, M-1653D-AC)

M-1653A — 1 x 1 mL
M-1653A-PAK — SAVE — 5 x 1 mL
0.1 mg/mL each in MeOH — 7 comps.

4-Chlorophenol	2,4,6-Trichlorophenol
2,4-Dichlorophenol	2,3,4,6-Tetrachlorophenol
2,6-Dichlorophenol	Pentachlorophenol
2,4,5-Trichlorophenol	

M-1653B — 1 x 1 mL
0.1 mg/mL each in MeOH — 8 comps.

4-Chloroguaiacol	3,4,5-Trichloroguaiacol
3,4-Dichloroguaiacol	3,4,6-Trichloroguaiacol
4,5-Dichloroguaiacol	4,5,6-Trichloroguaiacol
4,6-Dichloroguaiacol	Tetrachloroguaiacol

M-1653C — 1 x 1 mL
0.1 mg/mL each in MeOH — 7 comps.

4-Chlorocatechol	3,4,5-Trichlorocatechol
3,4-Dichlorocatechol	3,4,6-Trichlorocatechol
3,6-Dichlorocatechol	Tetrachlorocatechol
4,5-Dichlorocatechol	

M-1653D-AC — 1 x 1 mL
0.1 mg/mL each in Acetone — 6 comps.

5-Chlorovanillin	2-Chlorosyringaldehyde
6-Chlorovanillin	2,6-Dichlorosyringaldehyde
5,6-Dichlorovanillin	Trichlorosyringol

Internal Standard

M-1653-IS — 1 x 1 mL
1.0 mg/mL in MeOH
M-1653-IS-R — 1 x 1 mL
1.0 mg/mL in Acetone

3,4,5-Trichlorophenol

Instrument Internal Standard

M-1653-IIS — 1 x 1 mL
1.0 mg/mL in MeOH
M-1653-IIS-R — 1 x 1 mL
5.0 mg/mL in Acetone

2,2'-Difluorobiphenyl

M-1653A-D-R2-SET — set of 4 x 1 mL
(M-1653A-R, M-1653B-R, M-1653C-R, M-1653D-R)

M-1653A-R — 1 x 1 mL
At stated conc. in Acetone — 7 comps.

4-Chlorophenol	(25 µg/mL)	2,4,6-Trichlorophenol	(50 µg/mL)
2,4-Dichlorophenol	(50 µg/mL)	2,3,4,6-Tetrachlorophenol	(50 µg/mL)
2,6-Dichlorophenol	(50 µg/mL)	Pentachlorophenol	(100 µg/mL)
2,4,5-Trichlorophenol	(50 µg/mL)		

M-1653B-R — 1 x 1 mL
At stated conc. in Acetone — 8 comps.

4-Chloroguaiacol	(25 µg/mL)	3,4,5-Trichloroguaiacol	(50 µg/mL)
3,4-Dichloroguaiacol	(50 µg/mL)	3,4,6-Trichloroguaiacol	(50 µg/mL)
4,5-Dichloroguaiacol	(50 µg/mL)	4,5,6-Trichloroguaiacol	(50 µg/mL)
4,6-Dichloroguaiacol	(50 µg/mL)	Tetrachloroguaiacol	(100 µg/mL)

M-1653C-R — 1 x 1 mL
At stated conc. in Acetone — 7 comps.

4-Chlorocatechol	(25 µg/mL)	3,4,5-Trichlorocatechol	(100 µg/mL)
3,4-Dichlorocatechol	(50 µg/mL)	3,4,6-Trichlorocatechol	(100 µg/mL)
3,6-Dichlorocatechol	(50 µg/mL)	Tetrachlorocatechol	(100 µg/mL)
4,5-Dichlorocatechol	(50 µg/mL)		

M-1653D-R — 1 x 1 mL
At stated conc. in Acetone — 6 comps.

5-Chlorovanillin	(50 µg/mL)	2-Chlorosyringaldehyde	(50 µg/mL)
6-Chlorovanillin	(50 µg/mL)	2,6-Dichlorosyringaldehyde	(100 µg/mL)
5,6-Dichlorovanillin	(100 µg/mL)	Trichlorosyringol	(50 µg/mL)

US EPA Pulp, Paper & Paperboard Cluster Rule

M-PAPCLUS — 1 x 1 mL
M-PAPCLUS-PAK — SAVE — 5 x 1 mL
0.1 mg/mL each in Water — 4 comps.

Methanol	Propionaldehyde
Acetaldehyde	Methyl ethyl ketone

Instrument Performance Check Solution

M-1653-TS — 1 x 1 mL
50 µg/mL in Acetone

DFTPP

Method 1656 Organo-Halide Pesticides in Municipal & Industrial Wastewater by HSD

Method 1656 is a consolidation of several EPA wastewater methods used to determine the organo-halide pesticides and polychlorinated biphenyls (PCBs) associated with the Clean Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act; and other compounds amenable to extraction and analysis by wide-bore capillary column GC with a HSD.

GPC Calibration Solution

M-1600-GPC-5ML — 1 x 5 mL
At stated conc. in CH_2Cl_2 — 5 comps.

Corn oil	(300 mg/mL)	Perylene	(0.1 mg/mL)
bis(2-Ethylhexyl)phthalate	(15 mg/mL)	Sulfur	(0.5 mg/mL)
Pentachlorophenol	(1.4 mg/mL)		

Solid-phase Extraction Cartridge Calibration Solution

M-1600-SPE — 1 x 1 mL
0.1 mg/mL in Acetone

2,4,6-Trichlorophenol

Decomposition Test Solution

M-1656-DS — 1 x 1 mL
At stated conc. in Isooctane — 2 comps.

4,4'-DDT (2 µg/mL)	Endrin (1 µg/mL)

Surrogate Spiking Solutions

CLP-PES-A — 1 x 1 mL
0.2 mg/mL in Acetone

Dibutylchlorendate

CLP-032-R — 1 x 1 mL
0.2 mg/mL each in Acetone — 2 comps.

Decachlorobiphenyl	Tetrachloro-*m*-xylene

CLP-034 — 1 x 1 mL
0.2 mg/mL each in Acetone — 2 comps.

Dibutylchlorendate	Tetrachloro-*m*-xylene

Method 1656 (continued) Calibration Solutions & Suggested Calibration Groups

M-1656-CAL-SET — **7 x (3 x 1 mL)** (contains all 7 calibration groups at respective low, medium and high ranges)

Calibration Group 1

M-1656-01-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 14 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Acephate	2,000	10,000	40,000
Alachlor	20	100	400
Atrazine	1,000	5,000	20,000
β-BHC	10	50	200
Bromoxynil octanoate	50	250	1,000
Captafol	200	1,000	4,000
Diallate	200	1,000	4,000
Decachlorobiphenyl	10	50	200
Endosulfan sulfate	10	50	200
Endrin	20	100	400
Isodrin	10	50	200
Pendimethalin	50	250	1,000
Permethrin *(cis & trans)*	*200	1,000	4,000
Tetrachloro-*m*-xylene	5	25	100

*** Actual isomer concentration is stated on certificate of product data**

Calibration Group 2

M-1656-02-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 11 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
α-BHC	5	25	100
DCPA	5	25	100
4,4'-DDE	10	50	200
4,4'-DDT	10	50	200
Decachlorobiphenyl	10	50	200
Dichlone	20	100	400
Ethalfluralin	10	50	200
Fenarimol	20	100	400
Methoxychlor	20	100	400
Metribuzin	10	50	200
Tetrachloro-*m*-xylene	5	25	100

Calibration Group 3

M-1656-03-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 10 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
γ-BHC	5	25	100
γ-Chlordane	5	25	100
Decachlorobiphenyl	10	50	200
Endrin ketone	10	50	200
Heptachlor epoxide	5	25	100
Isopropalin	20	100	400
Nitrofen	20	100	400
PCNB	5	25	100
Tetrachloro-*m*-xylene	5	25	100
Trifluralin	10	50	200

Calibration Group 4

M-1656-04-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 10 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Benfluralin	20	100	400
Chlorobenzilate	50	250	1,000
Decachlorobiphenyl	10	50	200
Dieldrin	5	25	100
Endosulfan I	10	50	200
Mirex	20	100	400
Terbacil	200	1,000	4,000
Terbuthylazine	500	2,500	10,000
Tetrachloro-*m*-xylene	5	25	100
Triadimefon	100	500	2,000

Calibration Group 5

M-1656-05-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 8 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Benfluralin	20	100	400
Captan	100	500	2,000
Chlorothalonil	20	100	400
4,4'-DDD	20	100	400
Decachlorobiphenyl	10	50	200
Norflurazon	100	500	2,000
Simazine	800	4,000	16,000
Tetrachloro-*m*-xylene	5	25	100

Calibration Group 6

M-1656-06-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 9 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Aldrin	20	100	400
δ-BHC	5	25	100
Bromacil	100	500	2,000
Butachlor	50	250	1,000
Decachlorobiphenyl	10	50	200
Endosulfan II	10	50	200
Heptachlor	10	50	200
Kepone	100	500	2,000
Tetrachloro-*m*-xylene	5	25	100

Calibration Group 7

M-1656-07-CAL-SET — **3 x 1 mL**
All solutions in Isooctane — 13 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Carbophenothion	80	400	1,600
Chloroneb	300	1,500	6,000
Chloropropylate	200	1,000	4,000
DBCP	25	125	500
Decachlorobiphenyl	10	50	200
Dicofol	300	1,500	6,000
Endrin aldehyde	80	400	1,600
Etridiazole	80	400	1,600
Perthane	1,000	5,000	20,000
Propachlor	500	2,500	10,000
Propanil	200	1,000	4,000
Propazine	1,000	5,000	20,000
Tetrachloro-*m*-xylene	5	25	100

Method 1657 Organo-Phosphorus Pesticides in Municipal & Industrial Wastewater by FPD

Method 1657 is a consolidation of several EPA wastewater methods used to determine the organo-phosphorus pesticides associated with the Clean Water Act, the Resource and Conservation and Recovery Act, & the Comprehensive Environmental Response, Compensation and Liability Act; and other compounds amenable to extraction and analysis by wide-bore capillary column gas chromatography with a flame photometric detector (FPD).

GPC Calibration Solution

M-1600-GPC-5ML **1 x 5 mL**
At stated conc. in CH_2Cl_2 5 comps.

Corn oil	(300 mg/mL)
bis(2-Ethylhexyl)phthalate	(15 mg/mL)
Pentachlorophenol	(1.4 mg/mL)
Perylene	(0.1 mg/mL)
Sulfur	(0.5 mg/mL)

Solid-phase Extraction Cartridge Calibration Solution

M-1600-SPE **1 x 1 mL**
0.1 mg/mL in Acetone

2,4,6-Trichlorophenol

Surrogate Spiking Solution

M-1657-SS **1 x 1 mL**
0.2 mg/mL each in Acetone 2 comps.

Tributyl phosphate
Triphenyl phosphate

Method 1657 Calibration Solutions & Suggested Calibration Groups

Calibration Group 1

M-1657-01-R1-CAL-SET **3 x 1 mL**
All solutions in Isooctane 9 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Azinphos methyl	100	500	2,000
Dichlorvos	500	2,500	10,000
Disulfoton	200	1,000	4,000
Fenthion	200	1,000	4,000
Merphos (A + B)	400	2,000	8,000
Ronnel	200	1,000	4,000
Sulprofos	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Triphenyl phosphate	200	1,000	4,000

Low	M-1657-01-R1-1X	**1 mL**
Medium	M-1657-01-R1-5X	**1 mL**
High	M-1657-01-R1-20X	**1 mL**

Calibration Group 2

M-1657-02-CAL-SET **3 x 1 mL**
All solutions in Isooctane 12 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Chlorfevinphos	200	1,000	4,000
Chlorpyrifos	200	1,000	4,000
Demeton (O + S)	400	2,000	8,000
Dichlofenthion	200	1,000	4,000
Dimethoate	100	500	2,000
Famphur	500	2,500	10,000
Leptophos	200	1,000	4,000
Methyl parathion	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Trichlorofon	500	2,500	10,000
Tricresylphosphate	100	500	2,000
Triphenyl phosphate	200	1,000	4,000

Low	M-1657-02-1X	**1 mL**
Medium	M-1657-02-5X	**1 mL**
High	M-1657-02-20X	**1 mL**

Calibration Group 3

M-1657-03-CAL-SET **3 x 1 mL**
All solutions in Isooctane 14 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Azinphos ethyl	200	1,000	4,000
Crotoxyphos	500	2,500	10,000
DEF	200	1,000	4,000
Fensulfothion	500	2,500	10,000
Methyl chlorpyrifos	200	1,000	4,000
Mevinphos	500	2,500	10,000
Naled	500	2,500	10,000
Parathion	200	1,000	4,000
Phosmet	500	2,500	10,000
Phosphamidon (E + Z)	100	500	2,000
Sulfotepp	200	1,000	4,000
Terbufos	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Triphenyl phosphate	200	1,000	4,000

Low	M-1657-03-1X	**1 mL**
Medium	M-1657-03-5X	**1 mL**
High	M-1657-03-20X	**1 mL**

M-1657-CAL-SET **4 x (3 x 1 mL)**
Contains all 4 calibration groups at Low, Medium and High Ranges

Calibration Group 4

M-1657-04-CAL-SET **3 x 1 mL**
All solutions in Isooctane 11 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(5X)*	High *(20X)*
Coumaphos	500	2,500	10,000
Diazinon	200	1,000	4,000
EPN	200	1,000	4,000
Ethion	200	1,000	4,000
Ethoprop	200	1,000	4,000
Malathion	200	1,000	4,000
Phorate	200	1,000	4,000
Tetrachlorvinphos	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Trichloronate	200	1,000	4,000
Triphenyl phosphate	200	1,000	4,000

Low	M-1657-04-1X	**1 mL**
Medium	M-1657-04-5X	**1 mL**
High	M-1657-04-20X	**1 mL**

Method 1658 Phenoxy-Acid Herbicides

Method 1658 consolidates several EPA wastewater methods used to determine Phenoxy-Acid Herbicides & Herbicide esters associated with the CWA, RCRA, & CERCLA; & other compounds amenable to extraction & analysis by wide-bore capillary column GC/ECD.

M-1658-CAL-SET **3 x 1 mL**
All solutions in Isooctane 12 comps.

Components *(units in ng/mL)*	Low *(1X)*	Medium *(10X)*	High *(100X)*
2,4-D	100	1,000	10,000
Dalapon	50	500	5,000
2,4-DB	200	2,000	20,000
2,4-Dichlorphenylacetic acid *(Surrogate)*	10	100	1,000
Dicamba	20	200	2,000
Dichlorprop	100	1,000	10,000
Dinoseb	50	500	5,000
MCPA	5,000	50,000	500,000
MCPP	5,000	50,000	500,000
Picloram	50	500	5,000
2,4,5-T	20	200	2,000
2,4,5-TP	20	200	2,000

Method 1659 Dazomet in Municipal & Industrial Wastewater by NPD

Method 1659 is used to determine Dazomet by base hydrolysis to Methyl Isothiocyanate (MITC) and subsequent determination of MITC by wide-bore fused-silica capillary column gas chromatography with a Nitrogen Phophorus Detector (NPD).

Recovery & Precision Solution

M-1659-RPS **1 x 1 mL**
25 µg/mL in Acetone

Methyl isothiocyanate *(MITC)*

Matrix Spiking Solution

M-1659-MS **1 x 1 mL**
25 µg/mL in Acetone

Dazomet

Calibration Solutions

M-1659-CAL-SET **3 x 1 mL**

M-1659-CAL-1X	0.2 mg/mL in Acetone	**1 mL**
M-1659-CAL-5X	1.0 mg/mL in Acetone	**1 mL**
M-1659-CAL-25X	5.0 mg/mL in Acetone	**1 mL**

Methyl isothiocyanate *(MITC)*

Method 1664 See Petrochemical (page 324) or Inorganic (page 341) Sections

Method 1665 Semi-Volatile Organic Compounds Specific to the PMI by Isotope Dilution GC/MS

The following method series is designed to meet PMI (Pharmaceutical Manufacturing Industry) methods promulgated in 40 CFR part 136. It is used to monitor the discharge of pollutants into surface waters. It can also be used to identify and measure purgeable and non-purgeable volatiles, semi-volatiles, and certain organic pollutants specific to PMI discharge in water, soils, and municipal sludges.

GPC Calibration Solution

M-1618-GP-5ML **1 x 5 mL**
At stated conc. in Acetone 5 comps.

Corn oil	(300.0 mg/mL)	Perylene	(0.1 mg/mL)
bis(2-Ethylhexyl)phthalate	(15.0 mg/mL)	Sulfur	(0.5 mg/mL)
Pentachlorophenol	(1.4 mg/mL)		

Instrument Performance Check Solution

M-1653-TS **1 x 1 mL**
50 µg/mL in Acetone

DFTPP

PMI Internal Standard

M-625-07-10X **1 x 1 mL**
2.0 mg/mL in CH_2Cl_2

2,2'-Difluorobiphenyl

PMI Stock Standard

M-1665 **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 6 comps.

Aniline	Dimethylformamide
N,N-Dimethylacetamide	2-Picoline
N,N-Dimethylaniline	Pyridine

PMI Labeled Stock Standard (Not for individual sale)

M-1665-LAB **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 5 comps.

Aniline-d_7	2-Picoline-d_4
N,N-Dimethylaniline-d_{11}	Pyridine-d_5
Dimethylformamide-d_7	

PMI Semi-Volatile Set

M-1665-SET **5 x 1 mL**
(M-1618-GP-5ML, M-1653-TS, M-625-07-10X, M-1665, M-1665-LAB)

EPA Method 1600 Series
Pharmaceutical Waste Discharge Standards

Method 1666A (Rev. July 1998) Volatile Organic Compounds Specific to the PMI by Isotope Dilution GC/MS

M-1666A-SSA-ADD **1 x 1 mL**
1000 µg/mL in MeOH

Isopropyl ether

PMI Stock Standard A
M-1666A-SSA-R2 **1 x 1 mL**
At stated conc. in Water 7 comps.

1-Butanol	(2500 µg/mL)	Isopropanol	(1000 µg/mL)
t-Butanol	(2500 µg/mL)	4-Methyl-2-pentanone	(1000 µg/mL)
2-Furaldehyde	(2500 µg/mL)	1-Pentanol	(2500 µg/mL)
Isobutyraldehyde	(2500 µg/mL)		

PMI Stock Standard B
M-1666A-SSB **1 x 1 mL**
At stated conc. in MeOH 9 comps.

Cyclohexane	(1000 µg/mL)	Trifluoromethane	(1000 µg/mL)
N-Heptane	(1000 µg/mL)	*m*-Xylene	(1000 µg/mL)
n-Hexane	(1000 µg/mL)	*o*-Xylene	(1000 µg/mL)
Methyl formate	(2500 µg/mL)	*p*-Xylene	(1000 µg/mL)
Tetrahydrofuran	(1000 µg/mL)		

PMI Stock Standard C
M-1666A-SSC **1 x 1 mL**
1000 µg/mL each in MeOH 4 comps.

Butyl acetate	Isopropyl acetate
Ethyl acetate	Pentyl acetate

PMI Labeled Stock Standard
M-1666A-LAB **1 x 1 mL**
At stated conc. in MeOH 8 comps.

L-Butanol-d_{10}	(500 µg/mL)	*n*-Hexane-d_{14}	(50 µg/mL)
Cyclohexane-d_{12}	(50 µg/mL)	Tetrahydrofuran-d_8	(50 µg/mL)
Ethyl Acetate-c_{13}	(50 µg/mL)	*o*-Xylene-d_{10}	(50 µg/mL)
N-Heptane-d^{16}	(50 µg/mL)	*m*-Xylene-d_{10}	(50 µg/mL)

PMI Purgeable Analytes
M-1666A-R2-SET **5 x 1 mL**
M-1666A-SSA-ADD, M-1666A-SSA-R2, M-1666A-SSB M-1666A-SSC, M-1666A-LAB

PMI Standard Direct Injection
M-1666A-DI-R1 **1 x 1 mL**
At stated conc. in Water 10 comps.

Acetonitrile	(1000 µg/mL)	Ethylene glycol	(2500 µg/mL)
Diethylamine	(2500 µg/mL)	Methanol	(1000 µg/mL)
Dimethylamine	(1000 µg/mL)	2-Methoxyethanol	(1000 µg/mL)
Dimethyl sulfoxide	(1000 µg/mL)	1-Propanol	(1000 µg/mL)
Ethanol	(1000 µg/mL)	Triethylamine	(2500 µg/mL)

M-1666A-DI-R-ADD1 **1 x 1 mL**
2500 µg/mL in Water

Methylamine

M-1666A-DI-R-ADD2 **1 x 1 mL**
5000 µg/mL in Water

Formamide

PMI Labeled Standard Direct Injection
M-1666A-DI-LAB **1 x 1 mL**
1000 µg/mL each in Water 6 comps.

Acetonitrile-d_3	Methanol-d_3
Dimethyl sulfoxide-d_6	*n*-Propanol-1-d_7
Ethanol-d_6	Tetrahydrofuran-d_8

PMI Direct Injection Set
M-1666A-DI-R1-SET **4 x 1 mL**
M-1666A-DI-R1, M-1666A-DI-R-ADD1 M-1666A-DI-R-ADD2, M-1666A-DI-LAB

PMI Instrument Performance

Purgeable Internal Standard
CLP-PI **1 x 1 mL**
CLP-PI-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in MeOH 3 comps.

Bromochloromethane	1,4-Difluorobenzene
Chlorobenzene-d_5	

PMI Resolution Standard
M-1666A-RES **1 x 1 mL**
M-1666A-RES-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL each in MeOH 2 comps.

o-Xylene	*o*-Xylene-d_{10}

Instrument Performance Check Solution
CLP-004-10X **1 x 1 mL**
CLP-004-10X-PAK ***SAVE*** **5 x 1 mL**
250 µg/mL in MeOH

p-Bromofluorobenzene

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 1667A Formaldehyde, Isobutylaldehyde & Furfural by Derivatization followed by HPLC for PMI pollutants

PMI Carbonyl Set

M-1667A-SET **3 x 1 mL**

Each at 1.0 mg/mL in AcCN

	Cat. No.	1 mL
Formaldehyde	M-1667A-01	
2-Furaldehyde	M-1667A-02	
Isobutyraldehyde	M-1667A-03	

PMI Carbonyl DNPH Set

M-1667A-DNPH-SET **3 x 1 mL**

Each at 1.0 mg/mL in AcCN

	Cat. No.	1 mL
Formaldehyde-DNPH	M-1667A-DNPH-01	
2-Furaldehyde-DNPH	M-1667A-DNPH-02	
Isobutyraldehyde-DNPH	M-1667A-DNPH-03	

PMI QA/QC Carbonyl Mixture

M-1667A-M **1 x 1 mL**
M-1667A-M-PAK *SAVE* **5 x 1 mL**
250 µg/mL each in AcCN 3 comps.

Formaldehyde
2-Furaldehyde
Isobutyraldehyde

PMI QA/QC Carbonyl Derivative DNPH Mixture

M-1667A-DNPH **1 x 1 mL**
M-1667A-DNPH-PAK *SAVE* **5 x 1 mL**
250 µg/mL each in AcCN 3 comps.

Formaldehyde-DNPH
2-Furaldehyde-DNPH
Isobutyraldehyde-DNPH

PMI Derivatization Reagent

M-1667A-DERV-10ML **10 mL**
M-1667A-DERV-10ML-PAK *SAVE* **5 x 10 mL**
1.0 mg/mL in AcCN

2,4-Dinitrophenylhydrazine (DNPH)

2-Part Label System

Smudgeproof, tear and solvent resistant * (Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents:
Methylene chloride, Methanol and Acetone

Method 1668 Congener Set - 209 Chlorinated Biphenyl Congeners by HRGC/HRMS

PCB Congener Mix #1

M-1668A-1-0.01X — **1 x 1 mL**
At stated conc. in Isooctane — 83 comps.

3-Chlorobiphenyl	(2.5 µg/mL)	2,3',4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,6-Dichlorobiphenyl	(2.5 µg/mL)	2',3,4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,5-Dichlorobiphenyl	(2.5 µg/mL)	2,3,3',4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3'-Dichlorobiphenyl	(2.5 µg/mL)	2',3,3',4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,4'-Dichlorobiphenyl	(2.5 µg/mL)	2,3,3',4,4'-Pentachlorobiphenyl	(5.0 µg/mL)
3,5-Dichlorobiphenyl	(2.5 µg/mL)	3,3',4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
3,3'-Dichlorobiphenyl	(2.5 µg/mL)	2,2',3,5,6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4,6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,3',6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4',5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4',6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,5,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2',3,5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4',5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2',3,4-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,3',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
3,3',5-Trichlorobiphenyl	(2.5 µg/mL)	2,3,3',4,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
3,4,5-Trichlorobiphenyl	(2.5 µg/mL)	2,2',4,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
3,3',4-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,3',4,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',4,6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,4,4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',5,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',4,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3',4,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,4,4',6-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',5,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,3',5,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,3',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,4',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3',4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,4',5',6-Heptachlorobiphenyl	(5.0 µg/mL)
3,3',4,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4',5,6-Heptachlorobiphenyl	(5.0 µg/mL)
3,3',4,5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',6-Heptachlorobiphenyl	(5.0 µg/mL)
3,4,4',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,5'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,6,6'-Pentachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',4,5',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5,6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,6'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,3,3',5',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,5',6-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,3',5-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	(7.5 µg/mL)
2,3',4,4',6-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,6-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,5'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,4'-Pentachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	(7.5 µg/mL)
2,2',3,3',4-Pentachlorobiphenyl	(5.0 µg/mL)		

PCB Congener Mix #2

M-1668A-2-0.01X — **1 x 1 mL**
At stated conc. in Isooctane — 54 comps.

2,4-Dichlorobiphenyl	(2.5 µg/mL)
2,3-Dichlorobiphenyl	(2.5 µg/mL)
3,4-Dichlorobiphenyl	(2.5 µg/mL)
2,2',5-Trichlorobiphenyl	(2.5 µg/mL)
2,3,6-Trichlorobiphenyl	(2.5 µg/mL)
2,3,5-Trichlorobiphenyl	(2.5 µg/mL)
2,4,4'-Trichlorobiphenyl	(2.5 µg/mL)
2,3,4'-Trichlorobiphenyl	(2.5 µg/mL)
3,4',5-Trichlorobiphenyl	(2.5 µg/mL)
2,2',5,6'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,6'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',5,6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,5-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4,6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4',6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4,5'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,3',5'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4,5-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,3',4-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',3,5,6'-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4,4',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3',4,5',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4',5,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',5,5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3',4,4',5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,4'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',5,6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,4',6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,3',4,5,5',6'-Octachlorobiphenyl	(7.5 µg/mL)
2,2',3,4,4',5,5',6-Octachlorobiphenyl	(7.5 µg/mL)

PCB Congener Mix #3

M-1668A-3-0.01X — **1 x 1 mL**
At stated conc. in Isooctane — 29 comps.

3,4'-Dichlorobiphenyl	(2.5 µg/mL)
2,2',4-Trichlorobiphenyl	(2.5 µg/mL)
2,4,5-Trichlorobiphenyl	(2.5 µg/mL)
2,3,3'-Trichlorobiphenyl	(2.5 µg/mL)
2,2',3,6'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,5,6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,3',6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',3,3'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4,5-Tetrachlorobiphenyl	(5.0 µg/mL)
2',3,4,5-Tetrachlorobiphenyl	(5.0 µg/mL)
3,3',5,5'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',3,5,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4,5,5'-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',5,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4,5,6-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',4,4',5,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',4',6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4,4',6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',5,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,5,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,5,6-Heptachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5,5',6-Heptachlorobiphenyl	(5.0 µg/mL)

Congener specific determination of all 209 PCB congeners for calibration on a SPB-Octyl capillary column.

M-1668A-0.01X-SET — **5 x 1 mL (M-1668A-1-0.01X, M-1668A-2-0.01X, M-1668A-3-0.01X, M-1668A-4-0.01X, M-1668A-5-0.01X)**

All 209 Individual PCB Congeners are listed in PCB Section.

Method 1668 (Continued) Congener Set - 209 Chlorinated Biphenyl Congeners by HRGC/HRMS

PCB Congener Mix #4

M-1668A-4-0.01X **1 x 1 mL**

At stated conc. in Isooctane 15 comps.

2,3',4-Trichlorobiphenyl	(2.5 µg/mL)
2,3,4-Trichlorobiphenyl	(2.5 µg/mL)
2,3',4,6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',3,4'-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3,4',6-Tetrachlorobiphenyl	(5.0 µg/mL)
2,3',4',5-Tetrachlorobiphenyl	(5.0 µg/mL)
2,2',4,5,6'-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3',4,5-Pentachlorobiphenyl	(5.0 µg/mL)
2,3,4,4',6-Pentachlorobiphenyl	(5.0 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,3',4,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,3,3',4',5,6-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(5.0 µg/mL)

PCB Congener Mix #5

M-1668A-5-0.01X **1 x 1 mL**

At stated conc. in Isooctane 28 comps.

2-Chlorobiphenyl	(2.5 µg/mL)	2,2',3',4,6-Pentachlorobiphenyl	(5.0 µg/mL)
4-Chlorobiphenyl	(2.5 µg/mL)	2',3,4,5,6'-Pentachlorobiphenyl	(5.0 µg/mL)
2,2'-Dichlorobiphenyl	(2.5 µg/mL)	2,3,3',4',6-Pentachlorobiphenyl	(5.0 µg/mL)
4,4'-Dichlorobiphenyl	(2.5 µg/mL)	3,3',4,4',5-Pentachlorobiphenyl	(5.0 µg/mL)
2,2',6-Trichlorobiphenyl	(2.5 µg/mL)	2,2',4,4',6,6'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',3-Trichlorobiphenyl	(2.5 µg/mL)	2,2',3,4,4',5'-Hexachlorobiphenyl	(5.0 µg/mL)
3,4,4'-Trichlorobiphenyl	(2.5 µg/mL)	3,3',4,4',5,5'-Hexachlorobiphenyl	(5.0 µg/mL)
2,2',6,6'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,4',5,6,6'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5,5'-Heptachlorobiphenyl	(5.0 µg/mL)
2,2',3,5'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	(7.5 µg/mL)
2,4,4',5-Tetrachlorobiphenyl	(5.0 µg/mL)	2,3,3',4,4',5,5',6-Octachlorobiphenyl	(7.5 µg/mL)
2,3,3',4'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	(7.5 µg/mL)
3,3',4,4'-Tetrachlorobiphenyl	(5.0 µg/mL)	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(7.5 µg/mL)
2,2',4,6,6'-Pentachlorobiphenyl	(5.0 µg/mL)	Decachlorobiphenyl	(7.5 µg/mL)

Method 1668 Level of Chlorination Calibration / Spike

Native PCB Calibration Mix

M-1668A-NAT **1 x 1 mL**

At stated conc. in Isooctane 19 comps.

4-Chlorobiphenyl	(5 µg/mL)
4,4'-Dichlorobiphenyl	(5 µg/mL)
2,4,4'-Trichlorobiphenyl	(5 µg/mL)
3,3',4,4'-Tetrachlorobiphenyl	(1 µg/mL)
2,3,3',4,4'-Pentachlorobiphenyl	(5 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(5 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(5 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(5 µg/mL)
3,3',4,4',5-Pentachlorobiphenyl	(5 µg/mL)
2,3,3',4,4',5-Hexachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(10 µg/mL)
2,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
3,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5-Heptachlorobiphenyl	(10 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(20 µg/mL)

PAR PCB Spike Mix

M-1668A-PAR **1 x 1 mL**

At stated conc. in Isooctane 19 comps.

4-Chlorobiphenyl	(10 µg/mL)
4,4'-Dichlorobiphenyl	(10 µg/mL)
2,4,4'-Trichlorobiphenyl	(10 µg/mL)
3,3',4,4'-Tetrachlorobiphenyl	(0.2 µg/mL)
2,3,3',4,4'-Pentachlorobiphenyl	(10 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(10 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(10 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(10 µg/mL)
3,3',4,4',5-Pentachlorobiphenyl	(1 µg/mL)
2,3,3',4,4',5-Hexachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(10 µg/mL)
2,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
3,3',4,4',5,5'-Hexachlorobiphenyl	(2 µg/mL)
2,2',3,3',4,4',5-Heptachlorobiphenyl	(2 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5,5'-Heptachlorobiphenyl	(2 µg/mL)
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	(10 µg/mL)
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	(20 µg/mL)

Level of Chlorination Calibration / Spike Set

M-1668A-LOC-SET **2 x 1 mL (M-1668A-NAT, M-1668A-PAR)**

Method 1668A - Combined Congener Standard

M-1668A-C-NT-LOC-WD **1 x 1 mL**

20 µg/mL each in Isooctane 33 comps.

2-Chlorobiphenyl	2,2',4,4',6,6'-Hexachlorobiphenyl
4-Chlorobiphenyl	2,3,3',4,4',5-Hexachlorobiphenyl
2,2'-Dichlorobiphenyl	2,3,3',4,4',5'-Hexachlorobiphenyl
4,4'-Dichlorobiphenyl	2,3',4,4',5,5'-Hexachlorobiphenyl
2,2',6-Trichlorobiphenyl	3,3',4,4',5,5'-Hexachlorobiphenyl
2,3,5-Trichlorobiphenyl	2,2',3,3',4,4',5-Heptachlorobiphenyl
2',3,5-Trichlorobiphenyl	2,2',3,4,4',5,5'-Heptachlorobiphenyl
3,4,4'-Trichlorobiphenyl	2,2',3,4,4',5,6'-Heptachlorobiphenyl
2,2',6,6'-Tetrachlorobiphenyl	2,2',3,4',5,5',6-Heptachlorobiphenyl
3,3',4,4'-Tetrachlorobiphenyl	2,2',3,4',5,6,6'-Heptachlorobiphenyl
3,4,4',5-Tetrachlorobiphenyl	2,3,3',4,4',5,5'-Heptachlorobiphenyl
2,2',4,6,6'-Pentachlorobiphenyl	2,2',3,3',5,5',6,6'-Octachlorobiphenyl
2,3,3',4,4'-Pentachlorobiphenyl	2,3,3',4,4',5,5',6-Octachlorobiphenyl
2,3,4,4',5-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
2',3,4,4',5-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
3,3',4,4',5-Pentachlorobiphenyl	

Method 1668A - QC Standard

M-1668A-QC **1 x 1 mL**

M-1668A-QC-PAK ***SAVE*** **5 x 1 mL**

At stated conc. in Isooctane 13 comps.

3,3',4,4'-Tetrachlorobiphenyl	(0.2 µg/mL)
2,3,3',4,4'-Pentachlorobiphenyl	(10 µg/mL)
2,3,4,4',5-Pentachlorobiphenyl	(10 µg/mL)
2,3',4,4',5-Pentachlorobiphenyl	(10 µg/mL)
2',3,4,4',5-Pentachlorobiphenyl	(10 µg/mL)
3,3',4,4',5-Pentachlorobiphenyl	(1 µg/mL)
2,3,3',4,4',5-Hexachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5'-Hexachlorobiphenyl	(10 µg/mL)
2,3',4,4',5,5'-Hexachlorobiphenyl	(10 µg/mL)
3,3',4,4',5,5'-Hexachlorobiphenyl	(2 µg/mL)
2,2',3,3',4,4',5-Heptachlorobiphenyl	(2 µg/mL)
2,2',3,4,4',5,5'-Heptachlorobiphenyl	(10 µg/mL)
2,3,3',4,4',5,5'-Heptachlorobiphenyl	(2 µg/mL)

EPA Method 1600 Series

Method 1671 VOCs Specific to PMI by GC/FID

PMI Internal Standard

M-1671A-IS 1 x 1 mL
M-1671A-IS-PAK *SAVE* 5 x 1 mL
1.0 mg/mL in Water

Tetrahydrofuran

Custom Formulations

AccuStandard can obtain PEG with different mixtures of oligomers having molecular weights centered around 200, 300, 400, 550, 1000, 1450, 3350, 8000, 10,000 ca.

Method 1673 Polyethylene glycol-600 by Derivative & HPLC

Poly(ethylene glycol)-600

M-1673 1 x 1 mL
M-1673-PAK *SAVE* 5 x 1 mL
2.5 mg/mL in Tetrahydrofuran

Polyethylene glycol-600

Surrogate Standard

M-1673-SS 1 x 1 mL
M-1673-SS-PAK *SAVE* 5 x 1 mL
1.0 mg/mL in Tetrahydrofuran

Diethylene glycol monohexyl ether

Derivatization Reagent

M-1673-DERV-5ML 1 x 5 mL
10 mg/mL in Tetrahydrofuran

3,5-Dinitrobenzyl chloride

Standard Mixtures for EPA Method 8000 Series
For Solid Waste

Background Information
The analytical methods used to identify and quantify organic compounds in solid waste are provided in US EPA SW-846, also known as the 8000 series methods.

These methods were developed in response to environmental problem areas such as Love Canal, N.Y. and Times Beach, MO. A historical perspective of the evolution of this series includes the Resource and Conservation Recovery Act (RCRA), which was amended by the Hazardous and Solid Waste Act (HSWA). HSWA also addressed previously exempted underground storage tanks containing petroleum and some hazardous substances.

The 8000 Series product line contains standards used in the proposed and promulgated methods for the identification and quantification of organic compounds on the EPA's Appendix VIII and Appendix IX lists in ground water, waste water, and solids at hazardous waste treatment, storage, and disposal sites. An additional method Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 is used with 8000 series methods to estimate the toxicity of solid waste materials under the leaching conditions found in a landfill.

The organic compounds listed in these methods include volatile organic compounds (VOCs), pesticides, synthetic organic compounds (SOCs), and disinfection by-products.

Instrumentation
Analytical techniques used in identification and quantification include gas chromatography with selective detectors (AED, PID, ELCD, ECD, FID, FTIR, NPD, FPD, TEA, TCD) gas chromatography /mass spectrometry, and high performance liquid chromatography.

Comprehensive
Complete analysis of target compounds by these 8000 Series Methods can be accomplished using the series of standards formulated by AccuStandard for each method along with the required internal and surrogate standards. Formulations for 8000 series methods have been developed as easy-to-use large core mixes containing target compounds and as high concentration sub mixes for combination with other formulations to meet laboratory specific analyte detection requirements.

Match frequently requested products

Alternate Source

ASL products can be used as an independent second source

Methods 8015A, 8020A, 8040A, 8080A, 8270

Thousands of Standards, just a click away

AccuStandard.com

EPA Method 8000 Series
Appendix IX Compounds

AccuStandard has assembled the compounds appearing below to aid the analyst in identifying all the contaminants the EPA has regulated for groundwater monitoring. This list (214 compounds), commonly called the Appendix IX list, was first published in July 1987. Federal Register Vol. 52, No. 131.

The entire list of compounds can be purchased as a complete set as:
APP-9-SET **214 x 1 mL**

All solutions are at 100 µg/mL in 1 mL

Appendix IX Compounds

Compound	CAS No.	Solv.	Cat. No.	Compound	CAS No.	Solv.	Cat. No.
Acenaphthene	83-32-9	MeOH	APP-9-001	1,2-Dichloroethane	107-06-2	MeOH	APP-9-071
Acenaphthylene	208-96-8	MeOH	APP-9-002	1,1-Dichloroethylene	75-34-4	MeOH	APP-9-072
Acetone ❄	67-64-1	MeOH	APP-9-003	*trans*-1-2-Dichloroethylene	156-60-5	MeOH	APP-9-073
Acetonitrile	75-05-8	MeOH	APP-9-005	Dichloromethane	75-09-2	MeOH	APP-9-074
Acetophenone	98-86-2	CH_2Cl_2	APP-9-004	2,4-Dichlorophenol	120-83-2	MeOH	APP-9-075
2-Acetylaminofluorene	53-96-3	CH_2Cl_2	APP-9-006	2,6-Dichlorophenol	87-65-0	CH_2Cl_2	APP-9-076
Acrolein ❄	107-02-8	M:W	APP-9-007	1,2-Dichloropropane	78-87-5	MeOH	APP-9-077
Acrylonitrile	107-13-1	MeOH	APP-9-008	*cis*-1,3-Dichloropropene	10061-01-5	MeOH	APP-9-078
Aldrin	309-00-2	MeOH	APP-9-009	*trans*-1,3-Dichloropropene	10061-02-6	MeOH	APP-9-079
Allyl chloride	107-05-1	MeOH	APP-9-010	Dieldrin	60-57-1	MeOH	APP-9-080
4-Aminobiphenyl	92-67-1	CH_2Cl_2	APP-9-011	Diethyl phthalate	84-66-2	MeOH	APP-9-081
Aniline	62-53-3	MeOH	APP-9-012	Dimethoate	60-51-5	MeOH	APP-9-082
Anthracene	120-12-7	MeOH	APP-9-013	*p*-(Dimethylamino)azobenzene	60-11-7	CH_2Cl_2	APP-9-083
Aramite	140-57-8	MeOH	APP-9-014	7,12-Dimethylbenz[a]anthracene	57-97-6	CH_2Cl_2	APP-9-084
Benz[a]anthracene	56-55-3	MeOH	APP-9-016	3,3'-Dimethylbenzidine	119-93-7	CH_2Cl_2	APP-9-085
Benzene	71-43-2	MeOH	APP-9-015	a,a-Dimethylphenethylamine	122-09-8	CH_2Cl_2	APP-9-086
Benzo[b]fluoranthene	205-99-2	MeOH	APP-9-017	2,4-Dimethylphenol	105-67-9	MeOH	APP-9-087
Benzo[k]fluoranthene	2070-08-9	MeOH	APP-9-018	Dimethyl phthalate	131-11-3	MeOH	APP-9-088
Benzo[g,h,i]perylene	191-24-2	CH_2Cl_2	APP-9-019	*m*-Dinitrobenzene	99-65-0	CH_2Cl_2	APP-9-089
Benzo[a]pyrene	50-32-8	MeOH	APP-9-020	4,6-Dinitro-*o*-cresol	534-52-1	MeOH	APP-9-090
Benzyl alcohol	100-51-6	MeOH	APP-9-021	2,4-Dinitrophenol	51-28-5	MeOH	APP-9-091
α-BHC	319-84-6	MeOH	APP-9-022	2,4-Dinitrotoluene	121-14-2	MeOH	APP-9-092
β-BHC	319-85-7	MeOH	APP-9-023	2,6-Dinitrotoluene	606-20-2	MeOH	APP-9-093
δ-BHC	319-86-8	MeOH	APP-9-024	Dinoseb	88-85-7	MeOH	APP-9-094
γ-BHC (Lindane)	58-89-9	MeOH	APP-9-025	Di-*n*-octyl phthalate	117-84-0	MeOH	APP-9-095
Bromodichloromethane	75-27-4	MeOH	APP-9-030	1,4-Dioxane	123-91-1	MeOH	APP-9-096
Bromoform	75-25-2	MeOH	APP-9-031	Diphenylamine	122-39-4	CH_2Cl_2	APP-9-097
Bromomethane	74-83-9	MeOH	APP-9-032	Disulfoton	298-04-4	MeOH	APP-9-098
4-Bromophenyl phenyl ether	101-55-3	MeOH	APP-9-033	Endosulfan I	959-98-8	MeOH	APP-9-099
Butyl benzyl phthalate	85-68-7	MeOH	APP-9-034	Endosulfan II	33213-65-9	MeOH	APP-9-100
Carbon disulfide	75-15-0	MeOH	APP-9-035	Endosulfan sulfate	1031-07-8	MeOH	APP-9-101
Carbon tetrachloride	56-23-5	MeOH	APP-9-036	Endrin	72-20-8	MeOH	APP-9-102
Chlordane	57-74-9	MeOH	APP-9-037	Endrin aldehyde	7421-93-4	MeOH	APP-9-103
p-Chloroaniline	106-47-8	MeOH	APP-9-038	Ethylbenzene	100-41-4	MeOH	APP-9-104
Chlorobenzene	108-90-7	MeOH	APP-9-039	bis(2-Ethylhexyl)phthalate	117-81-7	MeOH	APP-9-029
Chlorobenzilate	510-15-6	CH_2Cl_2	APP-9-040	Ethyl methacrylate	97-63-2	MeOH	APP-9-105
p-Chloro-*m*-cresol	59-50-7	MeOH	APP-9-041	Ethylmethanesulfonate	62-50-0	CH_2Cl_2	APP-9-106
Chloroethane	75-00-3	MeOH	APP-9-042	Famphur	52-85-7	MeOH	APP-9-107
bis(2-Chloroethoxy)methane	111-91-1	CH_2Cl_2	APP-9-026	Fluoranthene	206-44-0	MeOH	APP-9-108
bis(2-Chloroethyl) ether	111-44-4	MeOH	APP-9-027	Fluorene	86-73-7	MeOH	APP-9-109
Chloroform	67-66-3	MeOH	APP-9-043	Heptachlor	76-44-8	MeOH	APP-9-110
bis(2-Chloro-1-methylethyl) ether (2,2-Dichlorodiisopropyl ether)	108-60-1	CH_2Cl_2	APP-9-028	Heptachlor epoxide [Isomer B]	1024-57-3	MeOH	APP-9-111
				Hexachlorobenzene	118-74-1	MeOH	APP-9-112
Chloromethane	74-87-3	MeOH	APP-9-044	Hexachlorobutadiene	87-68-3	MeOH	APP-9-113
2-Chloronaphthalene	91-58-7	MeOH	APP-9-045	Hexachlorocyclopentadiene	77-47-4	MeOH	APP-9-114
2-Chlorophenol	95-57-8	MeOH	APP-9-046	Hexachloroethane	67-72-1	MeOH	APP-9-115
4-Chlorophenyl phenyl ether	7005-72-3	MeOH	APP-9-047	Hexachlorophene	70-30-4	MeOH	APP-9-116
Chloroprene (Xylene-Free)	126-99-8	MeOH	APP-9-048-R1	Hexachloropropene	1888-71-7	MeOH	APP-9-117
Chrysene	218-01-9	MeOH	APP-9-049	2-Hexanone ❄	591-78-6	MeOH	APP-9-118
m-Cresol	108-39-4	CH_2Cl_2	APP-9-050	Indeno[1,2,3-cd]pyrene	193-39-5	MeOH	APP-9-119
o-Cresol	95-48-7	CH_2Cl_2	APP-9-051	Isobutyl alcohol	78-83-1	MeOH	APP-9-120
p-Cresol	106-44-5	CH_2Cl_2	APP-9-052	Isodrin	465-73-6	MeOH	APP-9-121
2,4-D	94-75-7	MeOH	APP-9-053	Isophorone	78-59-1	MeOH	APP-9-122
4,4'-DDD	72-54-8	MeOH	APP-9-054	Isosafrole	120-58-1	CH_2Cl_2	APP-9-123
4,4'-DDE	72-55-9	MeOH	APP-9-055	Kepone	143-50-0	MeOH	APP-9-124
4,4'-DDT	50-29-3	MeOH	APP-9-056	Methacrylonitrile	126-98-7	MeOH	APP-9-125
Diallate	2303-16-4	MeOH	APP-9-057	Methapyrilene	91-80-5	CH_2Cl_2	APP-9-126
Dibenz[a,h]anthracene	53-70-3	MeOH	APP-9-058	Methoxychlor	72-43-5	MeOH	APP-9-127
Dibenzofuran	132-64-9	MeOH	APP-9-059	3-Methylcholanthrene	56-49-5	CH_2Cl_2	APP-9-128
Dibromochloromethane	124-48-1	MeOH	APP-9-060	Methyl ethyl ketone; MEK ❄	78-93-3	MeOH	APP-9-129
1,2-Dibromo-3-chloropropane	96-12-8	MeOH	APP-9-061	Methyl iodide: Iodomethane	74-88-4	MeOH	APP-9-130
Dibromomethane	74-95-3	MeOH	APP-9-062	Methyl methacrylate	80-62-6	MeOH	APP-9-131
1,2-Dibromoethane, EDB	107-06-2	MeOH	APP-9-214	Methyl methanesulfonate	66-27-3	CH_2Cl_2	APP-9-132
Di-*n*-butyl phthalate	84-74-2	MeOH	APP-9-063	2-Methylnaphthalene	91-57-6	CH_2Cl_2	APP-9-133
o-Dichlorobenzene	95-50-1	MeOH	APP-9-064	Methyl parathion	298-00-0	MeOH	APP-9-134
m-Dichlorobenzene	541-73-1	MeOH	APP-9-065	4-Methyl-2-pentanone *(MIBK)*	108-10-1	MeOH	APP-9-135
p-Dichlorobenzene	106-46-7	MeOH	APP-9-066	Naphthalene	91-20-3	CH_2Cl_2	APP-9-136
3,3'-Dichlorobenzidine	91-94-1	MeOH	APP-9-067	1,4-Naphthoquinone	130-15-4	CH_2Cl_2	APP-9-137
trans-1,4-Dichloro-2-butene	110-57-6	MeOH	APP-9-068	1-Naphthylamine	134-32-7	CH_2Cl_2	APP-9-138
Dichlorodifluoromethane	75-71-8	MeOH	APP-9-069	2-Naphthylamine	91-59-8	CH_2Cl_2	APP-9-139
1,1-Dichloroethane	75-34-3	MeOH	APP-9-070	*o*-Nitroaniline	88-74-4	CH_2Cl_2	APP-9-140

❄ ColdPAK required to maintain integrity of product.

EPA Method 8000 Series
Appendix IX Compounds & Mixtures

Custom Appendix IX formulations are available. Please use our Custom Quotation Request for any custom mixture you may need.

The entire list of compounds can be purchased as a complete set
APP-9-SET **214 x 1 mL**

Appendix IX Compounds
All solutions are in 100 µg/mL in 1 mL

Compound	CAS No.	Solv.	Cat. No.
m-Nitroaniline	99-09-2	CH_2Cl_2	APP-9-141
p-Nitroaniline	100-01-6	CH_2Cl_2	APP-9-142
Nitrobenzene	98-95-3	MeOH	APP-9-143
o-Nitrophenol	88-75-5	MeOH	APP-9-144
p-Nitrophenol	100-02-7	MeOH	APP-9-145
4-Nitroquinoline-1-oxide	56-57-5	CH_2Cl_2	APP-9-146
N-Nitrosodi-*n*-butylamine	924-16-3	CH_2Cl_2	APP-9-147
N-Nitrosodiethylamine	55-18-5	CH_2Cl_2	APP-9-148
N-Nitrosodimethylamine	62-75-9	CH_2Cl_2	APP-9-149
N-Nitrosodiphenylamine	86-30-6	CH_2Cl_2	APP-9-150
N-Nitrosodipropylamine	621-64-7	CH_2Cl_2	APP-9-151
N-Nitrosomethylethylamine	10595-95-6	CH_2Cl_2	APP-9-152
N-Nitrosomorpholine	59-89-2	CH_2Cl_2	APP-9-153
N-Nitrosopiperidine	100-75-4	CH_2Cl_2	APP-9-154
N-Nitrosopyrrolidine	930-55-2	CH_2Cl_2	APP-9-155
5-Nitro-*o*-toluidine	99-55-8	CH_2Cl_2	APP-9-156
Parathion	56-38-2	MeOH	APP-9-157
Polychlorinated biphenyls:			
Aroclor® 1016	12674-11-2	MeOH	APP-9-158
Aroclor 1221	11104-28-2	MeOH	APP-9-159
Aroclor 1232	11141-16-5	MeOH	APP-9-160
Aroclor 1242	53469-21-9	MeOH	APP-9-161
Aroclor 1248	12672-29-6	MeOH	APP-9-162
Aroclor 1254	11097-69-1	MeOH	APP-9-163
Aroclor 1260	11096-82-5	MeOH	APP-9-164
Aroclor 1262	37324-23-5	MeOH	APP-9-165
Aroclor 1268	11100-14-4	MeOH	APP-9-166
	0.5 mg/mL in	MeOH	APP-9-166-5X
Dioxins:			
1,2,3,4,7,8-HCDD (5 µg/mL)	39227-28-6	Toluene	APP-9-169
1,2,3,7,8-PCCD (5 µg/mL)	40321-76-4	Toluene	APP-9-168
2,3,7,8-TCDD (5 µg/mL)	1746-01-6	Toluene	APP-9-167
Polychlorinated dibenzofurans:			
1,2,3,4,7,8-HCDF (5 µg/mL)	55684-94-1	Toluene	APP-9-172
1,2,3,7,8-PCDF (5 µg/mL)	57117-41-6	Toluene	APP-9-171
2,3,7,8-TCDF (5 µg/mL)	51207-31-9	Toluene	APP-9-170

Compound	CAS No.	Solv.	Cat. No.
Pentachlorobenzene	608-93-5	MeOH	APP-9-173
Pentachloroethane	76-01-7	MeOH	APP-9-174
Pentachloronitrobenzene	82-68-8	MeOH	APP-9-175
Pentachlorophenol	87-86-5	MeOH	APP-9-176
Phenacetin	62-44-2	CH_2Cl_2	APP-9-177
Phenanthrene	85-01-8	MeOH	APP-9-178
Phenol	108-95-2	CH_2Cl_2	APP-9-179
p-Phenylenediamine	106-50-3	MeOH	APP-9-180
Phorate	298-02-2	MeOH	APP-9-181
2-Picoline	109-06-8	MeOH	APP-9-182
Pronamide	23950-58-5	MeOH	APP-9-183
Propionitrile	107-12-0	MeOH	APP-9-184
Pyrene	129-00-0	MeOH	APP-9-185
Pyridine	110-86-1	MeOH	APP-9-186-M
Safrole	94-59-7	MeOH	APP-9-187
Silvex *(2,4,5-TP)*	93-72-1	MeOH	APP-9-188
Styrene	100-42-5	MeOH	APP-9-189
2,4,5-Trichlorophenoxy acetic acid	93-76-5	MeOH	APP-9-190
1,2,4,5-Tetrachlorobenzene	95-94-3	MeOH	APP-9-191
1,1,1,2-Tetrachloroethane	630-20-6	MeOH	APP-9-192
1,1,2,2-Tetrachloroethane	79-34-5	MeOH	APP-9-193
Tetrachloroethylene	127-18-4	MeOH	APP-9-194
2,3,4,6-Tetrachlorophenol	58-90-2	MeOH	APP-9-195
Tetraethyl dithiopyrophosphate *(Sulfotep)*	3689-24-5	MeOH	APP-9-196
Thionazin	297-97-2	MeOH	APP-9-197
Toluene	108-88-3	MeOH	APP-9-198
o-Toluidine	95-53-4	MeOH	APP-9-199
Toxaphene	8001-35-2	MeOH	APP-9-200
1,2,4-Trichlorobenzene	120-82-1	MeOH	APP-9-201
1,1,1-Trichloroethane	71-55-6	MeOH	APP-9-202
1,1,2-Trichloroethane	79-00-5	MeOH	APP-9-203
Trichloroethylene	79-01-6	MeOH	APP-9-204
Trichlorofluoromethane	75-69-4	MeOH	APP-9-205
2,4,5-Trichlorophenol	95-95-4	MeOH	APP-9-206
2,4,6-Trichlorophenol	88-06-2	MeOH	APP-9-207
1,2,3-Trichloropropane	96-18-4	MeOH	APP-9-208
O,O,O-Triethyl phosphorothioate	126-68-1	MeOH	APP-9-209
sym-Trinitrobenzene	99-35-4	MeOH	APP-9-210
Vinyl acetate ❄	108-05-4	MeOH	APP-9-211
Vinyl chloride	75-01-4	MeOH	APP-9-212
Xylene (total)	1330-20-7	MeOH	APP-9-213

Volatile Appendix IX Mixtures

M-8240A ❄ **1 x 1 mL**
0.2 mg/mL each in MeOH 41 comps.

Acetone
Acrolein
Acrylonitrile
Benzene
Bromodichloromethane
Bromoform
2-Butanone
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroform
Dibromochloromethane
cis-1,4-Dichloro-2-butene +
trans-1,4-Dichloro-2-butene ++
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
cis-1,3-Dichloropropene *
trans-1,3-Dichloropropene **
Ethanol
Ethylbenzene
2-Hexanone
Iodomethane
4-Methyl-2-pentanone
Methylene chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Vinyl acetate
o-Xylene
m-Xylene
p-Xylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)
\+ cis (0.1 mg/mL)
++ trans (0.1 mg/mL)

M-502B **1 x 1 mL**
M-502B-PAK ***SAVE*** **5 x 1 mL**
0.2 mg/mL each in MeOH 6 comps.

Bromomethane
Chloromethane
Chloroethane
Dichlorodifluoromethane
Trichlorofluoromethane
Vinyl chloride

M-8240C **1 x 1 mL**
0.2 mg/mL each in MeOH 17 comps.

Acetonitrile
Allyl chloride
1,2-Dibromo-3-chloropropane
Dibromomethane
1,2-Dibromoethane
1,4-Dioxane
Ethyl methacrylate
Isobutyl alcohol
Methacrylonitrile
Methyl methacrylate
Nitrobenzene
Pentachloroethane
Propionitrile
Pyridine
1,1,1,2-Tetrachloroethane
1,2,4-Trichlorobenzene
1,2,3-Trichloropropane

❄ ColdPAK required to maintain integrity of product.

Special Mixtures for Laboratories Testing Appendix IX Analytes

Volatile Mixtures

S-168A — **1 x 1 mL**
0.5 mg/mL each in MeOH — 14 comps.

- Acetonitrile
- Acrolein
- Acrylonitrile
- Allyl chloride
- 1,2-Dibromoethane *(Ethylene dibromide)*
- 1,2-Dibromo-3-chloropropane *(Fumazone)*
- Dibromomethane
- 1,4-Dioxane
- Ethyl cyanide *(Propionitrile)*
- Iodomethane
- Isobutanol
- Methacrylonitrile
- 1,1,1,2-Tetrachloroethane
- 1,2,3-Trichloropropane

S-181M — **1 x 1 mL**
0.1 mg/mL each in MeOH — 6 comps.

- bis(2-Chloro-1-methylethyl) ether
- Dichlorodifluoromethane
- Ethyl methacrylate
- Methyl methacrylate
- Pentachloroethane
- Pyridine

Semi-Volatile Mixtures

S-168-R1-SET — **2 x 1 mL (S-168-MIXA-R1, S-168-MIXB)**

Mix 1

S-168-MIXA-R1 — **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 — 4 comps.

- 3,3'-Dimethylbenzidine
- 1,4-Naphthoquinone
- 4-Nitroquinoline-1-oxide
- *p*-Phenylenediamine

Mix 2

S-168-MIXB — **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 — 38 comps.

- Acetophenone
- 2-Acetylaminofluorene
- 4-Aminobiphenyl
- Aramite
- 2-sec-Butyl-4,6-dinitrophenol
- *m*-Cresol
- 2,6-Dichlorophenol
- *p*-Dimethylamino azobenzene *(Methyl Yellow)*
- 7,12-Dimethylbenz[a]anthracene
- *m*-Dinitrobenzene
- Ethyl methacrylate
- Ethyl methanesulfonate
- Hexachlorophene
- Hexachloropropene
- Isosafrole
- Methapyrilene
- 3-Methylcholanthrene
- Methyl methacrylate
- Methyl methanesulfonate
- 1-Naphthylamine
- 2-Naphthylamine
- N-Nitrosodi-*n*-butylamine
- N-Nitrosodiethylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopyrrolidine
- 5-Nitro-*o*-toluidine
- Pentachlorobenzene
- Pentachloroethane
- Pentachloronitrobenzene
- Phenacetin
- 2-Picoline
- Pronamide
- Pyridine
- Safrole
- 1,2,4,5-Tetrachlorobenzene
- 2,3,4,6-Tetrachlorophenol
- *o*-Toluidine

2-Part Label System

Smudgeproof, tear and solvent resistant * (Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents:
Methylene chloride, Methanol and Acetone

EPA Method 8000 Series
Volatile Internal (ISTD) / Surrogate(SS) Standards

With more proposed and promulgated methods available, analytical chemists are trying to combine analyte lists and shorten run times while still demonstrating method equivalence. AccuStandard has formulated a core evaluation deuterated solution and a second conventional internal/surrogate evaluation solution. These formulations allow the analyst to quickly evaluate ISTD/SS combinations for PID, Hall, FID or GC/MS applications.

Popular Internal Standards

M-502-IS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.
- 1-Chloro-2-bromopropane
- Fluorobenzene

M-524-IS-2 — **1 x 1 mL**
2.0 mg/mL in MeOH
- Fluorobenzene

M-524-IS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.
- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

M-502-IS-2 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.
- 1-Chloro-2-bromopropane
- Fluorobenzene
- Methylene chloride-d_2

M-001R — **1 x 1 mL**
20 mg/mL each in MeOH — 3 comps.
- Bromochloromethane
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

M-8020-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 2 comps.
- 4-Bromofluorobenzene
- α,α,α-Trifluorotoluene

M-8240/60-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 5 comps.
- Bromochloromethane
- Chlorobenzene-d_5
- 1,4-Dichlorobenzene-d_4
- 1,4-Difluorobenzene
- Pentafluorobenzene

M-8260-IS-R — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.
- 2-Bromo-1-chloropropane
- 1,4-Difluorobenzene
- 1,4-Dichlorobenzene-d_4
- Pentafluorobenzene

M-8260-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.
- Chlorobenzene-d_5
- 1,4-Difluorobenzene
- 1,4-Dichlorobenzene-d_4
- Pentafluorobenzene

M-8260A/B-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.
- Chlorobenzene-d_5
- 1,4-Dichlorobenzene-d_4
- Fluorobenzene

ISTD/SS Evaluation Mixtures

Conventional ISTD/SS Evaluation Mix

M-CONV-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 15 comps.

- 2-Bromochlorobenzene
- 4-Bromochlorobenzene
- Bromochloromethane
- p-Bromofluorobenzene
- 2-Bromo-1-chloropropane
- 1-Chloro-2-fluorobenzene
- 1-Chloro-3-fluorobenzene
- 1-Chloro-4-fluorobenzene
- 2-Chloropropane
- Dibromofluoromethane
- 1,4-Dichlorobutane
- 1,4-Difluorobenzene
- Fluorobenzene
- Pentafluorobenzene
- α,α,α-Trifluorotoluene

Deuterated ISTD/SS Evaluation Mix

M-DEUT-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 8 comps.

- Benzene-d_6
- Chlorobenzene-d_5
- 1,2-Dichlorobenzene-d_4
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichlorobethane-d_4
- Ethylbenzene-d_{10}
- Methylene chloride-d_2
- Toluene-d_8

Popular Surrogate Standards

M-502-IS-ASL — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.
- 2-Bromo-1-chloropropane
- 1-Chloro-2-fluorobenzene

M-524-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.
- 4-Bromofluorobenzene
- 1,2-Dichlorobenzene-d_4

M-624-SS-M — **1 x 1 mL**
20 mg/mL each in MeOH — 3 comps.
- 4-Bromofluorobenzene
- Fluorobenzene
- Pentafluorobenzene

M-8020-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.
- 4-Bromochlorobenzene
- 1,4-Difluorobenzene
- Fluorobenzene

M-8021-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.
- 4-Bromochlorobenzene
- 1,4-Dichlorobutane

M-8021-SS-M — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.
- Bromochloromethane
- 1,4-Dichlorobutane

M-8021A-SS — **1 x 1 mL**
20 mg/mL each in MeOH — 4 comps.
- 4-Bromochlorobenzene
- Bromochloromethane
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

M-8240/60-SS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.
- *p*-Bromofluorobenzene
- Dibromofluoromethane
- 1,2-Dichloroethane-d_4
- Toluene-d_8

Popular ISTD/SS Standards

M-502-IS/SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.
- 1-Chloro-3-fluorobenzene
- 2-Chloropropane
- Fluorobenzene
- α,α,α-Trifluorotoluene

M-524-FS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.
- 4-Bromofluorobenzene
- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

M-8010-IS/SS — **1 x 1 mL**
150 µg/mL each in MeOH — 3 comps.
- 4-Bromochlorobenzene
- Bromochloromethane
- 4-Bromofluorobenzene

M-8020-IS/SS-ASL — **1 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.
- 4-Bromochlorobenzene
- *p*-Bromofluorobenzene
- 1,4-Difluorobenzene
- Fluorobenzene
- α,α,α-Trifluorotoluene

M-8240/60-IS/SS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 9 comps.
- Bromochloromethane
- *p*-Bromofluorobenzene
- Chlorobenzene-d_5
- Dibromofluoromethane
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichloroethane-d_4
- 1,4-Difluorobenzene
- Pentafluorobenzene
- Toluene-d_8

M-8260A/B-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 7 comps.
- *p*-Bromofluorobenzene
- Chlorobenzene-d_5
- Dibromofluoromethane
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichloroethane-d_4
- Fluorobenzene
- Toluene-d_8

Method 8010 Halogenated VOCs by GC/ELCD (Hall)

Method 8010 Purgeable Halocarbon Set

M-601-SET ❄ — **4 x 1 mL**
0.2 mg/mL in MeOH — **(M-601A, M-502B, M-601C, M-501)**
M-601-10X-SET ❄ — **4 x 1 mL**
2.0 mg/mL in MeOH — **(M-601A-10X, M-502B-10X, M-601C-10X, M-501-10X)**

Liquids

M-601A — **1 x 1 mL**
M-601A-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH
M-601A-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 18 comps.

- Carbon tetrachloride
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- *trans*-1,3-Dichloropropylene **
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Gases

M-502B — **1 x 1 mL**
M-502B-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH
M-502B-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

- Bromomethane
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

Liquid Component

M-601C ❄ — **1 x 1 mL**
M-601C-PAK ❄ — *SAVE* — **5 x 1 mL**
0.2 mg/mL in MeOH
M-601C-10X ❄ — **1 x 1 mL**
2.0 mg/mL in MeOH

- 2-Chloroethylvinyl ether

Trihalomethanes

M-501 — **1 x 1 mL**
M-501-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH
M-501-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

- Bromoform
- Chloroform
- Dichlorobromomethane
- Dibromochloromethane

Method 8010 Additional Analytes

M-8010R-1 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 9 comps.

- Benzylchloride
- Bromobenzene
- bis(2-Chloroethoxy)methane
- 1-Chlorohexane
- Chloromethylmethyl ether
- 4-Chlorotoluene
- Dibromomethane
- 1,1,1,2-Tetrachloroethane
- 1,2,3-Trichloropropane

Surrogate Standard

M-001R — **1 x 1 mL**
M-001R-PAK — *SAVE* — **5 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

- Bromochloromethane
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

Halogenated VOCs by GC/ECLD (Hall)

M-8010A-SET ❄ — **2 x 1 mL** — **(M-8010A-M, M-601C)**

Method 8010A (Methanol Version)

M-8010A-M — **1 x 1 mL**
0.2 mg/mL each in MeOH — 33 comps.

- Benzylchloride
- Bromobenzene
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- *trans*-1,3-Dichloropropylene **
- Methylene chloride
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

* 1.06 times conc.
** 0.94 times conc.

M-601C ❄ — **1 x 1 mL**
0.2 mg/mL in MeOH

- 2-Chloroethylvinyl ether

Method 8010A Acetonitrile Version

Method 8010A (Acetonitrile Version)

M-8010A — **1 x 1 mL**
0.2 mg/mL each in AcCN — 34 comps.

- Benzylchloride
- Bromobenzene
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- 2-Chloroethylvinyl ether
- Chloroform
- Chloromethane
- Dibromochloromethane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- *trans*-1,3-Dichloropropylene **
- Methylene chloride
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

* 1.06 times conc.
** 0.94 times conc.

Internal & Surrogate Standard

M-8010-IS/SS — **1 x 1 mL**
M-8010-IS/SS-PAK — *SAVE* — **5 x 1 mL**
150 µg/mL each in MeOH — 3 comps.

- 4-Bromochlorobenzene
- 4-Bromofluorobenzene
- Bromochloromethane

❄ ColdPAK required to maintain integrity of product.

Method 8010B Halogenated VOCs by GC/ELCD (Hall)

Halogenated Volatiles (Acetonitrile Version)

M-8010A — **1 x 1 mL**
0.2 mg/mL each in AcCN — 34 comps.

- Benzylchloride
- Bromobenzene
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- 2-Chloroethylvinyl ether
- Chloroform
- Chloromethane
- Dibromochloromethane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- *trans*-1,3-Dichloropropylene **
- Methylene chloride
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

* 1.06 times conc.
** 0.94 times conc.

Halogenated Volatiles (Methanol Versions)

Mix #1

M-8010B — **1 x 1 mL**
0.2 mg/mL each in MeOH — 40 comps.

- Allyl chloride
- Bromobenzene
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- 2-Chloroethanol
- Chloroform
- 1-Chlorohexane
- Chloromethane
- 4-Chlorotoluene
- Dibromochloromethane
- 1,2-Dibromo-3-chloropropane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- 1,4-Dichloro-2-butene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- 1,3-Dichloro-2-propanol
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Ethylene dibromide
- Methylene chloride
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

* 1.06 times conc.
** 0.94 times conc.

Mix #2

M-8021B-X1 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 5 comps.

- Benzyl chloride
- bis(2-Chloroethoxy)methane
- 2-Chloroethylvinyl ether
- bis(2-Chloro-1-methylethyl) ether
- Epichlorohydrin

Internal and Surrogate Standard

M-8010-IS/SS — **1 x 1 mL**
M-8010-IS/SS-PAK — *SAVE* — **5 x 1 mL**
150 µg/mL each in MeOH — 3 comps.

- 4-Bromochlorobenzene
- Bromochloromethane
- 4-Bromofluorobenzene

Surrogate Standard

M-001R — **1 x 1 mL**
M-001R-PAK — *SAVE* — **5 x 1 mL**
20 mg/mL each in MeOH — 3 comps

- Bromochloromethane
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

Halogenated Volatiles

M-8021B-X2 — **1 x 1 mL**
0.2 mg/mL each in Pentane — 2 comps.

- Bromoacetone
- Chloromethylmethyl ether

APP-9-030 — **1 x 1 mL**
100 µg/mL in MeOH

- Bromodichloromethane

APP-9-130 — **1 x 1 mL**
100 µg/mL in MeOH

- Methyl iodide

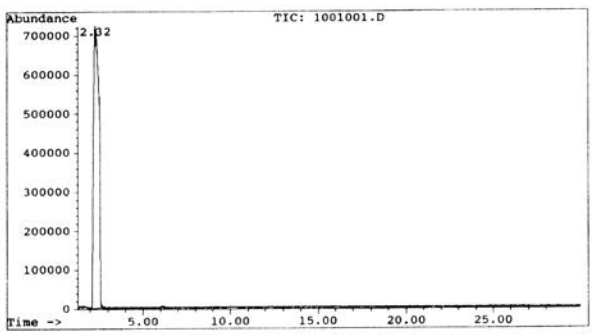
Chloroprene (Xylene-Free)

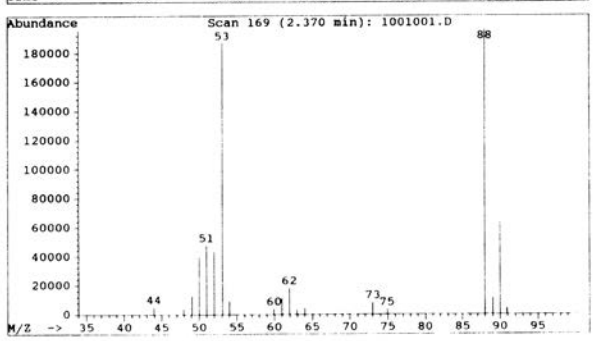
APP-9-048-R1 — **1 x 1 mL**
100 µg/mL in MeOH
APP-9-048-R1-2X — **1 x 1 mL**
200 µg/mL in MeOH
APP-9-048-R1-20X — **1 x 1 mL**
2000 µg/mL in MeOH

- Chloroprene

Pure Chloroprene

Unlike traditional sources, this Chloroprene does not contain any xylenes and is not contaminated with extraneous solvents and by-products of commercial Chloroprene. It will facilitate quantification of analytes by **EPA Methods 524.2, 502.2, 8010, 8021 and 8240/8260** without interference from the xylenes previously present.





Method 8011 DBCP & EDB by GC/MS

M-504-10X — **1 x 1 mL**
M-504-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 1,2-Dibromo-3-chloropropane *(DBCP)*
- 1,2-Dibromoethane *(EDB)*

Method 8015A (Rev 1, July 1992) Non-Halogenated Volatile Organics by GC/FID

M-8015A — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.
M-8015A-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

Diethyl ether
Ethanol
Methyl ethyl ketone
Methyl isobutyl ketone

Non-Halogenated Volatile Organics

M-8015-ASL — Alternate Source — **1 x 1 mL**
100 µg/mL each in MeOH — 12 comps.

Acetonitrile
Acrylamide
2-Butanone
Diethyl ether
1,4-Dioxane
Ethanol
Ethyl methacrylate
Isobutyl alcohol
Methacrylonitrile
Methyl methacrylate
4-Methyl-2-pentanone
Propionitrile

Internal Standard

M-8015B-IS-10X — **1 x 1 mL**
2.0 mg/mL each in Water — 3 comps.

2-Chloroacrylonitrile
Hexafluoro-2-methyl-2-propanol
Hexafluoro-2-propanol

Method 8015B Non-Halogenated Organics by GC/FID

M-8015B/5031-R-SET — **set of 27 x 1 mL**
Each at 10 mg/mL in H_2O

Compound	Cat. No.	1 mL
Acetone	M-8015B/5031-01	
Acetonitrile	M-8015B/5031-02	
Acrolein	M-8015B/5031-03	
Acrylonitrile	M-8015B/5031-04	
Allyl alcohol	M-8015B/5031-05	
1-Butanol	M-8015B/5031-06	
t-Butanol	M-8015B/5031-07	
Crotonaldehyde	M-8015B/5031-08	
Diethyl ether	M-8015B/5031-09	
p-Dioxane	M-8015B/5031-10	
Ethanol	M-8015B/5031-11	
Ethyl acetate	M-8015B/5031-12	
Ethylene glycol	M-8015B/5031-13	
Ethylene oxide (5.0 mg/mL)	M-8015B/5031-14-R1 ❄	
Isobutyl alcohol	M-8015B/5031-15	
Isopropanol	M-8015B/5031-16	
Methanol	M-8015B/5031-17	
Methyl ethyl ketone	M-8015B/5031-18	
4-Methyl-2-pentanone	M-8015B/5031-19	
N-Nitrosodi-*n*-butylamine (0.5 mg/mL)	M-8015B/5031-20	
Paraldehyde	M-8015B/5031-21	
2-Pentanone	M-8015B/5031-22	
2-Picoline	M-8015B/5031-23	
1-Propanol	M-8015B/5031-24	
Propionitrile	M-8015B/5031-25	
Pyridine	M-8015B/5031-26	
o-Toluidine	M-8015B/5031-27	

Method 5031 GC/FID Internal Standards for Method 8015B/5031 Azeotropic Distillation

M-8260/5031-IS-FID — **1 x 1 mL**
5.0 mg/mL each in H_2O — 3 comps.

2-Chloroacetonitrile
Hexafluoro-2-methyl-2-propanol
Hexafluoro-2-propanol

Technical Note

Method 5031 describes the separation procedures for non-purgeable, water-soluble and volatile organic compounds in aqueous samples of leachates from solid matrices using azeotropic distillation.
Method 8015B is the GC/FID analytical method of analysis. Fuels referenced for analysis by method 8015B can be found in LUFT/LUST.

Method 8020 Aromatic Volatiles by PID

Aromatic Volatile Analytes

M-8020 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 10 comps.
M-8020-10X — **1 x 1 mL**
M-8020-10X-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 10 comps.

Benzene
Chlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Ethylbenzene
Toluene
o-Xylene
m-Xylene
p-Xylene

M-8020B-R1 — **1 x 1 mL**
M-8020B-R1-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 13 comps.

Benzene
Chlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Ethylbenzene
2-Picoline
Pyridine
Thiophenol
Toluene
o-Xylene
m-Xylene
p-Xylene

Performance Check Solution

M-8020-QC — **1 x 1 mL**
M-8020-QC-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL in MeOH

Methyl *t*-butyl ether

Internal Standards

M-8020-IS — **1 x 1 mL**
M-8020-IS-PAK — SAVE — **5 x 1 mL**
0.2 mg/mL each in MeOH — 2 comps.
M-8020-IS-10X — **1 x 1 mL**
M-8020-IS-10X-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

4-Bromofluorobenzene
α,α,α-Trifluorotoluene

Surrogate Standards

M-8020-SS — **1 x 1 mL**
M-8020-SS-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

4-Bromochlorobenzene
1,4-Difluorobenzene
Fluorobenzene

M-8020-SS-1 — **1 x 1 mL**
2.0 mg/mL each in MeOH

4-Bromochlorobenzene

Combined ISTD/SS Solution

M-8020-IS/SS-ASL — **1 x 1 mL**
M-8020-IS/SS-ASL-PAK — Alternate Source — SAVE — **5 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.

4-Bromochlorobenzene
p-Bromofluorobenzene
1,4-Difluorobenzene
Fluorobenzene
α,α,α-Trifluorotoluene

❄ ColdPAK required to maintain integrity of product.

Method 8021B Purgeable Volatiles by PID/ELCD in Series

Method 8021 is used to determine volatile organic compounds in a variety of solid waste matrices using PID/ELCD detectors in series. AccuStandard segregated the analyte list into formulations that provide the widest adaptability to various types of samples and appropriate sample introduction techniques mentioned in the method.

54 Liquid Components

Benzene (01)
Bromobenzene (02)
Bromochloromethane (03)
Bromodichloromethane (04)
Bromoform (05)
n-Butylbenzene (07)
sec-Butylbenzene (08)
tert-Butylbenzene (09)
Carbon tetrachloride (10)
Chlorobenzene (11)
Chloroform (13)
2-Chlorotoluene (15)
4-Chlorotoluene (16)
Dibromochloromethane (17)
1,2-Dibromo-3-chloropropane (18)
1,2-Dibromoethane (19)
Dibromomethane (20)
1,2-Dichlorobenzene (21)
1,3-Dichlorobenzene (22)
1,4-Dichlorobenzene (23)
1,1-Dichloroethane (25)
1,2-Dichloroethane (26)
1,1-Dichloroethene (27)
cis-1,2-Dichloroethene (28)
trans-1,2-Dichloroethene (29)
1,2-Dichloropropane (30)
1,3-Dichloropropane (31)
2,2-Dichloropropane (32)
1,1-Dichloropropene (33)
cis-1,3-Dichloropropene (34A) *
trans-1,3-Dichloropropene (34B) **
Ethylbenzene (35)
Hexachlorobutadiene (36)
Isopropylbenzene *(Cumene)* (37)
p-Isopropyltoluene *(p-Cymene)* (38)
Methylene chloride (39)
Naphthalene (40)
n-Propylbenzene (41)
Styrene (42)
1,1,1,2-Tetrachloroethane (43)
1,1,2,2-Tetrachloroethane (44)
Tetrachloroethene (45)
Toluene (46)
1,2,3-Trichlorobenzene (47)
1,2,4-Trichlorobenzene (48)
1,1,1-Trichloroethane (49)
1,1,2-Trichloroethane (50)
Trichloroethene (51)
1,2,3-Trichloropropane (53)
1,2,4-Trimethylbenzene (54)
1,3,5-Trimethylbenzene (55)
o-Xylene (57)
m-Xylene (58)
p-Xylene (59)

* cis (1.06 x conc.)
** trans (0.94 x conc.)

6 Gas Components

Bromomethane (06)
Chloroethane (12)
Chloromethane (14)
Dichlorodifluoromethane (24)
Trichlorofluoromethane (52)
Vinyl chloride (56)

All 60 liquid & gas components in One Solution

Liquids (54 comps.) and Gases (6 comps.)

M-502		**1 x 1 mL**
M-502-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		
M-502-10X		**1 x 1 mL**
M-502-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		60 comps.

59 Component Set

As a complete set of each component in individual ampules.

M-502-SET	0.2 mg/mL in MeOH	**59 x 1 mL**
M-502-10X-SET	2.0 mg/mL in MeOH	**59 x 1 mL**

Individual Component Solutions

To order, specify identity (#) and conc. (0.2 or 2.0 mg/mL)

M-502-#	0.2 mg/mL in MeOH	**1 x 1 mL**
M-502-#-10X	2.0 mg/mL in MeOH	**1 x 1 mL**

M-502-34A & M-502-34B only available as mixture: M-502-34R

M-502-34-R		**1 x 1 mL**
0.4 mg/mL each in MeOH		
M-502-34-R-10X		**1 x 1 mL**
4.0 mg/mL each in MeOH		2 comps.

cis-1,3-Dichloropropene
trans-1,3-Dichloropropene

Individual Component Neats

To order, specify identity (#)

M-502-#N	**1 x 1 gram**
except M-502-32N & M-502-43N	**1 x 1 gram**

Halogenated Non-Aromatic Volatiles Solution #1

M-8021B-NAV		**1 x 1 mL**
M-8021B-NAV-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		35 comps.

Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
Carbon tetrachloride
Chloroethane
Chloroform
Chlorodibromomethane
Chloromethane
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
Dibromomethane
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
Dichloromethane
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Hexachlorobutadiene
Tetrachloroethene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Trichloroethene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichlorofluoromethane
1,2,3-Trichloropropane
Vinyl chloride

Aromatic Volatiles Solution #2

M-8021B-AV		**1 x 1 mL**
M-8021B-AV-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		25 comps.

Benzene
Bromobenzene
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Chlorobenzene
2-Chlorotoluene
4-Chlorotoluene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Ethylbenzene
Isopropylbenzene
p-Isopropyltoluene
Naphthalene
n-Propylbenzene
Styrene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
o-Xylene
m-Xylene
p-Xylene

Halogenated Volatiles Solution #3

M-8021B-X1	**1 x 1 mL**
0.2 mg/mL each in MeOH	8 comps.

Allyl chloride
Benzyl chloride
2-Chloroethanol
2-Chloroethylvinyl ether
bis(2-Chloroisopropyl) ether
Chloroprene (Xylene-free)
1,3-Dichloro-2-propanol
Epichlorohydrin

Halogenated Volatiles Solution #4

M-8021B-X2	**1 x 1 mL**
0.2 mg/mL each in Pentane	2 comps.

Bromoacetone
Chloromethyl methyl ether

EPA Method 8000 Series

Method 8021B Purgeable Volatiles by PID/ELCD (Hall)

Internal Standard Solutions

M-8021B-IS		**1 x 1 mL**
M-8021B-IS-PAK	***SAVE***	**5 x 1 mL**
5 µg/mL each in MeOH		
M-8021B-IS-10X		**1 x 1 mL**
M-8021B-IS-10X-PAK	***SAVE***	**5 x 1 mL**
50 µg/mL each in MeOH		
M-8021B-IS-100X		**1 x 1 mL**
M-8021B-IS-100X-PAK	***SAVE***	**5 x 1 mL**
500 µg/mL each in MeOH		2 comps.

2-Bromo-1-chloropropane — Fluorobenzene

Purgeable Internal Standards

M-001R-0.75X		**1 x 1 mL**
M-001R-0.75X-PAK	***SAVE***	**5 x 1 mL**
15 mg/mL each in MeOH		
M-001R-0.075X		**1 x 1 mL**
M-001R-0.075X-PAK	***SAVE***	**5 x 1 mL**
1.5 mg/mL each in MeOH		
M-001R-0.0075X		**1 x 1 mL**
M-001R-0.0075X-PAK	***SAVE***	**5 x 1 mL**
150 µg/mL each in MeOH		3 comps.

Bromochloromethane — 2-Bromo-1-chloropropane
1,4-Dichlorobutane

Surrogate Standard Solutions

M-8021B-SS		**1 x 1 mL**
M-8021B-SS-PAK	***SAVE***	**5 x 1 mL**
15 µg/mL each in MeOH		
M-8021B-SS-10X		**1 x 1 mL**
M-8021B-SS-10X-PAK	***SAVE***	**5 x 1 mL**
150 µg/mL each in MeOH		
M-8021B-SS-100X		**1 x 1 mL**
M-8021B-SS-100X-PAK	***SAVE***	**5 x 1 mL**
1,500 µg/mL each in MeOH		2 comps.

4-Bromochlorobenzene — 1,4-Dichlorobutane

Surrogate Standards

M-8021-SS		**1 x 1 mL**
M-8021-SS-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		2 comps.

4-Bromochlorobenzene — 1,4-Dichlorobutane

M-8021-SS-M		**1 x 1 mL**
M-8021-SS-M-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		2 comps.

Bromochloromethane — 1,4-Dichlorobutane

M-001R		**1 x 1 mL**
M-001R-PAK	***SAVE***	**5 x 1 mL**
20 mg/mL each in MeOH		3 comps.

Bromochloromethane — 2-Bromo-1-chloropropane
1,4-Dichlorobutane

M-8021A-SS		**1 x 1 mL**
M-8021A-SS-PAK	***SAVE***	**5 x 1 mL**
20 mg/mL each in MeOH		4 comps.

4-Bromochlorobenzene — 1,4-Dichlorobutane
Bromochloromethane — 2-Bromo-1-chloropropane

Chloroprene Solution

APP-9-048-R1-2X — **1 x 1 mL**
0.2 mg/mL in MeOH

Chloroprene (Xylene-free)

Method 8030A Acrolein & Acrylonitrile by GC/FID

M-603-10X — **1 x 1 mL**
10 mg/mL each in Water — 2 comps.

Acrolein — Acrylonitrile

Method 8031 Acrylonitrile by GC/NPD

APP-9-008-10X		**1 x 1 mL**
APP-9-008-10X-PAK	***SAVE***	**5 x 1 mL**
1.0 mg/mL in MeOH		

Acrylonitrile

Method 8032/8032A Acrylamide by GC/ECD

Acrylamide

M-8032		**1 x 1 mL**
M-8032-PAK	***SAVE***	**5 x 1 mL**
1.0 mg/mL in MeOH		

Acrylamide

Brominated Analyte

M-8032B		**1 x 1 mL**
M-8032B-PAK	***SAVE***	**5 x 1 mL**
0.1 mg/mL in Ethyl acetate		

2,3-Dibromopropionamide

Internal Standard

M-8032-IS		**1 x 1 mL**
M-8032-IS-PAK	***SAVE***	**5 x 1 mL**
0.1 mg/mL in Ethyl acetate		

Dimethyl phthalate

Method 8033 Acrylonitrile by GC/NPD

Acrylonitrile

M-8033		**1 x 1 mL**
M-8033-PAK	***SAVE***	**5 x 1 mL**
1,000 µg/mL in H_2O		

Acrylonitrile

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 8040 Phenols, PFB Derivatives by GC/ECD

Phenols, PFB Derivatives Set
M-8040-PFB-SET **19 x 1 mL**
Each at 0.2 mg/mL in Isopropyl alcohol

(01) 4-Chloro-3-cresol
(02) *o*-Chlorophenol
(03) *m*-Cresol
(04) *o*-Cresol
(05) *p*-Cresol
(06) 2-Cyclohexyl-4,6-dinitrophenol *(Dinex)*
(07) 2,4-Dichlorophenol
(08) 2,6-Dichlorophenol
(09) 2,4-Dimethylphenol
(10) 2,4-Dinitrophenol
(11) Dinoseb
(12) 2-Methyl-4,6-dinitrophenol
(13) *o*-Nitrophenol
(14) *p*-Nitrophenol
(15) Pentachlorophenol
(16) Phenol
(17) 2,3,4,6-Tetrachlorophenol
(18) 2,4,5-Trichlorophenol
(19) 2,4,6-Trichlorophenol

Phenols, PFB Derivatives - Mix A
M-8040A-R-PFB **1 x 1 mL**
M-8040A-R-PFB-PAK ***SAVE*** **5 x 1 mL**
0.2 mg/mL each in MeOH 10 comps.

4-Chloro-3-cresol
o-Cresol
2-Cyclohexyl-4,6-dinitrophenol *(Dinex)*
2,4-Dichlorophenol
2-Methyl-4,6-dinitrophenol
o-Nitrophenol
p-Nitrophenol
2,4,6-Trichlorophenol
Pentachlorophenol
Phenol

Phenols, PFB Derivatives - Mix B
M-8040B-R-PFB **1 x 1 mL**
M-8040B-R-PFB-PAK ***SAVE*** **5 x 1 mL**
0.2 mg/mL each in MeOH 9 comps.

o-Chlorophenol
m-Cresol
p-Cresol
2,6-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
Dinoseb
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol

Technical Note
2,4-Dinitrophenol, 4-nitrophenol, and pentachlorophenol are susceptible to adsorption on active surfaces found in injection ports or contaminated columns.

Surrogate Standard
M-8040-SS **1 x 1 mL**
M-8040-SS-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Isopropyl alcohol 2 comps.

2-Fluorophenol
2,4,6-Tribromophenol

Surrogate Standard, PFB Derivatives
M-8040-SS-PFB **1 x 1 mL**
M-8040-SS-PFB-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in MeOH 2 comps.

2-Fluorophenol
2,4,6-Tribromophenol

Method 8040A Phenols by GC/FID

Phenol Set
M-8040-SET **19 x 1 mL**
Each at 1.0 mg/mL in MeOH

(01) 4-Chloro-3-cresol
(02) *o*-Chlorophenol
(03) *m*-Cresol
(04) *o*-Cresol
(05) *p*-Cresol
(06) 2-Cyclohexyl-4,6-dinitrophenol *(Dinex)*
(07) 2,4-Dichlorophenol
(08) 2,6-Dichlorophenol
(09) 2,4-Dimethylphenol
(10) 2,4-Dinitrophenol
(11) Dinoseb
(12) 2-Methyl-4,6-dinitrophenol
(13) *o*-Nitrophenol
(14) *p*-Nitrophenol
(15) Pentachlorophenol
(16) Phenol
(17) 2,3,4,6-Tetrachlorophenol
(18) 2,4,5-Trichlorophenol
(19) 2,4,6-Trichlorophenol

Mix A
M-8040A-R **1 x 1 mL**
M-8040A-R-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Isopropyl alcohol 10 comps.

4-Chloro-3-cresol
o-Cresol
2-Cyclohexyl-4,6-dinitrophenol *(Dinex)*
2,4-Dichlorophenol
2-Methyl-4,6-dinitrophenol
o-Nitrophenol
p-Nitrophenol
2,4,6-Trichlorophenol
Pentachlorophenol
Phenol

Mix B
M-8040B-R **1 x 1 mL**
M-8040B-R-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Isopropyl alcohol 9 comps.

o-Chlorophenol
m-Cresol
p-Cresol
2,6-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
Dinoseb
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol

Phenols QC Check Standard
M-8040A-ASL **1 x 1 mL**
Alternate Source
M-8040A-ASL-PAK ***SAVE*** **1 x 1 mL**
100 µg/mL each in Isopropyl alcohol
M-8040A-ASL-20X **1 x 1 mL**
2000 µg/mL each in Isopropyl alcohol 19 comps.

Dinoseb
4-Chloro-3-methylphenol
2-Chlorophenol
o-Cresol
m-Cresol
p-Cresol
2-Cyclohexyl-4,6-dinitrophenol
2,4-Dichlorophenol
2,6-Dichlorophenol
2,4-Dimethylphenol
4,6-Dinitro-o-cresol
2,4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
Pentachlorophenol
Phenol
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol

Method 8040/8040A Bromo Phenols and Anisoles

Bromo Phenols
Each at 100 µg/mL in Toluene

Compound	Cat. No.	1 mL
3-Bromophenol	BP-003S	
4-Bromophenol	BP-004S	
2,3-Dibromophenol	BP-023S	
2,4-Dibromophenol	BP-024S	
2,5-Dibromophenol	BP-025S	
2,6-Dibromophenol	BP-026S	
3,5-Dibromophenol	BP-035S	
2,3,4-Tribromophenol	BP-234S	
2,4,5-Tribromophenol	BP-245S	
2,3,6-Tribromophenol	BP-236S	
2,4,6-Tribromophenol	BP-246S	
3,4,5-Tribromophenol	BP-345S	
2,3,4,5-Tetrabromophenol	BP-2345S	
2,3,4,6-Tetrabromophenol	BP-2346S	
2,3,5,6-Tetrabromophenol	BP-2356S	
Pentabromophenol	BP-23456S	

Bromo Anisoles (Methyl Esters)
Each at 50 µg/mL in Methanol

Compound	Cat. No.	1 mL
2-Bromoanisole	BAN-01	
3-Bromoanisole	BAN-02	
4-Bromoanisole	BAN-03	
2,3-Dibromoanisole	BAN-04	
2,4-Dibromoanisole	BAN-05	
2,5-Dibromoanisole	BAN-06	
2,6-Dibromoanisole	BAN-07	
3,5-Dibromoanisole	BAN-08	
2,4,5-Tribromoanisole	BAN-09	
2,4,6-Tribromoanisole	BAN-10	

Method 8041 Phenols by GC-FID or ECD as the Derivatives

RCRA Target Phenols Solution

M-8041 — **1 x 1 mL**
M-8041-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Isopropanol — 21 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2-Cyclohexyl-4,6-dinitrophenol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- Dinoseb *(DNBP)*
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Methylphenol *(o-Cresol)*
- 3-Methylphenol *(m-Cresol)*
- 4-Methylphenol *(p-Cresol)*
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,5-Tetrachlorophenol
- 2,3,4,6-Tetrachlorophenol
- 2,3,5,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Technical Note

The method analytes were formulated into two distinct solutions to meet the needs of laboratories analyzing only the RCRA analytes or the combined RCRA/non-RCRA analytes.

Non-RCRA Target Phenols Solution

M-8041-X1 — **1 x 1 mL**
M-8041-X1-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Isopropanol — 18 comps.

- 2-Chloro-5-methylphenol
- 4-Chloro-2-methylphenol
- 3-Chlorophenol
- 4-Chlorophenol
- 2,3-Dichlorophenol
- 2,5-Dichlorophenol
- 3,4-Dichlorophenol
- 3,5-Dichlorophenol
- 2,3-Dimethylphenol
- 2,5-Dimethylphenol
- 2,6-Dimethylphenol
- 3,4-Dimethylphenol
- 2,5-Dinitrophenol
- 3-Nitrophenol
- 2,3,4-Trichlorophenol
- 2,3,5-Trichlorophenol
- 2,3,6-Trichlorophenol
- 3,4,5-Trichlorophenol

Internal Standards

M-8041-IS — **1 x 1 mL**
M-8041-IS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL each in Isopropanol

M-8041-IS-10X — **1 x 1 mL**
M-8041-IS-10X-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in Isopropanol

M-8041-IS-20X — **1 x 1 mL**
M-8041-IS-20X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Isopropanol — 2 comps.

- 2,5-Dibromotoluene
- 2,2',5,5'-Tetrabromobiphenyl

Surrogate Standards

M-8041-SS — **1 x 1 mL**
M-8041-SS-PAK — *SAVE* — **5 x 1 mL**
1.6 µg/mL in Isopropanol

M-8041-SS-10X — **1 x 1 mL**
M-8041-SS-10X-PAK — *SAVE* — **5 x 1 mL**
16 µg/mL in Isopropanol

M-8041-SS-100X — **1 x 1 mL**
M-8041-SS-100X-PAK — *SAVE* — **5 x 1 mL**
160 µg/mL in Isopropanol

M-8041-SS-625X — **1 x 1 mL**
M-8041-SS-625X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Isopropanol

- 2,4-Dibromophenol

Method 8060 Phthalate Esters by GC/ECD

Phthalate Esters

M-8060 — **1 x 1 mL**
M-8060-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Isooctane — 6 comps.

- Benzyl butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate

M-8060-QC — **1 x 1 mL**
M-8060-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 6 comps.

Benzyl butyl phthalate	(0.1 mg/mL)	Di-*n*-butyl phthalate	(0.25 mg/mL)
Diethyl phthalate	(0.25 mg/mL)	Di-*n*-octyl phthalate	(0.5 mg/mL)
Dimethyl phthalate	(0.25 mg/mL)	bis(2-Ethylhexyl)phthalate	(0.5 mg/mL)

Method 8061A Phthalate Esters by GC/ECD

Phthalate Esters

M-8061-R1 — **1 x 1 mL**
M-8061-R1-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Hexane — 15 comps.

- bis(2-*n*-Butoxyethyl)phthalate
- Butyl benzyl phthalate
- Diamyl phthalate
- Di-n-butyl phthalate
- Dicyclohexyl phthalate
- Diethyl phthalate
- Dihexyl phthalate
- Diisobutyl phthalate
- Dimethyl phthalate
- Dinonyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethoxyethyl)phthalate
- bis(2-Ethylhexyl)phthalate
- bis(2-Methoxyethyl)phthalate
- bis(4-Methyl-2-pentyl)phthalate

M-8061A — **1 x 1 mL**
M-8061A-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Hexane — 6 comps.

- Butyl benzyl phthalate
- bis(2-Ethylhexyl)phthalate
- Di-*n*-butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-octyl phthalate

Matrix Spike Solution

M-8061A-MS — **1 x 1 mL**
M-8061A-MS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Acetone — 2 comps.

- Butyl benzyl phthalate
- bis(2-Ethylhexyl)phthalate

Internal Standard

M-8061-IS — **1 x 1 mL**
M-8061-IS-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in Hexane

- Benzyl benzoate

Surrogate Standards

M-8061-SS — **1 x 1 mL**
M-8061-SS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL each in Acetone

M-8061-SS-10X — **1 x 1 mL**
M-8061-SS-10X-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 3 comps.

- Dibenzyl phthalate
- Diphenyl isophthalate
- Diphenyl phthalate

Method 8070A Nitrosamines by NPD/Reductive Hall or TEA

Nitrosamines

M-8070 — **1 x 1 mL**
M-8070-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine

Nitrosamines Mix

M-8270-03-ASL — Alternate Source — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- N-Nitrosodi-*n*-butylamine
- N-Nitrosodiethylamine
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopiperidine
- N-Nitrosopyrrolidine

Method 8080A Organochlorine Pesticides and PCBs by GC/ECD

Organochlorine Pesticides

M-8080 — **1 x 1 mL**
M-8080-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Acetone — 17 comps.

Aldrin	Endosulfan I
α-BHC	Endosulfan II
β-BHC	Endosulfan sulfate
δ-BHC	Endrin
γ-BHC	Endrin aldehyde
4,4'-DDD	Heptachlor
4,4'-DDE	Heptachlor epoxide
4,4'-DDT	Methoxychlor
Dieldrin	

Organochlorine Pesticide QC Standard

M-8080-QC-R — **1 x 1 mL**
M-8080-QC-R-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 17 comps.

Aldrin	(0.02 mg/mL)	Endosulfan I	(0.02 mg/mL)
α-BHC	(0.02 mg/mL)	Endosulfan II	(0.1 mg/mL)
β-BHC	(0.02 mg/mL)	Endosulfan sulfate	(0.1 mg/mL)
δ-BHC	(0.02 mg/mL)	Endrin	(0.1 mg/mL)
γ-BHC	(0.02 mg/mL)	Endrin aldehyde	(0.02 mg/mL)
4,4'-DDD	(0.1 mg/mL)	Heptachlor	(0.02 mg/mL)
4,4'-DDE	(0.02 mg/mL)	Heptachlor epoxide	(0.02 mg/mL)
4,4'-DDT	(0.1 mg/mL)	Methoxychlor	(0.02 mg/mL)
Dieldrin	(0.02 mg/mL)		

Internal Standard

M-508-IS — **1 x 1 mL**
M-508-IS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in MtBE

Pentachloronitrobenzene

Surrogate Standard

CLP-032-R — **1 x 1 mL**
CLP-032-R-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Acetone — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

Multi-Component Analytes
Polychlorinated Biphenyls, Chlordane & Toxaphene

Each at 1,000 µg/mL in Hexane — **AccuPAK™ *(5 x 1 mL)***

Aroclors®#	Cat. No.	1 mL	SAVE Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	
Pesticides				
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK	
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK	

Decomposition Solution

M-1618D ❄ — **1 x 1 mL**
M-1618D-PAK ❄ — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 2 comps.

p,p'-DDT (2 µg/mL) — Endrin (1 µg/mL)

o,p-DDT and Metabolites

M-8080-OP — **1 x 1 mL**
M-8080-OP-PAK — *SAVE* — **5 x 1 mL**
0.25 mg/mL each in Hexane:Toluene (50:50) — 3 comps.

o,p-DDD — o,p-DDT
o,p-DDE

Organochlorine Pesticide Mixture

M-8080A-ASL — **1 x 1 mL**
M-8080A-ASL-PAK — Alternate Source — *SAVE* — **5 x 1 mL**
250 µg/mL each in Hexane:Toluene (50:50) — 17 comps.

Aldrin	p,p'-DDE	Endrin
α-BHC	p,p'-DDT	Endrin aldehyde
β-BHC	Dieldrin	Heptachlor
δ-BHC	Endosulfan I	Heptachlor epoxide (Isomer B)
γ-BHC	Endosulfan II	Methoxychlor (1000 µg/mL)
p,p'-DDD	Endosulfan sulfate	

Method 8080/8081 Matrix Spike Solutions & Surrogates at Working Level

Matrix Spiking Solutions

For Water Samples

CLP-014-5ML — **1 x 5 mL**
CLP-014-25ML — **1 x 25 mL**
At stated conc. in MeOH — 6 comps.

Aldrin	(200 ng/mL)	Endrin	(500 ng/mL)
4,4'-DDT	(500 ng/mL)	Heptachlor	(200 ng/mL)
Dieldrin	(500 ng/mL)	Lindane	(200 ng/mL)

For Waste Samples

CLP-014-5X-5ML — **1 x 5 mL**
CLP-014-5X-25ML — **1 x 25 mL**
At stated conc. in MeOH — 6 comps.

Aldrin	(1,000 ng/mL)	Endrin	(2,500 ng/mL)
4,4'-DDT	(2,500 ng/mL)	Heptachlor	(1,000 ng/mL)
Dieldrin	(2,500 ng/mL)	Lindane	(1,000 ng/mL)

Surrogate Solutions

For Water Samples

CLP-032R-WL-10ML — **1 x 10 mL**
CLP-032R-WL-50ML — **1 x 50 mL**
CLP-032R-WL-100ML — **1 x 100 mL**
1 µg/mL each in Acetone — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

For Waste Samples

CLP-032R-WL-5X-10ML — **1 x 10 mL**
CLP-032R-WL-5X-50ML — **1 x 50 mL**
CLP-032R-WL-5X-100ML — **1 x 100 mL**
5 µg/mL each in Acetone — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

❄ ColdPAK required to maintain integrity of product.

Method 8080/8081 7 Point Working Level Pesticide Curves

AccuStandard has expanded the existing organo-halide pesticide standard line to include the working level Continuing Calibration Check Standard Line for Method 8080/8081. The working level CCC Line revolutionizes the way the analytical chemist prepares standards for pesticide analysis.

M-8080-CAL-SET **7 x 1 mL**
All solutions in Isooctane 21 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2.5X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(25X)*	Level 6 *(50X)*	Level 7 *(100X)*
Aldrin	2	5	10	20	50	100	200
α-BHC	2	5	10	20	50	100	200
β-BHC	2	5	10	20	50	100	200
γ-BHC	2	5	10	20	50	100	200
δ-BHC	2	5	10	20	50	100	200
α-Chlordane	2	5	10	20	50	100	200
γ-Chlordane	2	5	10	20	50	100	200
4,4'-DDD	4	10	20	40	100	200	400
4,4'-DDE	4	10	20	40	100	200	400
4,4'-DDT	4	10	20	40	100	200	400
Dieldrin	4	10	20	40	100	200	400
Endosulfan I	2	5	10	20	50	100	200
Endosulfan II	4	10	20	40	100	200	400
Endosulfan sulfate	4	10	20	40	100	200	400
Endrin	4	10	20	40	100	200	400
Endrin aldehyde	4	10	20	40	100	200	400
Heptachlor	2	5	10	20	50	100	200
Heptachlor epoxide	2	5	10	20	50	100	200
Methoxychlor	20	50	100	200	500	1,000	2,000
Tetrachloro-*m*-xylene	2	5	10	20	50	100	200
Decachlorobiphenyl	4	10	20	40	100	200	400

Level 3 Daily QC Working Level
CCC (for low level curves)

M-8080-WL-5X-10ML **1 x 10 mL**
M-8080-WL-5X-25ML **1 x 25 mL**
M-8080-WL-5X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Level 4 Daily QC Working Level
CCC (for higher level curves)

M-8080-WL-10X-10ML **1 x 10 mL**
M-8080-WL-10X-25ML **1 x 25 mL**
M-8080-WL-10X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Level 5 Daily QC Working Level
CCC (for higher level curves)

M-8080-WL-25X-10ML **1 x 10 mL**
M-8080-WL-25X-25ML **1 x 25 mL**
M-8080-WL-25X-50ML **1 x 50 mL**
At stated conc. in Isooctane

M-8080-R2-CAL-SET **7 x 1 mL**
All solutions in Isooctane 23 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2.5X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(25X)*	Level 6 *(50X)*	Level 7 *(100X)*
Aldrin	2	5	10	20	50	100	200
α-BHC	2	5	10	20	50	100	200
β-BHC	2	5	10	20	50	100	200
γ-BHC	2	5	10	20	50	100	200
δ-BHC	2	5	10	20	50	100	200
α-Chlordane	2	5	10	20	50	100	200
γ-Chlordane	2	5	10	20	50	100	200
4,4'-DDD	4	10	20	40	100	200	400
4,4'-DDE	4	10	20	40	100	200	400
4,4'-DDT	4	10	20	40	100	200	400
Dieldrin	4	10	20	40	100	200	400
Endosulfan I	2	5	10	20	50	100	200
Endosulfan II	4	10	20	40	100	200	400
Endosulfan sulfate	4	10	20	40	100	200	400
Endrin	4	10	20	40	100	200	400
Endrin aldehyde	4	10	20	40	100	200	400
Endrin ketone	4	10	20	40	100	200	400
Heptachlor	2	5	10	20	50	100	200
Heptachlor epoxide	2	5	10	20	50	100	200
Isodrin	2	5	10	20	50	100	200
Methoxychlor	20	50	100	200	500	1,000	2,000
Tetrachloro-*m*-xylene	2	5	10	20	50	100	200
Decachlorobiphenyl	4	10	20	40	100	200	400

Level 3 Daily QC Working Level
CCC (for low level curves)

M-8080-R2-WL-5X-10ML **1 x 10 mL**
M-8080-R2-WL-5X-25ML **1 x 25 mL**
M-8080-R2-WL-5X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Level 4 Daily QC Working Level
CCC (for higher level curves)

M-8080-R2-WL-10X-10ML **1 x 10 mL**
M-8080-R2-WL-10X-25ML **1 x 25 mL**
M-8080-R2-WL-10X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Level 5 Daily QC Working Level
CCC (for higher level curves)

M-8080-R2-WL-25X-10ML **1 x 10 mL**
M-8080-R2-WL-25X-25ML **1 x 25 mL**
M-8080-R2-WL-25X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Method 8080/8081 Aroclor Calibration Curves

Aroclor 1016/1260 Calibration Curve

C-216/260-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 4 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1016	50	100	250	500	750	1000
Aroclor 1260	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level **CCC (for low level curves)**
C-216/260-WL-5X-5ML — **1 x 5 mL**
C-216/260-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level **CCC (for higher level curves)**
C-216/260-WL-10X-5ML — **1 x 5 mL**
C-216/260-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Aroclor 1221 Calibration Curve

C-221-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1221	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level **CCC (for low level curves)**
C-221-WL-5X-5ML — **1 x 5 mL**
C-221-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level **CCC (for higher level curves)**
C-221-WL-10X-5ML — **1 x 5 mL**
C-221-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Aroclor 1232 Calibration Curve

C-232-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1232	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level **CCC (for low level curves)**
C-232-WL-5X-5ML — **1 x 5 mL**
C-232-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level **CCC (for higher level curves)**
C-232-WL-10X-5ML — **1 x 5 mL**
C-232-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Aroclor 1242 Calibration Curve

C-242-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1242	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level **CCC (for low level curves)**
C-242-WL-5X-5ML — **1 x 5 mL**
C-242-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level **CCC (for higher level curves)**
C-242-WL-10X-5ML — **1 x 5 mL**
C-242-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Aroclor 1248 Calibration Curve

C-248-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1248	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level **CCC (for low level curves)**
C-248-WL-5X-5ML — **1 x 5 mL**
C-248-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level **CCC (for higher level curves)**
C-248-WL-10X-5ML — **1 x 5 mL**
C-248-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Method 8080/8081 Aroclor Calibration Curves (Continued)

Aroclor 1254 Calibration Curve

C-254-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1254	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level
CCC (for low level curves)
C-254-WL-5X-5ML — **1 x 5 mL**
C-254-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level
CCC (for higher level curves)
C-254-WL-10X-5ML — **1 x 5 mL**
C-254-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Toxaphene Calibration Curve

P-093-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Toxaphene	50	100	250	500	750	1000
Decachlorobiphenyl	2	4	10	20	30	40
Tetrachloro-*m*-xylene	2	4	10	20	30	40

Level 3 Daily Working Level
CCC (for low level curves)
P-093-WL-5X-5ML — **1 x 5 mL**
P-093-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level
CCC (for higher level curves)
P-093-WL-10X-5ML — **1 x 5 mL**
P-093-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Chlordane Calibration Curve

P-017-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 3 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Chlordane	50	100	250	500	750	1000
Decachlorobiphenyl	20	40	70	100	150	200
Tetrachloro-*m*-xylene	20	40	70	100	150	200

Level 3 Daily Working Level
CCC (for low level curves)
P-017R-WL-5X-5ML — **1 x 5 mL**
P-017R-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level
CCC (for higher level curves)
P-017R-WL-10X-5ML — **1 x 5 mL**
P-017R-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

GPC Standards Sample Clean-up Solutions at Working Level

GPC Calibration Solution

CLP-027-WL-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(25 mg/mL)	Perylene	(0.02 mg/mL)
bis(2-Ethylhexyl)phthalate	(1.0 mg/mL)	Sulfur	(0.08 mg/mL)
Methoxychlor	(0.2 mg/mL)		

GPC Calibration Solution for 8/94 SOW OLM03.1

CLP-027-R2-WL-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2 — 5 comps.

Corn Oil	(25 mg/mL)	Perylene	(0.02 mg/mL)
bis(2-Ethylhexyl)phthalate	(0.5 mg/mL)	Sulfur	(0.08 mg/mL)
Methoxychlor	(0.1 mg/mL)		

Florisil Cartridge Check Solution

CLP-FC-WL-10ML — **1 x 10 mL**
0.1 µg/mL in Acetone

2,4,5-Trichlorophenol

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2 — 6 comps.

Aldrin	(0.1 µg/mL)	Dieldrin	(0.2 µg/mL)
γ-BHC *(Lindane)*	(0.1 µg/mL)	Endrin	(0.2 µg/mL)
4,4'-DDT	(0.2 µg/mL)	Heptachlor	(0.1 µg/mL)

GPC-CC-B-WL-10ML — **1 x 10 mL**
0.2 µg/mL each in CH_2Cl_2 — 2 comps.

Aroclor 1016 Aroclor 1260

Method 8080/8081A/8081B Organochlorine Pesticides by Capillary Column GC/ECD

Single/Dual Column Organochlorine Pesticides

M-8081-SC — **1 x 1 mL**
M-8081-SC-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 20 comps.

Aldrin	Dieldrin
α-BHC	Endosulfan I
β-BHC	Endosulfan II
γ-BHC	Endosulfan sulfate
δ-BHC	Endrin
α-Chlordane	Endrin aldehyde
γ-Chlordane	Endrin ketone
4,4'-DDD	Heptachlor
4,4'-DDE	Heptachlor epoxide
4,4'-DDT	Methoxychlor

Technical Note

M-8081A-SC was formulated for use in combination with M-8081-SC when performing single or dual column pesticide analysis. These two product formulations provide the typically analyzed pesticides in one core mixture (M-8081-SC) with the additional 7 analytes (M-8081A-SC) to meet the 27 analytes listed in Method 8081 (January 1995).

Organochlorine Pesticide Mixes

M-8081A-SC — **1 x 1 mL**
M-8081A-SC-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 7 comps.

Chlorobenzilate	Hexachlorocyclopentadiene
DBCP	Isodrin
Diallate	Kepone
Hexachlorobenzene	

M-8081A-SC-R — **1 x 1 mL**
M-8081A-SC-R-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 6 comps.

Chlorobenzilate	Hexachlorobenzene
1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene
Diallate	Isodrin

Dual Column Organochlorine Pesticides

M-8081-DC — **1 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 22 comps.

Alachlor	Etridiazole
Captafol	Hexachlorobenzene
Captan	Hexachlorocyclopentadiene
Chlorobenzilate	Isodrin
Chloroneb	Mirex
Chloropropylate	*trans*-Nonachlor
Chlorothalonil	PCNB
DBCP	Perthane
DCPA	Propachlor
Diallate	Permethrin * *(cis & trans)*
Dicofol	Trifluralin

* isomer concentration as stated on certificate of product data

Tailing Test Standard

M-8081-T — **1 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 4 comps.

Carbophenothion	Kepone
Dichlone	Nitrofen

M-8081-T-R — **1 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 3 comps.

Carbophenothion	Nitrofen
Dichlone	

Surrogate Standards

CLP-032-R — **1 x 1 mL**
CLP-032-R-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Acetone — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

CLP-034 — **1 x 1 mL**
CLP-034-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Acetone — 2 comps.

Dibutylchlorendate — Tetrachloro-*m*-xylene

M-8081-SS-X — **1 x 1 mL**
M-8081-SS-X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

2-Bromobiphenyl

For Dual Column

M-8081-SS-DC — **1 x 1 mL**
M-8081-SS-DC-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

4-Chloro-3-nitrobenzotrifluoride

Internal Standards

M-8081-IS — **1 x 1 mL**
M-8081-IS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

Pentachloronitrobenzene *(PCNB)*

M-8081-IS-X — **1 x 1 mL**
M-8081-IS-X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

α,α-Dibromo-*m*-xylene

For Dual Column

M-8081-IS-DC — **1 x 1 mL**
M-8081-IS-DC-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

1-Bromo-2-nitrobenzene

Decomposition Standard

M-8081-DS — **1 x 1 mL**
M-8081-DS-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Hexane — 2 comps.

4,4'-DDT — Endrin

Ready-to-Inject

Method 8082/8082A PCBs by Capillary Column GC by ECD or ELCD

PCB Congeners Mixture

M-8082 — **1 x 1 mL**
M-8082-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL each in Hexane — 19 comps.

No.		No.	
1	2-Chlorobiphenyl	137	2,2',3,4,4',5-Hexachlorobiphenyl
5	2,3-Dichlorobiphenyl	141	2,2',3,4,5,5'-Hexachlorobiphenyl
18	2,2',5-Trichlorobiphenyl	151	2,2',3,5,5',6-Hexachlorobiphenyl
31	2,4',5-Trichlorobiphenyl	153	2,2',4,4',5,5'-Hexachlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
66	2,3',4,4'-Tetrachlorobiphenyl	183	2,2',3,4,4',5',6-Heptachlorobiphenyl
87	2,2',3,4,5'-Pentachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
110	2,3,3',4',6-Pentachlorobiphenyl		

Reformulated PCB Congeners Mixture

M-8082A — **1 x 1 mL**
M-8082A-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL each in Hexane — 19 comps.

No.		No.	
1	2-Chlorobiphenyl	138	2,2',3,4,4',5'-Hexachlorobiphenyl
5	2,3-Dichlorobiphenyl	141	2,2',3,4,5,5'-Hexachlorobiphenyl
18	2,2',5-Trichlorobiphenyl	151	2,2',3,5,5',6-Hexachlorobiphenyl
31	2,4',5-Trichlorobiphenyl	153	2,2',4,4',5,5'-Hexachlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
66	2,3',4,4'-Tetrachlorobiphenyl	183	2,2',3,4,4',5',6-Heptachlorobiphenyl
87	2,2',3,4,5'-Pentachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
110	2,3,3',4',6-Pentachlorobiphenyl		

Technical Note

AccuStandard has formulated these standards for use in determining the concentrations of Aroclors (Industrial PCBs), specific PCB congeners, or "total PCBs". Additional Aroclor stock solutions are available at higher concentrations and in other solvents.

Internal and Surrogate Standard

CLP-032-H-5X — **1 x 1 mL**
1.0 mg/mL each in Hexane — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

Surrogate Standards

M-8082-SSA-WL-10ML — **1 x 10 mL**
M-8082-SSA-WL-10ML-PAK — *SAVE* — **5 x 10 mL**
5 µg/mL in Acetone

Decachlorobiphenyl

M-8082-SS — **1 x 1 mL**
100 µg/mL in Hexane
M-8082-SS-10X — **1 x 1 mL**
1.0 mg/mL in Hexane

Tetrachloro-*m*-xylene

Internal Standards

M-8082-ISC-WL-10ML — **1 x 10 mL**
M-8082-ISC-WL-10ML-PAK — *SAVE* — **5 x 10 mL**
5 µg/mL in Hexane

Decachlorobiphenyl

M-8082-SSC-WL-10ML — **1 x 10 mL**
M-8082-SSC-WL-10ML-PAK — *SAVE* — **5 x 10 mL**
5 µg/mL in Acetone

Tetrachloro-*m*-xylene

Method 8082 Aroclor 1016/1260 Calibration Curve

Aroclor 1016/1260 Calibration Curve

C-216/260-CAL-SET — **6 x 1 mL**
All solutions in Isooctane — 4 comps.

Components *(units in ng/mL)*	Level 1	Level 2 *(2X)*	Level 3 *(5X)*	Level 4 *(10X)*	Level 5 *(15X)*	Level 6 *(20X)*
Aroclor 1016	50	100	250	500	750	1000
Aroclor 1260	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level

CCC (for low level curves)
C-216/260-WL-5X-5ML — **1 x 5 mL**
C-216/260-WL-5X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Level 4 Daily Working Level

CCC (for higher level curves)
C-216/260-WL-10X-5ML — **1 x 5 mL**
C-216/260-WL-10X-10ML — **1 x 10 mL**
At stated conc. in Isooctane

Method 8082A Polychlorinated Biphenyl (PCBs) by GC/ECD

Individual PCB Congener Solutions

Congener	*35 µg/mL in Isooctane*	*100 µg/mL in Isooctane*	1 mL
2-Chlorobiphenyl	C-001S	C-001S-TP	
2,3-Dichlorobiphenyl	C-005S	C-005S-TP	
2,2',5-Trichlorobiphenyl	C-018S	C-018S-TP	
2,4',5-Trichlorobiphenyl	C-031S	C-031S-TP	
2,2',3,5'-Tetrachlorobiphenyl	C-044S	C-044S-TP	
2,2',5,5'-Tetrachlorobiphenyl	C-052S	C-052S-TP	
2,3',4,4'-Tetrachlorobiphenyl	C-066S	C-066S-TP	
2,2',3,4,5'-Pentachlorobiphenyl	C-087S	C-087S-TP	
2,2',4,5,5'-Pentachlorobiphenyl	C-101S	C-101S-TP	
2,3,3',4',6-Pentachlorobiphenyl	C-110S	C-110S-TP	
2,2',3,4,4',5-Hexachlorobiphenyl	C-137S	C-137S-TP	
2,2',3,4,4',5'-Hexachlorobiphenyl	C-138S	C-138S-TP	
2,2',3,4,5,5'-Hexachlorobiphenyl	C-141S	C-141S-TP	
2,2',3,5,5',6-Hexachlorobiphenyl	C-151S	C-151S-TP	
2,2',4,4',5,5'-Hexachlorobiphenyl	C-153S	C-153S-TP	
2,2',3,3',4,4',5-Heptachlorobiphenyl	C-170S	C-170S-TP	
2,2',3,4,4',5,5'-Heptachlorobiphenyl	C-180S	C-180S-TP	
2,2',3,4,4',5',6-Heptachlorobiphenyl	C-183S	C-183S-TP	
2,2',3,4',5,5',6-Heptachlorobiphenyl	C-187S	C-187S-TP	
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	C-206S	C-206S-TP	

Internal Standards

C-209S-H — **1 x 1 mL**
100 µg/mL in Hexane
C-209S-H-10X — **1 x 1 mL**
1.0 mg/mL in Hexane

Decachlorobiphenyl

Internal and Surrogate Standard

CLP-032-H-5X — **1 x 1 mL**
1.0 mg/mL each in Hexane — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

Surrogate Standard

M-8082-SS — **1 x 1 mL**
100 µg/mL in Hexane
M-8082-SS-10X — **1 x 1 mL**
1.0 mg/mL in Hexane

Tetrachloro-*m*-xylene

Method 8085 Pesticides by GC/AED

Nitrogen Containing Pesticides

Mix #1

M-8085-N1 — **1 x 5 mL**
At stated conc. in MtBE — 20 comps.

Alachlor	(18 µg/mL)	Norflurazon	(10 µg/mL)
Atrazine	(5 µg/mL)	Oxyfluorfen	(20 µg/mL)
Bromacil	(20 µg/mL)	Pendimethalin	(7.5 µg/mL)
Dichlobenil	(10 µg/mL)	Prometryne	(5 µg/mL)
Diphenamid	(15 µg/mL)	Pronamide	(20 µg/mL)
Ethalfluralin	(7.5 µg/mL)	Propachlor	(12 µg/mL)
Fluridone	(30 µg/mL)	Simazine	(5 µg/mL)
Metolachlor	(20 µg/mL)	Tebuthiuron	(7.5 µg/mL)
Metribuzin	(5 µg/mL)	Terbacil	(15 µg/mL)
Napropamide	(15 µg/mL)	Trifluralin	(7.5 µg/mL)

Mix #2

M-8085-N2 — **1 x 5 mL**
At stated conc. in MtBE — 18 comps.

Ametryn	(5 µg/mL)	Molinate	(10 µg/mL)
Benfluralin	(7.5 µg/mL)	Prebane	(5 µg/mL)
Butylate	(10 µg/mL)	Profluoralin	(12 µg/mL)
Chlorpropham	(20 µg/mL)	Prometon	(5 µg/mL)
Chlorothalonil	(12 µg/mL)	Propargite	(10 µg/mL)
Cyanazine	(7.5 µg/mL)	Propazine	(5 µg/mL)
Cycloate	(10 µg/mL)	Tillam	(10 µg/mL)
EPTC	(10 µg/mL)	Triallate	(13 µg/mL)
Hexazinone	(7.5 µg/mL)	Vernolate	(10 µg/mL)

Mix #3

M-8085-N3 — **1 x 5 mL**
At stated conc. in MtBE — 15 comps.

Butachlor	(30 µg/mL)	Metalaxyl	(30 µg/mL)
Carboxin	(30 µg/mL)	MGK-264	(40 µg/mL)
Diallate	(35 µg/mL)	*cis*-Permethrin	(10 µg/mL)
Fenarimol	(15 µg/mL)	Resmethrin	(10 µg/mL)
Fenvalerate	(20 µg/mL)	Sumithrin	(10 µg/mL)
Gesatamine	(7.5 µg/mL)	Triadimefon	(13 µg/mL)
Hexazinone	(7.5 µg/mL)	Triallate	(15 µg/mL)
Karmex	(30 µg/mL)		

Technical Note

These standards are for those laboratories participating in the analysis of pesticides by EPA Method 8085 Pesticide Screening and Compound Independent Elemental Quantitation by Gas Chromatography with Atomic Emission Detection (AED).

Chlorinated Pesticides

Mix #1

M-8085-C1 — **1 x 5 mL**
2.5 µg/mL each in Hexane — 23 comps.

Aldrin	p,p'-DDE	Endrin ketone
α-BHC	p,p'-DDT	Heptachlor
β-BHC	Dieldrin	Heptachlor epoxide (Isomer B)
γ-BHC	Endosulfan I	Methoxychlor
δ-BHC	Endosulfan II	*cis*-nonachlor
γ-Chlordane	Endosulfan sulfate	Oxychlordane
α-Chlordane	Endrin	Pentachloroanisole
p,p'-DDD	Endrin aldehyde	

Mix #2

M-8085-C2 — **1 x 5 mL**
At stated conc. in Hexane — 9 comps.

Captan	(6.75 µg/mL)	Hexachlorobenzene	(2.5 µg/mL)
Captafol	(12.5 µg/mL)	Kelthane	(10 µg/mL)
o,p'-DDE	(2.5 µg/mL)	Mirex	(2.5 µg/mL)
o,p'-DDD	(2.5 µg/mL)	*trans*-Nonachlor	(2.5 µg/mL)
o,p'-DDT	(2.5 µg/mL)		

Organo Phosphorous Pesticides

Mix #1

M-8085-P1 — **1 x 5 mL**
At stated conc. in MtBE — 14 comps.

Azinphos ethyl	(8 µg/mL)	EPN	(5 µg/mL)
Carbophenothion	(5 µg/mL)	Ethion	(3.5 µg/mL)
Chlorpyrifos methyl ester	(4 µg/mL)	Fenamiphos	(5 µg/mL)
Demeton (mixed isomers)	(7 µg/mL)	Fenitrothion	(3.5 µg/mL)
Disulfoton	(3 µg/mL)	Malathion	(4 µg/mL)
Dursban	(4 µg/mL)	Merphos	(6 µg/mL)
Dyfonate	(3 µg/mL)	Sulfotep	(3 µg/mL)

Mix #2

M-8085-P2 — **1 x 5 mL**
At stated conc. in MtBE — 12 comps.

Azinphos methyl	(8 µg/mL)	Fenthion	(3.5 µg/mL)
Bolstar	(3.5 µg/mL)	Imidan	(5.5 µg/mL)
Diazinon	(4 µg/mL)	Methyl parathion	(3.5 µg/mL)
Dimethoate	(4 µg/mL)	Parathion	(4 µg/mL)
Ethoprop	(4 µg/mL)	Phorate	(3.5 µg/mL)
Fensulfothion	(5 µg/mL)	Ronnel	(3.5 µg/mL)

Herbicides as Methyl Derivatives

Mix #1

M-8085-H1-M — **1 x 5 mL**
At stated conc. in MtBE — 13 comps.

Acifluorfen methyl ester	(20 µg/mL)	4-Nitroanisole	(10 µg/mL)
Bentazon methyl ester	(7.5 µg/mL)	Pentachloroanisole	(2.5 µg/mL)
Bromoxynil methyl ether	(5 µg/mL)	2,3,4,5-Tetrachloroanisole	(2.75 µg/mL)
Chloramben methyl ester	(5 µg/mL)	2,3,4,6-Tetrachloroanisole	(2.75 µg/mL)
Dinoseb methyl ether	(7.5 µg/mL)	2,4,5-Trichloroanisole	(3 µg/mL)
MCPA methyl ester	(10 µg/mL)	2,4,6-Trichloroanisole	(3 µg/mL)
MCPP methyl ester	(10 µg/mL)		

Mix #2

M-8085-H2-M — **1 x 5 mL**
At stated conc. in MtBE — 13 comps.

Dalapon methyl ester	(4 µg/mL)	Ioxynil methyl ether	(5 µg/mL)
2,4-D methyl ester	(5 µg/mL)	Methyl 3,5-Dichlorobenzoate	(5 µg/mL)
2,4-DB methyl ester	(6 µg/mL)	Picloram methyl ester	(5 µg/mL)
DCPA methyl ester	(4 µg/mL)	Silvex methyl ester	(4 µg/mL)
Dicamba methyl ester	(5 µg/mL)	2,4,5-T methyl ester	(4 µg/mL)
Dichlorprop methyl ester	(5.5 µg/mL)	Triclopyr methyl ester	(4 µg/mL)
Diclofop methyl	(7.5 µg/mL)		

Surrogates

M-8085-PEST-SS — **1 x 5 mL**
At stated conc. in MtBE — 4 comps.

Decachlorobiphenyl	(10 µg/mL)	1,3-Dimethyl-2-nitrobenzene	(20 µg/mL)
4,4'-Dibromooctafluorobiphenyl	(20 µg/mL)	Triphenylphosphate	(20 µg/mL)

Technical Note

Organophosphorus and Nitrogen/Phosphorus pesticides are light sensitive, store in deactivated amber vials.

Method 8085 continued on next page

Method 8085 (Continued) Pesticides by GC/AED

Alternate Surrogates

M-8085-PEST-SS2 — **1 x 5 mL**
20 µg/mL each in MtBE — 2 comps.

Dibutylchlorendate
TCMX

Herbicide Surrogate

M-8085-HERB-SS — **1 x 5 mL**
20 µg/mL in MtBE

2,4,6-Tribromophenol

Compound Independent Calibration (CIC) Mix

M-8085-CIC — **1 x 5 mL**
At stated conc. in MtBE — 15 comps.

Decachlorobiphenyl	(492 ng/mL)	Pentachloronitrobenzene	(1690 ng/mL)
Diazinon	(9800 ng/mL)	Phorate	(2100 ng/mL)
4,4'-Dibromooctafluorobiphenyl	(1000 ng/mL)	Silvex methyl ester	(400 ng/mL)
Dichlobenil	(6140 ng/mL)	Terbufos	(7600 ng/mL)
Dursban	(5680 ng/mL)	2,4,6-Tribromoanisole	(2870 ng/mL)
Ethoprop	(391 ng/mL)	1,2,3-Trichlorobenzene	(6810 ng/mL)
Ioxynil methyl ether	(500 ng/mL)	Trifluralin	(16000 ng/mL)
Malathion	(1070 ng/mL)		

Method 8090 Nitroaromatics & Isophorone by GC/TCD or FID

Analyte Calibration Set (609)

M-609-10X-SET — **set of 2 x 1 mL (M-609A-10X, M-609B-10X)**

M-609A-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

Isophorone
Nitrobenzene

M-609B-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

2,4-Dinitrotoluene
2,6-Dinitrotoluene

M-609-QC — **1 x 1 mL**
At stated conc. in Acetone — 4 comps.

Isophorone	(100 µg/mL)	2,6-Dinitrotoluene	(20 µg/mL)
2,4-Dinitrotoluene	(20 µg/mL)	Nitrobenzene	(100 µg/mL)

Analyte Calibration Set (8090)

M-8090-10X-SET — **set of 2 x 1 mL (M-8090-10X, M-609B-10X)**

M-8090-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

1,3-Dinitrobenzene
Isophorone
1,4-Naphthoquinone
Nitrobenzene

M-609B-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

2,4-Dinitrotoluene
2,6-Dinitrotoluene

M-8090-QC — **1 x 1 mL**
At stated conc. in Acetone — 6 comps.

1,3-Dinitrobenzene	(40 µg/mL)	Isophorone	(100 µg/mL)
2,4-Dinitrotoluene	(20 µg/mL)	1,4-Naphthaquinone	(40 µg/mL)
2,6-Dinitrotoluene	(20 µg/mL)	Nitrobenzene	(100 µg/mL)

Method 8091 Nitroaromatics & Cyclic Ketones by GC/ECD or NPD

RCRA Analytes

M-8091 — **1 x 1 mL**
1.0 mg/mL each in Isooctane:Toluene (50:50) — 6 comps.

1,4-Dinitrobenzene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
1,4-Naphthoquinone
Nitrobenzene
Pentachloronitrobenzene

Chloronitroaromatics: non-RCRA Analytes

M-8091-X1 — **1 x 1 mL**
1.0 mg/mL each in Isooctane — 17 comps.

1-Chloro-2,4-dinitrobenzene
1-Chloro-3,4-dinitrobenzene
1-Chloro-2-nitrobenzene
1-Chloro-4-nitrobenzene
2-Chloro-6-nitrotoluene
4-Chloro-2-nitrotoluene
4-Chloro-3-nitrotoluene
2,3-Dichloronitrobenzene
2,4-Dichloronitrobenzene
3,5-Dichloronitrobenzene
3,4-Dichloronitrobenzene
2,5-Dichloronitrobenzene
2,3,5,6-Tetrachloronitrobenzene
2,3,4,5-Tetrachloronitrobenzene
1,2,3-Trichloro-4-nitrobenzene
1,2,4-Trichloro-5-nitrobenzene
2,4,6-Trichloronitrobenzene

Internal Standard

M-8091-IS-20X — **1 x 1 mL**
M-8091-IS-20X-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL in Acetone

Hexachlorobenzene

Surrogate Standard

M-8091-SS-100X — **1 x 1 mL**
M-8091-SS-100X-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL in Acetone

1-Chloro-3-nitrobenzene

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 8095 Explosives by GC/ECD

This method is a companion to EPA Method 8330 found later in this section. Utilizing the sensitivity and selectivity of the ECD as well as the resolution capabilities of capillary columns allows the chemist to quantitatively analyze for the typical explosives. The method uses familiar extraction techniques which reduce sample preparation time.

Explosive Stock Solution A

M-8095-SSA-100X — **1 x 1 mL**
M-8095-SSA-100X-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL each in AcCN:MeOH (50:50) — 10 comps.

- 2-Amino-4,6-dinitrotoluene
- 4-Amino-2,6-dinitrotoluene
- 1,3-Dinitrobenzene
- 2,6-Dinitrotoluene
- 2,4-Dinitrotoluene
- 1,3,5-Trinitrobenzene
- TNT
- RDX
- Tetryl
- HMX

Explosive Stock Solution B

M-8095-SSB-100X — **1 x 1 mL**
M-8095-SSB-100X-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in AcCN:MeOH (50:50) — 7 comps.

Nitrobenzene	(500 µg/mL)	Nitroglycerin	(500 µg/mL)
3-Nitrotoluene	(500 µg/mL)	PETN	(500 µg/mL)
2-Nitrotoluene	(500 µg/mL)	3,5-Dinitroaniline	(100 µg/mL)
4-Nitrotoluene	(500 µg/mL)		

Explosive Surrogate Standards

M-8095-SS-01 — **1 x 1 mL**
M-8095-SS-01-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL in AcCN

- 3,4-Dinitrotoluene

M-8095-SS-02 — **1 x 1 mL**
M-8095-SS-02-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL in AcCN

- 2-Methyl-4-nitroaniline

M-8095-SS-03 — **1 x 1 mL**
M-8095-SS-03-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL in AcCN

- 2,5-Dinitrotoluene

Method 8100 PAHs by GC/FID

Polynuclear Aromatic Hydrocarbon Mix

Z-014G-R — **1 x 1 mL**
Z-014G-R-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene (50:50) — 17 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Carbazole
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

PAH Additions to Method 8100 by GC/FID

M-8100-R — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Benzo[j]fluoranthene
- Dibenz[a,h]acridine
- Dibenz[a,j]acridine
- 7H-Dibenzo[c,g]carbazole
- Dibenzo[a,e]pyrene
- Dibenzo[a,h]pyrene
- Dibenzo[a,i]pyrene
- 3-Methylcholanthrene

PAH QC Mix

M-8100-QC — **1 x 1 mL**
M-8100-QC-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in AcCN — 24 comps.

Acenaphthene	(100 µg/mL)	Dibenz[a,h]anthracene	(10 µg/mL)
Acenaphthylene	(100 µg/mL)	7H-Dibenzo[c,g]carbazole	(10 µg/mL)
Anthracene	(100 µg/mL)	Dibenzo[a,e]pyrene	(10 µg/mL)
Benz[a]anthracene	(10 µg/mL)	Dibenzo[a,h]pyrene	(10 µg/mL)
Benzo[b]fluoranthene	(10 µg/mL)	Dibenzo[a,i]pyrene	(10 µg/mL)
Benzo[j]fluoranthene	(10 µg/mL)	Fluoranthene	(10 µg/mL)
Benzo[k]fluoranthene	(5 µg/mL)	Fluorene	(100 µg/mL)
Benzo[g,h,i]perylene	(10 µg/mL)	Indeno[1,2,3-cd]pyrene	(10 µg/mL)
Benzo[a]pyrene	(10 µg/mL)	3-Methylcholanthrene	(10 µg/mL)
Chrysene	(10 µg/mL)	Naphthalene	(100 µg/mL)
Dibenz[a,h]acridine	(10 µg/mL)	Phenanthrene	(100 µg/mL)
Dibenz[a,j]acridine	(10 µg/mL)	Pyrene	(10 µg/mL)

Surrogate Standard

M-8100-SS — **1 x 1 mL**
M-8100-SS-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 2 comps.

- 2-Fluorobiphenyl
- 1-Fluoronaphthalene

Method 8110 Haloethers by GC/FID

Haloethers

M-611-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

- 4-Bromophenyl phenyl ether
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 4-Chlorophenyl phenyl ether

Method 8111 Haloethers Mix: non-RCRA Analytes

Haloethers Mix

M-8111-X1 — **1 x 1 mL**
1.0 mg/mL each in Isooctane — 19 comps.
Individual products each at 1.0 mg/mL in Isooctane

Compound	Cat.No.	1 mL
4-Bromophenyl phenyl ether	E-001S	
2-Chlorophenyl-4-nitrophenyl ether	E-005S	
3-Chlorophenyl-4-nitrophenyl ether	E-006S	
4-Chlorophenyl-4-nitrophenyl ether	E-007S	
2,4-Dibromophenyl-4-nitrophenyl ether	E-004S	
2,4-Dichlorophenyl-3-methyl-4-nitrophenyl ether	E-020S	
2,6-Dichlorophenyl-4-nitrophenyl ether	E-011S	
3,5-Dichlorophenyl-4-nitrophenyl ether	E-012S	
2,5-Dichlorophenyl-4-nitrophenyl ether	E-010S	
2,4-Dichlorophenyl-4-nitrophenyl ether	E-009S	
2,3-Dichlorophenyl-4-nitrophenyl ether	E-008S	
3,4-Dichlorophenyl-4-nitrophenyl ether	E-013S	
4-Nitrophenyl phenyl ether	E-003S	
2,4,6-Trichlorophenyl-4-nitrophenyl ether	E-018S	
2,3,6-Trichlorophenyl-4-nitrophenyl ether	E-016S	
2,3,5-Trichlorophenyl-4-nitrophenyl ether	E-015S	
2,4,5-Trichlorophenyl-4-nitrophenyl ether	E-017S	
3,4,5-Trichlorophenyl-4-nitrophenyl ether	E-019S	
2,3,4-Trichlorophenyl-4-nitrophenyl ether	E-014S	

Haloethers Mix: RCRA Analytes

M-8111 — **1 x 1 mL**
M-8111-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Isooctane — 4 comps.

bis(2-chloroethoxy)methane
bis(2-Chloroethyl) ether
bis(2-Chloro-1-methylethyl) ether
4-Chlorophenyl phenyl ether

Internal Standard

M-8111-IS-20X — **1 x 1 mL**
M-8111-IS-20X-PAK — *SAVE* — **5 x 1 mL**
1,000 µg/mL in Acetone

4,4'-Dibromobiphenyl

Surrogate Standard

M-8111-SS-50X — **1 x 1 mL**
1,000 µg/mL each in Acetone — 2 comps.

2,4-Dichlorophenyl phenyl ether
2,3,4-Trichlorophenyl phenyl ether

Method 8120 & 8120A Chlorinated Hydrocarbons by GC/ECD

Chlorinated Hydrocarbons

M-8120 — **1 x 1 mL**
2.0 mg/mL each in Hexane — 10 comps.
Individuals each in 2.0 mg/mL each in Hexane *NEW*

Compound	Cat.No.	1 mL
2-Chloronaphthalene	M-8120-01	
1,2-Dichlorobenzene	M-8120-02	
1,3-Dichlorobenzene	M-8120-03	
1,4-Dichlorobenzene	M-8120-04	
Hexachlorobenzene	M-8120-05	
Hexachlorobutadiene	M-8120-06	
Hexachlorocyclopentadiene	M-8120-07	
Hexachloroethane	M-8120-08	
1,2,4,5-Tetrachlorobenzene	M-8120-09	
1,2,4-Trichlorobenzene	M-8120-10	

Performance Check Solution

M-8120-QC — **1 x 1 mL**
At stated conc. in Acetone — 10 comps.

2-Chloronaphthalene(1.0 mg/mL)	Hexachlorobutadiene	(0.1 mg/mL)
1,2-Dichlorobenzene(1.0 mg/mL)	Hexachlorocyclopentadiene	(0.1 mg/mL)
1,3-Dichlorobenzene(1.0 mg/mL)	Hexachloroethane	(0.1 mg/mL)
1,4-Dichlorobenzene(1.0 mg/mL)	1,2,4,5-Tetrachlorobenzene	(1.0 mg/mL)
Hexachlorobenzene(0.1 mg/mL)	1,2,4-Trichlorobenzene	(1.0 mg/mL)

Method 8121 Chlorinated Hydrocarbons by GC/ECD

Chlorinated Hydrocarbons

M-8121 — **1 x 1 mL**
1.0 mg/mL each in Hexane — 22 comps.

Benzal chloride
Benzotrichloride
Benzyl chloride
α-BHC
β-BHC
γ-BHC
δ-BHC
2-Chloronaphthalene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Pentachlorobenzene
1,2,3,4-Tetrachlorobenzene
1,2,3,5-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,3,5-Trichlorobenzene

Internal Standards

M-8121-IS — **1 x 1 mL**
M-8121-IS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL in Acetone

1,3,5-Tribromobenzene

M-8121-IS-M — **1 x 1 mL**
M-8121-IS-M-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL each in Acetone — 3 comps.

2,5-Dibromotoluene
α,α'-Dibromo-*m*-xylene
1,3,5-Tribromobenzene

Surrogate Standard

M-8121-SS — **1 x 1 mL**
M-8121-SS-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Acetone — 3 comps.

1,4-Dichloronaphthalene (1 µg/mL)
2,3,4,5,6-Pentachlorotoluene (1 µg/mL)
α,2,6-Trichlorotoluene (10 µg/mL)

Varied Concentration QC Mix

M-8121-QC — **1 x 1 mL**
At stated conc. in Hexane — 22 comps.

Benzal chloride	(100 µg/mL)	Hexachlorobenzene	(10 µg/mL)
Benzotrichloride	(100 µg/mL)	Hexachlorobutadiene	(10 µg/mL)
Benzyl chloride	(100 µg/mL)	Hexachlorocyclopentadiene	(10 µg/mL)
α-BHC	(100 µg/mL)	Hexachloroethane	(10 µg/mL)
β-BHC	(100 µg/mL)	Pentachlorobenzene	(10 µg/mL)
γ-BHC	(100 µg/mL)	1,2,3,4-Tetrachlorobenzene	(100 µg/mL)
δ-BHC	(100 µg/mL)	1,2,3,5-Tetrachlorobenzene	(100 µg/mL)
2-Chloronaphthalene	(2,000 µg/mL)	1,2,4,5-Tetrachlorobenzene	(100 µg/mL)
1,2-Dichlorobenzene	(1,000 µg/mL)	1,2,3-Trichlorobenzene	(100 µg/mL)
1,3-Dichlorobenzene	(1,000 µg/mL)	1,2,4-Trichlorobenzene	(100 µg/mL)
1,4-Dichlorobenzene	(1,000 µg/mL)	1,3,5-Trichlorobenzene	(100 µg/mL)

Method 8131 Aniline & Selected Derivatives by GC/NPD, GC/AFD, GC/TSD

Aniline & Selected Derivatives

M-8131 — **1 x 1 mL**
1.0 mg/mL each in Toluene — 19 comps.

Aniline
4-Bromoaniline
2-Bromo-6-chloro-4-nitroaniline
2-Bromo-4,6-dinitroaniline
2-Chloroaniline
3-Chloroaniline
4-Chloroaniline
2-Chloro-4,6-dinitroaniline
2-Chloro-4-nitroaniline
4-Chloro-2-nitroaniline
2,6-Dibromo-4-nitroaniline
3,4-Dichloroaniline
2,6-Dichloro-4-nitroaniline
2,4-Dinitroaniline
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
2,4,6-Trichloroaniline
2,4,5-Trichloroaniline

Method 8140 Organophosphorous Pesticides by GC/NPD/ELCD/FPD

Organophosphorous Pesticides

M-8140M — **1 x 1 mL**
M-8140M-PAK — *SAVE* — **5 x 1 mL**
0.04 mg/mL each in Hexane
M-8140M-5X ❄ — **1 x 1 mL**
M-8140M-5X-PAK ❄ — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Hexane:Acetone (95:5) — 20 comps.

- Azinphosmethyl *(Guthion)* (01)
- Bolstar (02)
- Chloropyrifos (03)
- Coumaphos (04)
- Demeton (05)
- Diazinon (06)
- Dichlorovos (07)
- Disulfoton *(Di-Syston)* (08)
- Ethoprop (09)
- Fensulfothion (10)
- Fenthion (11)
- Merphos (12)
- Methyl parathion (13)
- Mevinphos *(Phosdrin)* (14)
- Naled *(Dibrom)* (15)
- Phorate *(Thimet)* (16)
- Ronnel (17)
- Stirophos (18)
- Tokuthion (19)
- Trichloronate *(Agritox)* (20)

Organophosphorous Pesticide Set

M-8140-SET — **20 x 1 mL**
Individual solutions listed below, each at 1.0 mg/mL in Hexane

Method 8141A Additions to Method 8140 Organophosphorus Pesticides by GC/NPD

Mix #1

M-8141M ❄ — **1 x 1 mL**
M-8141M-PAK ❄ — *SAVE* — **5 x 1 mL**
Mixture, *0.2 mg/mL each in Hexane* — 7 comps.
M-8141-SET — **7 x 1 mL**
Individual solutions, *Each at 1.0 mg/mL in Hexane, Dimethoate is in Hexane:Acetone (90:10)*

Compound	Cat. No.	1 mL
Dimethoate	M-8141-01	
EPN	M-8141-02	
Malathion	M-8141-03	
Monocrotophos	M-8141-04	
Ethyl parathion	M-8141-05	
Sulfotep	M-8141-06	
TEPP	M-8141-07	

Technical Note

Tetraethyl pyrophosphate TEPP is unstable, decomposes in water, and is thermally labile at inlet temperatures above 170°C.

Mix #2

M-8141A-1M — **1 x 1 mL**
Mixture, *0.2 mg/mL each in Hexane* — 10 comps.
M-8141A-1-SET ❄ — **10 x 1 mL**
Individual solutions, *Each at 1.0 mg/mL in Hexane*

Compound	Cat. No.	1 mL
Azinphos ethyl	M-8141A-1-01	
Carbophenothion	M-8141A-1-02	
Chlorfenvinphos	M-8141A-1-03	
Dioxathion	M-8141A-1-04 ❄	
Ethion	M-8141A-1-05	
Famphur	M-8141A-1-06	
Leptophos	M-8141A-1-07	
Phosmet	M-8141A-1-08	
Phosphamidon	M-8141A-1-09 ❄	
Terbufos	M-8141A-1-10	

Mix #3

M-8141A-2M — **1 x 1 mL**
Mixture, *0.2 mg/mL each in Hexane* — 9 comps.
M-8141A-2-SET — **9 x 1 mL**
Individual solutions, *Each at 1.0 mg/mL in Hexane*

- Aspon (01)
- Chlorpyrifos methyl ester (02)
- Crotoxyphos (03)
- Dichlofenthion (04)
- Dicrotophos (05)
- Fenitrothion (06)
- Fonophos (07)
- Thionazin (08)
- Trichlorfon (09)

Internal Standard for NPD

M-8141A-IS — **1 x 1 mL**
M-8141A-IS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

1-Bromo-2-nitrobenzene

Industrial Chemicals & Triazine Herbicides

M-8141A-IC — **1 x 1 mL**
0.2 mg/mL each in Hexane — 2 comps.

- Hexamethylphosphoramide *(HMPA)*
- Tri-o-cresylphosphate *(TOCP)*

M-8141A-TH — **1 x 1 mL**
M-8141A-TH-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Acetone — 2 comps.

- Atrazine
- Simazine

M-8141B-HSD — **1 x 1 mL**
M-8141B-HSD-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Hexane — 9 comps.

- Chlorpyrifos
- Coumaphos
- Dichlorvos
- EPN
- Naled
- Ronnel
- Stirophos
- Trichloronate
- Tokuthion

Technical Note

For use with a halogen-specific detector (i.e., electrolytic conductivity or microcoulometry). ECD should only be used when previous analyses have demonstrated that interferences do not adversely affect quantitation.

Surrogate Standard for NPD & FPD

M-8141A-SS — **1 x 1 mL**
M-8141A-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Acetone — 2 comps.

- Tributylphosphate
- Triphenylphosphate

Surrogate Standard for NPD only

M-8141A-SS-X — **1 x 1 mL**
M-8141A-SS-X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Acetone

4-Chloro-3-nitrobenzotrifluoride

Technical Note

Organophosphorus and Nitrogen/Phosphorus pesticides are light sensitive, store in deactivated amber vials.

❄ ColdPAK required to maintain integrity of product.

Method 8150/8151 7 Point Working Level Phenoxy-Herbicide Methyl Derivative Curve

The CCC Line for Herbicide analysis provides the necessary free acid and derivatized solutions to establish a calibration curve, perform the required daily QC checks and validate extraction efficiencies through the use of surrogates and matrix spikes.

M-8150/51-CAL-SET **7 x 1 mL**
At stated conc. (ng/mL) in Isooctane 11 comps.

Components	Level 1 M-8150/51-WL	Level 2 (-2X)	Level 3 (-4X)	Level 4 (-10X)	Level 5 (-25X)	Level 6 (-35X)	Level 7 (-50X)
2,4-D	20	40	80	200	500	700	1000
2,4-DB	20	40	80	200	500	700	1000
2,4,5-TP	5	10	20	50	125	175	250
2,4,5-T	5	10	20	50	125	175	250
Dalapon	10	20	40	100	250	350	500
Dicamba	10	20	40	100	250	350	500
Dichloroprop	20	40	80	200	500	700	1000
Dinoseb	5	10	20	50	125	175	250
MCPA	2000	4000	8,000	20,000	50,000	70,000	100,000
MCPP	2000	4000	8,000	20,000	50,000	70,000	100,000
DCAA	20	40	80	200	500	700	1000

Level 1	**M-8150/51-WL**	**1 mL**
Level 2	**M-8150/51-WL-2X**	**1 mL**
Level 3	**M-8150/51-WL-4X**	**1 mL**
Level 4	**M-8150/51-WL-10X**	**1 mL**
Level 5	**M-8150/51-WL-25X**	**1 mL**
Level 6	**M-8150/51-WL-35X**	**1 mL**
Level 7	**M-8150/51-WL-50X**	**1 mL**

Level 3 Daily QC Working Level CCC (for low level curves)

M-8150/51-WL-4X-10ML **1 x 10 mL**
M-8150/51-WL-4X-25ML **1 x 25 mL**
M-8150/51-WL-4X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Level 4 Daily QC Working Level CCC (for higher level curves)

M-8150/51-WL-10X-10ML **1 x 10 mL**
M-8150/51-WL-10X-25ML **1 x 25 mL**
M-8150/51-WL-10X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Level 5 Daily QC Working Level CCC (for higher level curves)

M-8150/51-WL-25X-10ML **1 x 10 mL**
M-8150/51-WL-25X-25ML **1 x 25 mL**
M-8150/51-WL-25X-50ML **1 x 50 mL**
At stated conc. in Isooctane

Ready-to-Inject

Herbicide Molecular Weights

The COA for the Working Level Herbicide calibration curves and Daily QC check standards lists both the methyl derivative and acid equivalent concentrations. Since the EPA method for Herbicide analysis requires the final analytical results to be calculated and reported as the acid equivalent, AccuStandard provides both formats to ease calculations.

Herbicide	Free Acid M.W.	Methylated M.W.
2,4-D	221.04	235.07
Dalapon	143.97	157.00
2,4-DB	249.09	263.12
Dicamba	221.04	235.07
Dichlorprop	235.07	249.09
Dinoseb	240.22	254.24
MCPA	200.62	214.65
MCPP	214.65	228.67
Silvex *(2,4,5-TP)*	269.51	283.54
2,4,5-T	255.48	269.51

Equivalency conversion to the free acid:

$$\text{ng (free acid)} = \frac{\text{M.W. Herbicide acid}}{\text{M.W. methylated Herbicide}} \times \text{ng (methylated acid)}$$

The molecular weights for conversion of methyl esters to the acid equivalent concentrations are provided above.

Method 8150/8151 Working Level Herbicide Standards

Prep Note

To validate instrument response, 10 µL of internal standard is added to a 10 mL herbicide sample extract.

Internal Standard - Herbicide Solution 1

M-8151-IS **1 x 1 mL**
M-8151-IS-PAK ***SAVE*** **5 x 1 mL**
250 µg/mL in Acetone

4,4'-Dibromooctafluorobiphenyl

Internal Standard - Herbicide Solution 2

M-8151-IS-2 **1 x 1 mL**
M-8151-IS-2-PAK ***SAVE*** **5 x 1 mL**
250 µg/mL in Acetone

1,4-Dichlorobenzene

Laboratory Performance Check Solution

M-8150/51-LPC-5ML **1 x 5 mL**
At stated conc. in Isooctane 5 comps.

3,5-Dichlorobenzoic acid	(600 ng/mL)
Dinoseb	(4 ng/mL)
4-Nitrophenol	(1600 ng/mL)
DCAA	(500 ng/mL)
DBOB	(250 ng/mL)

Prep Note

To verify extraction efficiency, 1 mL of surrogate is added to a herbicide sample.

Herbicide Surrogate Spiking Solution

M-8150/51-SS-WL-25ML **1 x 25 mL**
M-8150/51-SS-WL-50ML **1 x 50 mL**
2 µg/mL in MeOH

2,4-Dichlorophenylacetic acid *(DCAA)*

Prep Note

To verify QA/QC for the analytical batch, 1 mL of matrix spike is added to an herbicide sample.

Herbicide Matrix Spike (Components as Acids)

M-8150/51-MS-WL-10ML **1 x 10 mL**
M-8150/51-MS-WL-25ML **1 x 25 mL**
M-8150/51-MS-WL-50ML **1 x 50 mL**
At stated conc. in MeOH 5 comps.

2,4-D	(2 µg/mL)	Dalapon	(1 µg/mL)
2,4-DB	(2 µg/mL)	Dicamba	(1 µg/mL)
2,4,5-TP *(Silvex)*	(0.8 µg/mL)		

Method 8150A/8150B Chlorinated Herbicides by GC/ECD

Chlorinated Herbicides in Ground Water (Rev. 1, July 1992) and their Methyl Derivatives

Compound	(mg/mL) Conc.	Herbicides Acids (in MeOH) Cat. No.	Methyl Derivative (in Hexane) Cat. No.	1 mL
2,4-D	0.2	M-8150S-A-01	M-8150-01	
2,4-DB	0.2	M-8150S-A-02	M-8150-02	
2,4,5-T	0.2	M-8150S-A-03	M-8150-03	
2,4,5-TP	0.2	M-8150S-A-04 ❄	M-8150-04	
Dalapon	0.2	M-8150S-A-05 ❄	M-8150-05	
Dicamba	0.2	M-8150S-A-06	M-8150-06	
Dichlorprop	0.2	M-8150S-A-07	M-8150-07	
Dinoseb	0.2	M-8150S-A-08	M-8150-08	
MCPA	2.0	M-8150S-A-09	M-8150-09	
MCPP	2.0	M-8150S-A-10	M-8150-10	
Set of 10 x 1 mL		**M-8150A-SET** ❄	**M-8150-SET**	**10 x 1 mL**

Underivatized Solution (Varied Concentration)

M-8150A — **1 x 1 mL**
M-8150A-PAK — ***SAVE*** — **5 x 1 mL**
0.1 mg/mL in MeOH, except MCPA and MCPP — 10 comps.

- 2,4-D
- Dalapon
- 2,4-DB
- Dicamba
- Dichlorprop
- Dinoseb
- MCPA (10 mg/mL)
- MCPP (10 mg/mL)
- 2,4,5-TP
- 2,4,5-T

Underivatized Solution (Equal Concentration)

M-8150M-A — **1 x 1 mL**
M-8150M-A-PAK — ***SAVE*** — **5 x 1 mL**
0.2 mg/mL each in MeOH — 10 comps.

- 2,4-D
- Dalapon
- 2,4-DB
- Dicamba
- Dichlorprop
- Dinoseb
- MCPA
- MCPP
- 2,4,5-TP
- 2,4,5-T

Underivatized Surrogate Standards

M-8150B-SS — **1 x 1 mL**
M-8150B-SS-PAK — ***SAVE*** — **5 x 1 mL**
0.1 mg/mL in Acetone
M-8150B-SS-10X — **1 x 1 mL**
1.0 mg/mL in Acetone

- 2,4-Dichlorophenylacetic acid

Internal Standard

M-8151-IS — **1 x 1 mL**
M-8151-IS-PAK — ***SAVE*** — **5 x 1 mL**
0.25 mg/mL in Acetone

- 4,4'-Dibromooctafluorobiphenyl

❄ ColdPAK required to maintain integrity of product.

Methyl Derivatives Solutions (Varied Concentration)

M-8150 — **1 x 1 mL**
0.1 mg/mL in MeOH, except MCPA and MCPP — 10 comps.

- 2,4-D ME
- Dalapon ME
- 2,4-DB ME
- Dicamba ME
- Dichlorprop ME
- Dinoseb ME
- MCPA ME (10 mg/mL)
- MCPP ME (10 mg/mL)
- 2,4,5-TP ME
- 2,4,5-T ME

Methyl Derivatives Solutions (Equal Concentration)

M-8150M-SET — **2 x 1 mL (M-8150M, M-8150M-2)**

M-8150M — **1 x 1 mL**
M-8150M-PAK — ***SAVE*** — **5 x 1 mL**
20 µg/mL each in Hexane — 8 comps.

- 2,4-D ME
- Dalapon ME
- 2,4-DB ME
- Dicamba ME
- Dichlorprop ME
- Dinoseb ME
- 2,4,5-TP ME
- 2,4,5-T ME

M-8150M-2 — **1 x 1 mL**
M-8150M-2-PAK — ***SAVE*** — **5 x 1 mL**
2,000 µg/mL each in Hexane — 2 comps.

- MCPA ME
- MCPP ME

Methyl Derivative Surrogate Standard

M-515-SS — **1 x 1 mL**
M-515-SS-PAK — ***SAVE*** — **5 x 1 mL**
0.1 mg/mL in MtBE

- 2,4-Dichlorophenylacetic acid methyl ester

PFB Derivatized Chlorinated Herbicides

M-8150-02-PFB — **1 x 1 mL**
0.1 mg/mL in MtBE

- 2,4-D-PFB

M-8150-04-PFB — **1 x 1 mL**
0.1 mg/mL in MtBE

- 2,4,5-TP-PFB

Method 8151/8151A Chlorinated Herbicides by GC/ECD

Methyl Derivatives

M-8151 **1 x 1 mL**
0.1 mg/mL each in MtBE, except MCPA & MCPP 18 comps.

Acifluorfen	Dichlorprop
Bentazon	Dinoseb
Chloramben	MCPA (10 mg/mL)
2,4-D	MCPP (10 mg/mL)
Dalapon	4-Nitrophenol
2,4-DB	Pentachlorophenol
DCPA	Picloram
Dicamba	2,4,5-TP
3,5-Dichlorobenzoic acid	2,4,5-T

Underivatized

M-8151A **1 x 1 mL**
M-8151A-PAK ***SAVE*** **5 x 1 mL**
0.1 mg/mL each in Acetone, except MCPA & MCPP 18 comps.

Acifluorfen	Dichlorprop
Bentazon	Dinoseb
Chloramben	MCPA (10 mg/mL)
2,4-D	MCPP (10 mg/mL)
Dalapon	4-Nitrophenol
2,4-DB	Pentachlorophenol
DCPA diacid	Picloram
Dicamba	2,4,5-TP
3,5-Dichlorobenzoic acid	2,4,5-T

Internal Standards

M-8151-IS **1 x 1 mL**
M-8151-IS-PAK ***SAVE*** **5 x 1 mL**
0.25 mg/mL in Acetone

4,4'-Dibromooctafluorobiphenyl

M-8151-IS-2 **1 x 1 mL**
M-8151-IS-2-PAK ***SAVE*** **5 x 1 mL**
0.25 mg/mL in Acetone

1,4-Dichlorobenzene

Surrogate Standards

M-515-SS **1 x 1 mL**
M-515-SS-PAK ***SAVE*** **5 x 1 mL**
0.1 mg/mL in MtBE

2,4-Dichlorophenylacetic acid methyl ester

M-8150B-SS **1 x 1 mL**
M-8150B-SS-PAK ***SAVE*** **5 x 1 mL**
0.1 mg/mL in Acetone
M-8150B-SS-10X **1 x 1 mL**
1.0 mg/mL in Acetone

2,4-Dichlorophenylacetic acid

Method 8240 Volatile Organics by GC/MS

M-8240A ❄ **1 x 1 mL**
0.2 mg/mL each in MeOH 41 comps.

Acetone	1,2-Dichloropropane
Acrolein	*cis*-1,3-Dichloropropene *
Acrylonitrile	*trans*-1,3-Dichloropropene **
Benzene	Ethanol
Bromodichloromethane	Ethylbenzene
Bromoform	2-Hexanone
2-Butanone	Iodomethane
Carbon disulfide	4-Methyl-2-pentanone
Carbon tetrachloride	Methylene chloride
Chlorobenzene	Styrene
Chloroform	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
cis-1,4-Dichloro-2-butene +	Toluene
trans-1,4-Dichloro-2-butene ++	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,3-Dichlorobenzene	Trichloroethene
1,4-Dichlorobenzene	Vinyl acetate
1,1-Dichloroethane	*o*-Xylene
1,2-Dichloroethane	*m*-Xylene
1,1-Dichloroethene	*p*-Xylene
trans-1,2-Dichloroethene	

* cis (1.06 x conc.)
** trans (0.94 x conc.)

\+ cis (0.1 mg/mL)
++ trans (0.1 mg/mL)

Technical Note

Acrolein quickly polymerizes and degrades in methanol solutions; therefore these standards have a short shelf life.

❄ ColdPAK required to maintain integrity of product.

Auxiliary Standards for all 8240 Methods (VOC analysis) see Catalog Number Index

Surrogate Standard	see CLP-PS-10X
Internal Standard	see CLP-PI-2.5X
Gases	see M-601B
Matrix Spiking Solution	see CLP-003R
Tuning Standard	see CLP-004
System Performance	see CLP-021
Calibration Check Compounds	see CLP-020

Method 8240A Volatiles by GC/MS

APP-9-048-R1-2X **1 x 1 mL**
0.2 mg/mL in MeOH

Chloroprene (Xylene-free)

S-354-2 **1 x 1 mL**
0.2 mg/mL in Isooctane

Ethylene oxide

Method 8240 & 8260 Volatile Organic Compounds by GC/MS

The following solutions can be used to construct a single calibration curve containing the volatile analytes in Appendix IX for analysis by either Method 8240 or Method 8260 by GC/MS.

Bromochloromethane is excluded in the calibration solutions since it is used as an internal standard in Method 8240. If Method 8260 methodology is used, the addition of bromochloromethane from the internal standard mix can serve as the source for bromochloromethane to complement the target compound list.

Liquids (53 components, **does not include Bromochloromethane**)

Benzene (01)
Bromobenzene (02)
Bromodichloromethane (04)
Bromoform (05)
n-Butylbenzene (07)
sec-Butylbenzene (08)
tert-Butylbenzene (09)
Carbon tetrachloride (10)
Chlorobenzene (11)
Chloroform (13)
2-Chlorotoluene (15)
4-Chlorotoluene (16)
Dibromochloromethane (17)
1,2-Dibromo-3-chloropropane (18)
1,2-Dibromoethane (19)
Dibromomethane (20)
1,2-Dichlorobenzene (21)
1,3-Dichlorobenzene (22)
1,4-Dichlorobenzene (23)
1,1-Dichloroethane (25)
1,2-Dichloroethane (26)
1,1-Dichloroethene (27)
cis-1,2-Dichloroethene (28)
trans-1,2-Dichloroethene (29)
1,2-Dichloropropane (30)
1,3-Dichloropropane (31)
2,2-Dichloropropane (32)
1,1-Dichloropropene (33)
cis-1,3-Dichloropropene (34A) *
trans-1,3-Dichloropropene (34B) **
Ethylbenzene (35)
Hexachlorobutadiene (36)
Isopropylbenzene (37)
p-Isopropyltoluene (38)
Methylene chloride (39)
Naphthalene (40)
n-Propylbenzene (41)
Styrene (42)
1,1,1,2-Tetrachloroethane (43)
1,1,2,2-Tetrachloroethane (44)
Tetrachloroethene (45)
Toluene (46)
1,2,3-Trichlorobenzene (47)
1,2,4-Trichlorobenzene (48)
1,1,1-Trichloroethane (49)
1,1,2-Trichloroethane (50)
Trichloroethene (51)
1,2,3-Trichloropropane (53)
1,2,4-Trimethylbenzene (54)
1,3,5-Trimethylbenzene (55)
o-Xylene (57)
m-Xylene (58)
p-Xylene (59)

* cis (1.06 x conc.)
** trans (0.94 x conc.)

6 Gas Components

Bromomethane (06)
Chloroethane (12)
Chloromethane (14)
Dichlorodifluoromethane (24)
Trichlorofluoromethane (52)
Vinyl chloride (56)

Liquids (53 components)

M-502A-R2 — **1 x 1 mL**
M-502A-R2-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH

M-502A-R2-10X — **1 x 1 mL**
M-502A-R2-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 53 comps.

Gases (6 components)

M-502B — **1 x 1 mL**
M-502B-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH

M-502B-10X — **1 x 1 mL**
M-502B-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

Liquid and Gas Sets

M-502A-R2/B-SET — **2 x 1 mL**
0.2 mg/mL each in MeOH — **(M-502A-R2, M-502B)**
M-502A-R2/B-10X-SET — **2 x 1 mL**
2.0 mg/mL each in MeOH — **(M-502A-R2-10X, M-502B-10X)**

All 60 liquid and gas components in One Solution

Liquids (54 comps.) and Gases (6 comps.)

M-502 — **1 x 1 mL**
M-502-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH

M-502-10X — **1 x 1 mL**
M-502-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 60 comps.

See also Method 8240 & 8260

Appendix IX Volatiles

M-8240C — **1 x 1 mL**
0.2 mg/mL each in MeOH — 17 comps.

Acetonitrile
Allyl chloride
1,2-Dibromo-3-chloropropane
Dibromomethane
1,2-Dibromoethane
1,4-Dioxane
Ethyl methacrylate
Isobutyl alcohol
Methacrylonitrile
Methyl methacrylate
Nitrobenzene
Pentachloroethane
Propionitrile
Pyridine
1,1,1,2-Tetrachloroethane
1,2,4-Trichlorobenzene
1,2,3-Trichloropropane

M-8240C-R3 — **1 x 1 mL**
At stated conc. in MeOH — 12 comps.

Acetonitrile	(2.0 mg/mL)	Ethyl methacrylate	(0.2 mg/mL)
Allyl chloride	(0.2 mg/mL)	Isobutyl alcohol	(4.0 mg/mL)
cis-1,4-Dichloro-2-butene	(0.2 mg/mL)	Methacrylonitrile	(2.0 mg/mL)
trans-1,4-Dichloro-2-butene	(0.2 mg/mL)	Methyl methacrylate	(0.2 mg/mL)
1,4-Dioxane	(4.0 mg/mL)	Pentachloroethane	(0.2 mg/mL)
Ethanol	(4.0 mg/mL)	Propionitrile	(2.0 mg/mL)

M-8240C-R3-10X — **1 x 1 mL**
At stated conc. in MeOH — 12 comps.

Acetonitrile	(20 mg/mL)	Ethyl methacrylate	(2.0 mg/mL)
Allyl chloride	(2.0 mg/mL)	Isobutyl alcohol	(40 mg/mL)
cis-1,4-Dichloro-2-butene	(2.0 mg/mL)	Methacrylonitrile	(20 mg/mL)
trans-1,4-Dichloro-2-butene	(2.0 mg/mL)	Methyl methacrylate	(2.0 mg/mL)
1,4-Dioxane	(40 mg/mL)	Pentachloroethane	(2.0 mg/mL)
Ethanol	(40 mg/mL)	Propionitrile	(20 mg/mL)

Same as M-8240C-R3-10X without Pentachloroethane

M-8240C-R6 — **1 x 1 mL**
At stated conc. in MeOH — 11 comps.

Acetonitrile	(20 mg/mL)	Ethyl methacrylate	(2.0 mg/mL)
Allyl chloride	(2.0 mg/mL)	Isobutyl alcohol	(40 mg/mL)
cis-1,4-Dichloro-2-butene	(2.0 mg/mL)	Methacrylonitrile	(20 mg/mL)
trans-1,4-Dichloro-2-butene	(2.0 mg/mL)	Methyl methacrylate	(2.0 mg/mL)
1,4-Dioxane	(40 mg/mL)	Propionitrile	(20 mg/mL)
Ethanol	(40 mg/mL)		

M-8260-ADD ❄ — **1 x 1 mL**
0.2 mg/mL each in MeOH — 8 comps.
M-8260-ADD-10X ❄ — **1 x 1 mL**
M-8260-ADD-10X-PAK ❄ — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 8 comps.

Acetone
2-Butanone
Carbon disulfide
2-Chloroethylvinyl ether
2-Hexanone
Iodomethane
4-Methyl-2-pentanone
Vinyl acetate

M-603 — **1 x 1 mL**
M-603-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Water — 2 comps.
M-603-10X — **1 x 1 mL**
10.0 mg/mL each in Water — 2 comps.
M-603-M-0.1X ❄ — **1 x 1 mL**
100 µg/mL each in MeOH:Water (90:10) — 2 comps.
M-603-M-5X ❄ — **1 x 1 mL**
5 mg/mL each in MeOH:Water (90:10) — 2 comps.

Acrolein
Acrylonitrile

❄ ColdPAK required to maintain integrity of product.

Method 8260B Volatile Organic Compounds by GC/MS

The following formulations have been put together for a complete 8260B target compound list. We have utilized our standard M-502A-R containing the 54 typical analytes found in this method and a number of other EPA methods. In addition, we have tried to minimize the number of additional standards required to get the complete analyte list, while still addressing the various chromatographic problems associated to specific analytes.

Liquids

M-502A-R — **1 x 1 mL**
0.2 mg/mL each in MeOH — 54 comps.

- Benzene (01)
- Bromobenzene (02)
- Bromochloromethane (03)
- Bromodichloromethane (04)
- Bromoform (05)
- *n*-Butylbenzene (07)
- *sec*-Butylbenzene (08)
- *tert*-Butylbenzene (09)
- Carbon tetrachloride (10)
- Chlorobenzene (11)
- Chloroform (13)
- 2-Chlorotoluene (15)
- 4-Chlorotoluene (16)
- Dibromochloromethane (17)
- 1,2-Dibromo-3-chloropropane (18)
- 1,2-Dibromoethane (19)
- Dibromomethane (20)
- 1,2-Dichlorobenzene (21)
- 1,3-Dichlorobenzene (22)
- 1,4-Dichlorobenzene (23)
- 1,1-Dichloroethane (25)
- 1,2-Dichloroethane (26)
- 1,1-Dichloroethene (27)
- *cis*-1,2-Dichloroethene (28)
- *trans*-1,2-Dichloroethene (29)
- 1,2-Dichloropropane (30)
- 1,3-Dichloropropane (31)
- 2,2-Dichloropropane (32)
- 1,1-Dichloropropene (33)
- *cis*-1,3-Dichloropropene (34A) *
- *trans*-1,3-Dichloropropene (34B) **
- Ethylbenzene (35)
- Hexachlorobutadiene (36)
- Isopropylbenzene *(Cumene)* (37)
- *p*-Isopropyltoluene *(p-Cymene)* (38)
- Methylene chloride (39)
- Naphthalene (40)
- *n*-Propylbenzene (41)
- Styrene (42)
- 1,1,1,2-Tetrachloroethane (43)
- 1,1,2,2-Tetrachloroethane (44)
- Tetrachloroethene (45)
- Toluene (46)
- 1,2,3-Trichlorobenzene (47)
- 1,2,4-Trichlorobenzene (48)
- 1,1,1-Trichloroethane (49)
- 1,1,2-Trichloroethane (50)
- Trichloroethene (51)
- 1,2,3-Trichloropropane (53)
- 1,2,4-Trimethylbenzene (54)
- 1,3,5-Trimethylbenzene (55)
- *o*-Xylene (57)
- *m*-Xylene (58)
- *p*-Xylene (59)

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Gases

M-502B — **1 x 1 mL**
0.2 mg/mL each in MeOH — 6 comps.

- Bromomethane (06)
- Chloroethane (12)
- Chloromethane (14)
- Dichlorodifluoromethane (24)
- Trichlorofluoromethane (52)
- Vinyl chloride (56)

Volatile Organic Compounds (VOC) Set

M-502A-R/B-SET — **set of 2 x 1 mL**
(includes 1 mL of 54 liquids and 1 mL of 6 gas components)

M-603 — **1 x 1 mL**
1.0 mg/mL each in water — 2 comps.

- Acrolein
- Acrylonitrile

Technical Note

Acrolein quickly polymerizes and degrades in methanol solutions; therefore these standards have a short shelf life.

M-8240C-R3-10X — **1 x 1 mL**
At stated conc. in MeOH — 12 comps.

Acetonitrile	(20 mg/mL)	Ethyl methacrylate	(2.0 mg/mL)
Allyl chloride	(2.0 mg/mL)	Isobutyl alcohol	(40 mg/mL)
cis-1,4-Dichloro-2-butene	(2.0 mg/mL)	Methacrylonitrile	(20 mg/mL)
trans-1,4-Dichloro-2-butene	(2.0 mg/mL)	Methyl methacrylate	(2.0 mg/mL)
1,4-Dioxane	(40 mg/mL)	Pentachloroethane	(2.0 mg/mL)
Ethanol	(40 mg/mL)	Propionitrile	(20 mg/mL)

Technical Note

Bromoform, Chloroform and other light volatiles may exhibit reduced response from a contaminated trap, un-optimized purge & trap conditions, i.e. purge flow too high / low, or contamination / cold spot in the transfer line.

Additional VOCs by Method 8260B

M-8260B-01 — **1 x 1 mL**
M-8260B-01-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 11 comps.

- Benzyl chloride
- 1-Chlorobutane
- 1-Chlorohexane
- 1,2,3,4-Diepoxybutane
- Diethyl ether
- Nitrobenzene
- 2-Nitropropane
- Dibromofluoromethane
- Methyl acrylate
- MtBE
- Pentafluorobenzene

M-8260B-02 ❄ — **1 x 1 mL**
M-8260B-02-PAK ❄ — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 10 comps.

- Allyl alcohol
- 1-Butanol
- Chloroacetonitrile
- 3-Chloropropionitrile
- Epichlorohydrin
- Ethyl acetate
- Hexachloroethane
- 2-Hydroxypropionitrile
- Malonitrile
- Pyridine

M-8260B-03 — **1 x 1 mL**
M-8260B-03-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH:Water (90:10) — 4 comps.

- N-Nitrosodi-*n*-butylamine
- 2-Picoline
- Propylamine
- *o*-Toluidine

M-8260B-04 — **1 x 1 mL**
M-8260B-04-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 6 comps.

- t-Butanol
- 2-Chloroethanol
- 1,3-Dichloro-2-propanol
- 1-Propanol
- Isopropanol
- Propargyl alcohol

M-8260B-06-PAK ❄ — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 3 comps.

- Bromoacetone
- 2-Pentanone
- b-Propiolactone

Chloroprene (Xylene-Free)

APP-9-048-R1-10X — **1 x 1 mL**
1.0 mg/mL in MeOH
APP-9-048-R1-20X — **1 x 1 mL**
2.0 mg/mL in MeOH

Ethylene oxide

M-8015B/5031-14-R1 ❄ — **1 x 1 mL**
5 mg/mL in H_2O

Chloral hydrate

M-E-1179-M — **1 x 1 mL**
1.0 mg/mL in MeOH

M-8260B continued to the next page

❄ To delay premature breakdown of thermally labile products in transit a ColdPAK is required.

Method 8260B (Continued) Volatile Organic Compounds by GC/MS

Internal Standards

M-8260-IS		**1 x 1 mL**
M-8260-IS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		4 comps.
M-8260-IS-10X		**1 x 1 mL**
M-8260-IS-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

Chlorobenzene-d_5
1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4
Pentafluorobenzene

M-8260-IS-R		**1 x 1 mL**
M-8260-IS-R-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		4 comps.
M-8260-IS-R-10X		**1 x 1 mL**
M-8260-IS-R-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

2-Bromo-1-chloropropane
1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4
Pentafluorobenzene

M-8260A/B-IS		**1 x 1 mL**
M-8260A/B-IS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		3 comps.
M-8260A/B-IS-10X		**1 x 1 mL**
M-8260A/B-IS-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		3 comps.

Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
Fluorobenzene

Combined Internal/Surrogate Standard VOA Mix

M-8260A/B-IS/SS		**1 x 1 mL**
M-8260A/B-IS/SS-PAK	***SAVE***	**5 x 1 mL**
200 µg/mL each in MeOH		7 comps.
M-8260A/B-IS/SS-10X		**1 x 1 mL**
M-8260A/B-IS/SS-10XPAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		7 comps.

p-Bromofluorobenzene
Chlorobenzene-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
Fluorobenzene
Toluene-d_8

Surrogate Standards

M-8260-SS		**1 x 1 mL**
M-8260-SS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		3 comps.
M-8260-SS-10X		**1 x 1 mL**
M-8260-SS-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		3 comps.

4-Bromofluorobenzene
Dibromofluoromethane
Toluene-d_8

M-8260-SS-2	**1 x 1 mL**
0.2 mg/mL in MeOH	
M-8260-SS-2-10X	**1 x 1 mL**
2.0 mg/mL in MeOH	

Dibromofluoromethane

M-8260A/B-SS		**1 x 1 mL**
M-8260A/B-SS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		4 comps.
M-8260A/B-SS-10X		**1 x 1 mL**
M-8260A/B-SS-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

p-Bromofluorobenzene
Dibromofluoromethane
1,2-Dichloroethane-d_4
Toluene-d_8

Tens of thousands of Standards Ready-to-Ship

Method 8240 & 8260 Volatile Organic Compounds Auxiliary Standards

Internal Standard VOA

M-8240/60-IS		**1 x 1 mL**
M-8240/60-IS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		5 comps.
M-8240/60-IS-10X		**1 x 1 mL**
M-8240/60-IS-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		5 comps.

Bromochloromethane
Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
1,4-Difluorobenzene
Pentafluorobenzene

Surrogate Standard VOA

M-8240/60-SS		**1 x 1 mL**
M-8240/60-SS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		4 comps.
M-8240/60-SS-10X		**1 x 1 mL**
M-8240/60-SS-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		4 comps.

p-Bromofluorobenzene
Dibromofluoromethane
1,2-Dichloroethane-d_4
Toluene-d_8

Internal / Surrogate Standard VOA

M-8240/60-IS/SS		**1 x 1 mL**
M-8240/60-IS/SS-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		9 comps.
M-8240/60-IS/SS-10X		**1 x 1 mL**
M-8240/60-IS/SS-10XPAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		9 comps.

Bromochloromethane
p-Bromofluorobenzene
Chlorobenzene-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
1,4-Difluorobenzene
Pentafluorobenzene
Toluene-d_8

Volatile Calibration Check Compounds (CCC)

CLP-020		**1 x 1 mL**
CLP-020-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		6 comps.
CLP-020-10X		**1 x 1 mL**
CLP-020-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		6 comps.

Chloroform
1,1-Dichloroethene
1,2-Dichloropropane
Ethylbenzene
Toluene
Vinyl chloride

Volatile System Performance Check Compounds (SPCC)

CLP-021		**1 x 1 mL**
CLP-021-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		5 comps.
CLP-021-10X		**1 x 1 mL**
CLP-021-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		5 comps.

Bromoform
Chlorobenzene
Chloromethane
1,1-Dichloroethane
1,1,2,2-Tetrachloroethane

Instrument Performance Check Solutions

CLP-004		**1 x 1 mL**
CLP-004-PAK	***SAVE***	**5 x 1 mL**
25 µg/mL in MeOH		
CLP-004-10X		**1 x 1 mL**
CLP-004-10X-PAK	***SAVE***	**5 x 1 mL**
250 µg/mL in MeOH		
CLP-004-100X		**1 x 1 mL**
CLP-004-100X-PAK	***SAVE***	**5 x 1 mL**
2500 µg/mL in MeOH		

p-Bromofluorobenzene

Purgeable Organic Matrix Spiking Solutions

CLP-003-R		**1 x 1 mL**
CLP-003-R-PAK	***SAVE***	**5 x 1 mL**
0.25 mg/mL each in MeOH		5 comps.
CLP-003-R-10X		**1 x 1 mL**
CLP-003-R-10X-PAK	***SAVE***	**5 x 1 mL**
2.5 mg/mL each in MeOH		5 comps.

Benzene
Chlorobenzene
1,1-Dichloroethene
Toluene
Trichloroethene

Method 8270C/D Semi-Volatile by GC/MS as core mixtures

The primary analytes typically analyzed in Method 8270 version C and D have been formulated based on one of the following considerations: large core mixes, analyte retention time association to ISTD's, similar functional groups, Third Party Certified Standards or as working level Ready-to-Inject standards.

Use of these Method 8270C/D components in 5 mixtures can save you time and money in preparing your calibration curves. Four high concentration solutions CLP-HC-BN-SET, CLP-HC-A-R, CLP-HC-X1 and Z-014E can be combined to give you the 92 typical analytes needed for Method 8270C/D. Product Z-014E-R can be used in lieu of Z-014E for those labs interested in adding pyridine to their target list.

These mixtures can also serve as your **second source** requirements since they are independently prepared from product M-8270 (7 x 1 mL).

Base-Neutral Mixture (44 components)

CLP-HC-BN-R

- Acenaphthene
- Acenaphthylene
- Anthracene
- Azobenzene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[a]pyrene
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz[a,h]anthracene
- Di-*n*-butyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Diethyl phthalate
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-cd]pyrene
- Isophorone
- Naphthalene
- Nitrobenzene
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- Phenanthrene
- Pyrene
- 1,2,4-Trichlorobenzene

Benzidine Mixture (2 comps.)

Z-014F

- Benzidine
- 3,3'-Dichlorobenzidine

Technical Note

Azobenzene was substituted for 1,2-diphenylhydrazine since it pyrolyses to azobenzene under GC operating conditions.

Base-Neutrals

CLP-HC-BN-R — **1 x 1 mL**
2.0 mg/mL each in Benzene:CH_2Cl_2:AcCN (40:40:20) — 44 comps.

CLP-HC-BN-R-PAK *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Benzene:CH_2Cl_2:AcCN (40:40:20) — **44 comps.**

Benzidine

Z-014F — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

Base-Neutral and Benzidine Sets

CLP-HC-BN-SET — **2 x 1 mL (CLP-HC-BN-R, Z-014F)**

CLP-HC-BN-SET-PAK *SAVE* — **5 x (2 x 1 mL) 5 x (CLP-HC-BN-R, Z-014F)**

Additional Analyte Solutions

Acid Composite Mixture

CLP-HC-A-R — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 19 comps.

- Benzoic acid
- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- *o*-Cresol
- *p*-Cresol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 4,6-Dinitro-2-methylphenol
- 2,4-Dinitrophenol
- Ethyl methanesulfonate
- Methyl methanesulfonate
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Composite #1

Z-014E — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

Composite #2

Z-014E-R — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Pyridine

Composite #3A

CLP-HC-X1 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 19 comps.

- Acetophenone
- 4-Aminobiphenyl
- 1-Chloronaphthalene
- Dibenz[a,j]acridine
- *p*-Dimethylaminoazobenzene
- 7,12-Dimethylbenz[a]anthracene
- α,α-Dimethylphenethylamine
- Diphenylamine
- 3-Methylcholanthrene
- 1-Naphthylamine
- 2-Naphthylamine
- N-Nitrosodi-*n*-butylamine
- N-Nitrosopiperidine
- Pentachlorobenzene
- Pentachloronitrobenzene
- Phenacetin
- 2-Picoline
- Pronamide
- 1,2,4,5-Tetrachlorobenzene

M-8270-07

M-8270-07 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 15 comps.

- Aramite
- Chlorobenzilate
- Diallate
- 2,4-D
- Dimethoate
- Dinoseb
- Disulfoton
- Famphur
- Kepone
- Methyl parathion
- Parathion
- Phorate
- Silvex *(2,4,5-TP)*
- Sulfotep
- Thionazin

M-8270-08

M-8270-08 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- 3,3'-Dimethyl benzidine
- 4-Nitroquinoline-1-oxide
- N-Nitrosodiethylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopyrrolidine
- 5-Nitro-*o*-toluidine
- *p*-Phenylenediamine
- *o*-Toluidine

M-8270-09

M-8270-09 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 10 comps.

- 2-Acetyl aminofluorene
- *m*-Dinitrobenzene
- Hexachlorophene
- Hexachloropropene
- Isodrin
- Isosafrole
- Methapyrilene
- 1,4-Naphthoquinone
- Safrole
- 0,0,0-Triethyl phosphorothioate

Method 8270C/D (Continued) Auxiliary Standards

Internal Standard

Z-014J — **1 x 1 mL**
Z-014J-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standards

M-8270-SS — **1 x 1 mL**
M-8270-SS-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d_5
- Phenol-d_5
- *p*-Terphenyl-d_{14}
- 2,4,6-Tribromophenol

M-8270-SS-R — **1 x 1 mL**
M-8270-SS-R-PAK — *SAVE* — **5 x 1 mL**
At stated conc. each in CH_2Cl_2:MeOH (80:20) — 6 comps.

2-Fluorobiphenyl	(1.0 mg/mL)	Phenol-d_5	(2.0 mg/mL)
2-Fluorophenol	(2.0 mg/mL)	Terphenyl-d_{14}	(1.0 mg/mL)
Nitrobenzene-d_5	(1.0 mg/mL)	2,4,6-Tribromophenol	(2.0 mg/mL)

Base/Neutrals & Acids - Matrix Standard Spiking Solutions

CLP-007-SET — **2 x 1 mL**
CLP-007-SET-PAK — *SAVE* — **5 x (2 x 1 mL) (CLP-007A, CLP-007B)**

Base/Neutrals

CLP-007A — **1 x 1 mL**
1.0 mg/mL each in MeOH — 6 comps.

- Acenaphthene
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- N-nitroso-di-*n*-propylamine
- Pyrene
- 1,2,4-Trichlorobenzene

Acids

CLP-007B — **1 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

- 2-Chlorophenol
- 4-Chloro-3-methylphenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol

GC/MS Tuning Standard

M-625-TS-20X — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 4 comps.

- Benzidine
- p,p'-DDT
- DFTPP
- Pentachlorophenol

Calibration Check Compounds (CCC)

CLP-011-SET — **set of 2 x 1 mL (CLP-011A, CLP-011B)**

Base/Neutrals

CLP-011A — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 7 comps.

- Acenaphthene
- Benzo[a]pyrene
- 1,4-Dichlorobenzene
- Di-*n*-octyl phthalate
- Hexachlorobutadiene
- Fluoranthene
- N-nitroso-diphenylamine

Acids

CLP-011B — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

System Performance Check Compounds (SPCC)

CLP-010 — **1 x 1 mL**
0.2 mg/mL each in CH_2Cl_2 — 4 comps.
CLP-010-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- 2,4-Dinitrophenol
- Hexachlorocyclopentadiene
- 4-Nitrophenol
- N-nitroso-*di*-*n*-propylamine

Multi-Component Analytes
Polychlorinated Biphenyls, Chlordane & Toxaphene

Each at 1,000 µg/mL in Hexane

Aroclors #	Cat. No.	1 mL	AccuPAK™ (5 x 1 mL) SAVE Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	
Pesticides				
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK	
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK	

Method 8270C/D (Continued) Semi-Volatiles by Capillary Column GC/MS

These Method 8270C/D formulations are designed based on the association of the analyte to a specific internal standard. These formulations allow for easy preparation of the typical analytes in the calibration curve. In addition, instrument/method problems can be rapidly diagnosed by examining those specific analytes and the associated internal standard in the affected part of the analysis.

Save when ordering a complete set over individual solutions

Complete 8270 Method Mixture Set

M-8270-SET — **7 x 1 mL (M-8270-01,M-8270-02,M-8270-03,M-8270-04A,M-8270-04B,M-8270-05,M-8270-06)**

M-8270-R-SET — **7 x 1 mL (M-8270-01,M-8270-02,M-8270-03,M-8270-04A,M-8270-04B-R1,M-8270-05,M-8270-06)**

M-8270-01 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 17 comps.

- Aniline
- Benzyl alcohol
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 2-Chlorophenol
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylmethanesulfonate
- Hexachloroethane
- Methylmethanesulfonate
- 2-Methylphenol
- 4-Methylphenol
- N-Nitrosodimethylamine
- N-Nitrosodi-*n*-propylamine
- Phenol
- 2-Picoline

M-8270-02 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 18 comps.

- Acetophenone
- Benzoic acid
- bis(2-Chloroethoxy)methane
- 4-Chloroaniline
- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- α,α-Dimethylphenethylamine
- 2,4-Dimethylphenol
- Hexachlorobutadiene
- Isophorone
- 2-Methylnaphthalene
- Naphthalene
- Nitrobenzene
- 2-Nitrophenol
- N-Nitroso-di-*n*-butylamine
- N-Nitrosopiperidine
- 1,2,4-Trichlorobenzene

M-8270-03 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 24 comps.

- Acenaphthene
- Acenaphthylene
- 1-Chloronaphthalene
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Dibenzofuran
- Diethyl phthalate
- Dimethyl phthalate
- 2,4-Dinitrophenol
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Fluorene
- Hexachlorocyclopentadiene
- 1-Naphthylamine
- 2-Naphthylamine
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- 4-Nitrophenol
- Pentachlorobenzene
- 1,2,4,5-Tetrachlorobenzene
- 2,3,4,6-Tetrachlorophenol
- 2,4,6-Trichlorophenol
- 2,4,5-Trichlorophenol

M-8270-04A — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- 4-Aminobiphenyl
- Anthracene
- 4-Bromophenyl phenyl ether
- Di-*n*-butyl phthalate
- 4,6-Dinitro-2-methylphenol
- Fluoranthene
- Hexachlorobenzene
- Pentachlorophenol
- Phenanthrene

M-8270-04B — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Diphenylamine
- 1,2-Diphenylhydrazine
- N-Nitrosodiphenylamine
- Pentachloronitrobenzene
- Phenacetin
- Pronamide

M-8270-05 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Benzidine
- Benzo[a]anthracene
- bis(2-Ethylhexyl)phthalate
- Butylbenzylphthalate
- Chrysene
- 3,3'-Dichlorobenzidine
- *p*-Dimethylaminoazobenzene
- Pyrene

M-8270-06 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 10 comps.

- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[a]pyrene
- Dibenz[a,j]acridine
- Dibenz[a,h]anthracene
- 7,12-Dimethylbenz[a]anthracene
- Di-*n*-octylphthalate
- Indeno[1,2,3-cd]pyrene
- 3-Methylcholanthrene

Technical Note

Under EPA recommended GC conditions (Method 8270) the analyte 1,2-Diphenylhydrazine is converted in varying degrees to Azobenzene and breakdown products. According to our study, the use of an injection port temperature range (240°C - 300°C) will cause the 1,2-Diphenylhydrazine to break down.

Substituting Azobenzene for 1,2-Diphenylhydrazine will allow analysis yielding a single peak regardless of the EPA recommended injection port temperature range used.

Alternate Formulation

M-8270-04B-R1 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Azobenzene
- Diphenylamine
- N-Nitrosodiphenylamine
- Pentachloronitrobenzene
- Phenacetin
- Pronamide

M-8270-07 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 15 comps.

- Aramite
- Chlorobenzilate
- Diallate
- 2,4-D
- Dimethoate
- Dinoseb
- Disulfoton
- Famphur
- Kepone
- Methyl parathion
- Parathion
- Phorate
- Silvex *(2,4,5-TP)*
- Sulfotep
- Thionazin

M-8270-08 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- 3,3'-Dimethyl benzidine
- 4-Nitroquinoline-1-oxide
- N-Nitrosodiethylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopyrrolidine
- 5-Nitro-*o*-toluidine
- *p*-Phenylenediamine
- *o*-Toluidine

M-8270-09 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 10 comps.

- 2-Acetyl aminofluorene
- 1,3-Dinitrobenzene
- Hexachlorophene
- Hexachloropropene
- Isodrin
- Isosafrole
- Methapyrilene
- 1,4-Naphthoquinone
- Safrole
- O,O,O-Triethylphosphorothioate

Method 8270C/D (Continued) Appendix IX Semi-Volatiles Analyzed by Method 8270

M-8270-10 **1 x 1 mL**
2.0 mg/mL in MeOH

sym-Trinitrobenzene

M-8270-10-R **1 x 1 mL**
2.0 mg/mL each in MeOH 2 comps.

Pyridine
sym-Trinitrobenzene

Additions to Method 8270

M-8270-13-SET **2 x 1 mL**
(M-8270-13A-R, M-8270-13B-R)

M-8270-13A-R **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 12 comps.

4-Aminoazobenzene
3-Amino-9-ethylcarbazole
o-Anisidine
5-Chloro-2-methylaniline
p-Cresidine
2,4-Diaminotoluene
4,4'-Methylenebis(N,N-dimethylaniline)
4,4'-Methylene bis(2-chloroaniline)
4,4'-Oxydianiline
2-Picoline
Pyridine
2,4,5-Trimethylaniline

M-8270-13B-R **1 x 1 mL**
2.0 mg/mL each in THF 3 comps.

2-Aminoanthraquinone
4-Chloro-1,2-phenylenediamine
4-Chloro-1,3-phenylenediamine

M-8270-14-SET **3 x 1 mL**
(M-8270-14A, M-8270-14B, M-8270-14C)

M-8270-14A **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 6 comps.

m-Cresol
o-Cresol
Resorcinol
Thiophenol
tris(2,3-Dibromopropyl)phosphate
Tri-*p*-tolyl phosphate

M-8270-14B **1 x 1 mL**
2.0 mg/mL each in THF 5 comps.

p-Benzoquinone
Hydroquinone
Maleic anhydride
Phthalic anhydride
Trimethyl phosphate

M-8270-14C ❄ **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:MeOH (75:25) 5 comps.

1-Acetyl-2-thiourea
Diethyl sulfate
Hexamethylphosphoramide
3-Picolyl chloride HCL
Toluene diisocyanate

M-8270-15 **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2:MeOH (90:10) 13 comps.

Dibenzo[a,e]pyrene
1,2-Dibromo-3-chloropropane
Diethyl stilbestrol
1,2-Dinitrobenzene
1,4-Dinitrobenzene
5,5-Diphenylhydantoin
Mestranol
Nicotine
5-Nitroacenapthene
5-Nitro-*o*-anisidine
4-Nitrobiphenyl
Propylthiouracil
Strychnine

Pesticides

M-8270-16 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 10 comps.

Anilazine
Azinphos methyl
Barbamate
Demeton (mixed isomers)
Dichlone
Dioxathion
Mirex
Sulfoxide
Sulfallate
Trifluralin

M-8270-17 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 7 comps.

Brominal
Captafol
Captan
Dinex
Dinocap
Fluchloralin
Nitrofen

Carbamates/Pesticides

M-8270-18 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 6 comps.

Carbaryl
Carbofuran
Ethyl carbamate
Mexacarbate
Schradan (Octamethylpyrophosphoramide)
Phenobarbital

Pesticides

M-8270-19 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 12 comps.

Carbophenothion
Coumaphos
EPN
Ethion
Fensulfothion
Fenthion
Leptophos
Malathion
Phosalone
Imidan (Phosmet)
Terbufos
Tetrachlorvinphos

M-8270-20 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 9 comps.

Chlorfenvinphos
Ciodrin (Crotoxyphos)
Dichlorvos
Dicrotophos
Mevinphos
Monocrotophos
Naled
Phosphamidon
TEPP (Tetraethyl pyrophosphate)

Azo Dye

RAC-12-10X **1 x 1 mL**
1.0 mg/mL in CH_2Cl_2

3,3'-Dimethoxylbenzidine

Pesticide Mix

Z-014C-R **1 x 1 mL**
Z-014C-R-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps.

Aldrin
α-BHC
β-BHC
γ-BHC
δ-BHC
α-Chlordane
γ-Chlordane
4,4'-DDD
4,4'-DDE
4,4'-DDT
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Methoxychlor

❄ ColdPAK required to maintain integrity of product.

Method 8270C/D 5 point Semi-Volatile Calibration Curve

AccuStandard provides a 5 point semi-volatile calibration curve in 2 formats. One calibration curve already incorporates the internal standards in each level of the curve. To begin analysis, the chemist just cracks the ampule open and transfers the content to the autosampler vial. The second semi-volatile curve does not contain the internal standard.

The analytical chemist will need to add 10 µL of internal standard to each level of the curve and the environmental samples as the vials are placed on the GC/MS. We offer both types of curves to meet your laboratory's preference regarding the addition of internal standards.

Target Analytes *(Semi-Volatiles)*

Acenaphthene
Acenaphthylene
Aniline
Anthracene
Azobenzene
Benz[a]anthracene
Benzidine
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzoic acid
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
Carbazole
4-Chloroaniline
bis(2-Chloroethoxy)methane
bis(2-Chloroethyl) ether
bis(2-Chloro-1-methylethyl) ether
4-Chloro-3-methylphenol
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol
p-Cresol
Dibenz[a,h]anthracene
Dibenzofuran
Di-*n*-butyl phthalate
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
Diethyl phthalate
2,4-Dimethylphenol
Dimethyl phthalate
4,6-Dinitro-2-methylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-*n*-octyl phthalate
bis(2-Ethylhexyl)phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno[1,2,3-cd]pyrene
Isophorone
2-Methylnaphthalene
Naphthalene
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
Nitrobenzene
2-Nitrophenol
4-Nitrophenol
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
N-Nitrosodi-*n*-propylamine
Pentachlorophenol
Phenanthrene
Phenol
Pyrene
Pyridine
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol

Internal Standard Analytes

Acenaphthene-d_{10}
Chrysene-d_{12}
1,4-Dichlorobenzene-d_4
Naphthalene-d_8
Perylene-d_{12}
Phenanthrene-d_{10}

Surrogates Analytes

2-Fluorobiphenyl
2-Fluorophenol
Nitrobenzene-d_5
Phenol-d_5
p-Terphenyl-d_{14}
2,4,6-Tribromophenol

Working Level Semi-Volatiles Curve
With Internal Standards

M-8270-CAL-IS-SET — **5 x 1 mL**
All solutions in CH_2Cl_2 — 83 comps.

Components *(units in µg/mL)*	Level 1	Level 2 *(2.5X)*	Level 3 *(4X)*	Level 4 *(6X)*	Level 5 *(8X)*
Target Analytes	20	50	80	120	160
Surrogate Analytes	20	50	80	120	160
Internal Analytes	40	40	40	40	40

Level 2 *Daily QC Working Level*
CCC (with Internal Standard)

M-8270-IS-WL-2.5X-5ML — **1 x 5 mL**
M-8270-IS-WL-2.5X-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2

Technical Note

2,4-Dinitrophenol, 4-nitrophenol, and pentachlorophenol are susceptible to adsorption on active surfaces found in injection ports or contaminated columns.

Working Level Semi-Volatiles Curve
Without Internal Standards

M-8270-CAL-SET — **5 x 1 mL**
All solutions in CH_2Cl_2 — 77 comps.

Components *(units in µg/mL)*	Level 1	Level 2 *(2.5X)*	Level 3 *(4X)*	Level 4 *(6X)*	Level 5 *(8X)*
Target Analytes	20	50	80	120	160
Surrogate Analytes	20	50	80	120	160

Level 2 *Daily QC Working Level*
CCC (without Internal Standard)

M-8270-WL-2.5X-5ML — **1 x 5 mL**
M-8270-WL-2.5X-10ML — **1 x 10 mL**
At stated conc. in CH_2Cl_2

Ready-to-Inject

Method 8270C/D (Continued)

Matrix Spike *(SW 846)*

CLP-007-WL-50ML — **1 x 50 mL**
At stated conc. in MeOH — 11 comps.

4-Chloro-3-methyl phenol	(200 µg/mL)	1,4-Dichlorobenzene	(100 µg/mL)
2-Chlorophenol	(200 µg/mL)	2,4-Dinitrotoluene	(100 µg/mL)
4-Nitrophenol	(200 µg/mL)	N-Nitrosodi-*n*-propylamine	(100 µg/mL)
Pentachlorophenol	(200 µg/mL)	Pyrene	(100 µg/mL)
Phenol	(200 µg/mL)	1,2,4-Trichlorobenzene	(100 µg/mL)
Acenaphthene	(100 µg/mL)		

Prep Note

To help maximize instrument performance, add 10 µL of internal standard to a 1 mL sample extract.

Internal Standard

Z-014J — **1 x 1 mL**
Z-014J-PAK — ***SAVE*** — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

Acenaphthene-d_{10}	Naphthalene-d_8
Chrysene-d_{12}	Perylene-d_{12}
1,4-Dichlorobenzene-d_4	Phenanthrene-d_{10}

Benzidine Solution

M-625C-1-40X — **1 x 1 mL**
2.0 mg/mL in CH_2Cl_2

Benzidine

GC/MS Tuning Solution

M-625-TS — **1 x 1 mL**
M-625-TS-PAK — ***SAVE*** — **5 x 1 mL**
50 µg/mL each in CH_2Cl_2 — 4 comps.

Benzidine	DFTPP
p,p'-DDT	Pentachlorophenol

DFTPP GC/MS Tuning Solution

M-625C-3 — **1 x 1 mL**
M-625C-3-PAK — ***SAVE*** — **5 x 1 mL**
25 µg/mL in CH_2Cl_2

Decafluorotriphenylphosphine *(DFTPP)*

Technical Note

Benzidine and 3,3'-Dichlorobenzidine are easily oxidized and are light sensitive.

Matrix Spike *(3/90 SOW)*

CLP-007R-WL-50ML — **1 x 50 mL**
At stated conc. in MeOH — 11 comps.

4-Chloro-3-methyl phenol	(150 µg/mL)	1,4-Dichlorobenzene	(100 µg/mL)
2-Chlorophenol	(150 µg/mL)	2,4-Dinitrotoluene	(100 µg/mL)
4-Nitrophenol	(150 µg/mL)	N-Nitrosodi-*n*-propylamine	(100 µg/mL)
Pentachlorophenol	(150 µg/mL)	Pyrene	(100 µg/mL)
Phenol	(150 µg/mL)	1,2,4-Trichlorobenzene	(100 µg/mL)
Acenaphthene	(100 µg/mL)		

Method 8270 Surrogate Spiking Solutions

M-8270-SS-R-WL-PAK — **5 x 10 mL**
M-8270-SS-R-WL-VAP — **10 x 10 mL**
At stated conc. in CH_2Cl_2:MeOH (80:20) — 6 comps.

2-Fluorobiphenyl	(100 µg/mL)	Phenol-d_5	(200 µg/mL)
2-Fluorophenol	(200 µg/mL)	Terphenyl-d_{14}	(100 µg/mL)
Nitrobenzene-d_5	(100 µg/mL)	2,4,6-Tribromophenol	(200 µg/mL)

M-8270-SS-R — **1 x 1 mL**
M-8270-SS-R-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in CH_2Cl_2:MeOH (80:20) — 6 comps.

2-Fluorobiphenyl	(1000 µg/mL)	Phenol-d_5	(2000 µg/mL)
2-Fluorophenol	(2000 µg/mL)	Terphenyl-d_{14}	(1000 µg/mL)
Nitrobenzene-d_5	(1000 µg/mL)	2,4,6-Tribromophenol	(2000 µg/mL)

Prep Note

To ensure extraction efficiency add, 1 mL of Surrogate to the sample.

CLP Surrogate Spiking Solution

CLP-031-R-WL-25ML — **1 x 25 mL**
CLP-031-R-WL-50ML — **1 x 50 mL**
At stated conc. in MeOH — 8 comps.

2-Chlorophenol-d_4	(150 µg/mL)	Nitrobenzene-d_5	(100 µg/mL)
1,2-Dichlorobenzene-d_4	(100 µg/mL)	Phenol-d_6	(150 µg/mL)
2-Fluorobiphenyl	(100 µg/mL)	*p*-Terphenyl-d_{14}	(100 µg/mL)
2-Fluorophenol	(150 µg/mL)	2,4,6-Tribromophenol	(150 µg/mL)

Technical Note

We have found that benzidine degrades in multi-component semi-volatile solutions. Therefore the benzidine in any calibration curve should be used as a qualitative retention time marker. Reported hits for benzidine should be quantitatively determined by analyzing a single benzidine solution or by using the benzidine response observed in the Daily GC/MS tuning solution.

AccuStandard formulated the **M-8270-ASL-SET** with convenient mixtures based on similar analytical or functional group characteristics. Should your semi-volatile calibration table have additional required analytes, we can easily manufacture specific formulations.

Alternate Source Method 8270C/D Set

M-8270-ASL-SET Alternate Source **17 x 1 mL**

The set includes the following 17 products

M-8270-01-ASL **Ethers & Phthalates Mix**
M-8270-02-ASL **Chlorinated Hydrocarbons Mix**
M-8270-03-ASL **Nitrosamines Mix**
M-8270-04-ASL **Base/Neutrals Mix**
M-8270-05-ASL **Base/Neutrals Mix**
M-8270-06-ASL **PAH Mix**
M-8270-07-ASL **Pyridines Mix**
M-8270-08-ASL **Phenols Mix**
M-8270-09-ASL **Organochlorine Pesticide Mix**
M-8270-10-ASL **Pesticide Mix**
M-8270-11-ASL **Toxic Substances Mix**
M-8270-12-ASL **Phenols Mix**
M-8270-13-ASL **Polynuclear Aromatic Hydrocarbon Mix**
M-8270-14-ASL **Organochlorine Pesticide Mix**
Z-014J **Internal Standards Mix**
CLP-BNS **Base/Neutrals Surrogate Standard**
CLP-AS **Acid Surrogate Standard**

ASL Method 8270C/D Alternate Method 8270 Formulations

Alternate Source

Ethers & Phthalates Mix

M-8270-01-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 11 comps.

bis(2-Chloroethoxy)methane
bis(2-Chloroethyl)ether
bis(2-Ethylhexyl)phthalate
bis(2-Chloro-1-methylethyl)ether
4-Bromophenyl phenyl ether
Benzyl butyl phthalate
4-Chlorophenyl phenyl ether
Diethyl phthalate
Dimethyl phthalate
Dibutyl phthalate
Di-n-octyl phthalate

Chlorinated Hydrocarbons Mix

M-8270-02-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 13 comps.

2-Chloronaphthalene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Pentachlorobenzene
Pentachloroethane
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene

Nitrosamines Mix

M-8270-03-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 9 comps.

N-Nitrosodi-*n*-butylamine
N-Nitrosodiethylamine
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
N-Nitrosodi-*n*-propylamine
N-Nitrosomethylethylamine
N-Nitrosomorpholine
N-Nitrosopiperidine
N-Nitrosopyrrolidine

Base/Neutrals Mix

M-8270-04-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 13 comps.

2-Acetylaminofluorene
4-Aminobiphenyl
3,3'-Dichlorobenzidine
4-Dimethylaminoazobenzene
3,3'-Dimethylbenzidine
α,α-Dimethylphenethylamine
Diphenylamine
1-Naphthylamine
2-Naphthylamine
5-Nitro-*o*-toluidine
Phenacetin
p-Phenylenediamine
o-Toluidine

Base/Neutrals Mix

M-8270-05-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 13 comps.

Acetophenone
1,3-Dinitrobenzene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Ethyl methanesulfonate
Isophorone
Isosafrole
Methyl methanesulfonate
1,4-Naphthoquinone
Nitrobenzene
Pentachloronitrobenzene
Safrole
1,3,5-Trinitrobenzene

PAH Mix

M-8270-06-ASL **1 x 1 mL**
2.0 mg/mL each CH_2Cl_2:Benzene (50:50) 2 comps.

7,12-Dimethylbenz[a]anthracene
3-Methylcholanthrene

Pyridine Mix

M-8270-07-ASL **1 x 1 mL**
2.0 mg/mL each in Acetone 4 comps.

Methapyrilene
4-Nitroquinoline-1-oxide
2-Picoline
Pyridine

Phenol Mix

M-8270-08-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 8 comps.

o-Cresol
m-Cresol
p-Cresol
2,6-Dichlorophenol
Dinoseb
Hexachlorophene
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol

Organophosphorous Pesticide Mix

M-8270-09-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 9 comps.

Dimethoate
Disulfoton
Famphur
Thionazin
Sulfotep
o,o,o-Triethylphosphorothioate
Methyl parathion
Parathion
Phorate

Pesticide Mix

M-8270-10-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 6 comps.

Aramite
Chlorobenzilate
Diallate
Isodrin
Kepone
Pronamide

Toxic Substance Mix

M-8270-11-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 8 comps.

Aniline
Benzyl alcohol
4-Chloroaniline
Dibenzofuran
2-Methylnaphthalene
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline

Internal Standard Mix

Z-014J **1 x 1 mL**
Z-014J-PAK *SAVE* **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 6 comps.

Acenaphthene-d_{10}
Chrysene-d_{12}
1,4-Dichlorobenzene-d_4
Naphthalene-d_8
Perylene-d_{12}
Phenanthrene-d_{10}

Alternate Method 8270C/D Formulations continued on the next page

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate Source

Acid Surrogate Standard

CLP-AS **1 x 1 mL**
CLP-AS-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in MeOH 3 comps.

- 2-Fluorophenol
- Phenol-d_5
- 2,4,6-Tribromophenol

Base/Neutrals Surrogate Standard

CLP-BNS **1 x 1 mL**
CLP-BNS-PAK ***SAVE*** **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 3 comps.

- 2-Fluorobiphenyl
- Nitrobenzene-d_5
- p-Terphenyl-d_{14}

Phenol Mixture

M-8270-12-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 11 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Polynuclear Aromatic Hydrocarbon Mixture

M-8270-13-ASL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene (50:50) 16 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

Organochlorine Pesticide Mix

M-8270-14-ASL **1 x 1 mL**
2.0 mg/mL each in Acetone 17 comps.

- Aldrin
- α-BHC
- β-BHC
- δ-BHC
- γ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide
- Methoxychlor

These additional formulations, used in conjunction with the ASL 8270C/D formulations and designed on a functional group basis, will allow the chemist to analyze a complete method 8270C/D.

Additions to Method 8270

M-8270-13A-R2 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 10 comps.

- 4-aminoazobenzene
- 3-Amino-9-ethylcarbazole
- o-Anisidine
- 5-Chloro-2-methylaniline
- p-Cresidine
- 2,4-Diaminotoluene
- 4,4'-Methylenebis(N,N-dimethylaniline)
- 4,4'-Methylenebis(2-chloroaniline)
- 4,4'-Oxydianiline
- 2,4,5-Trimethylaniline

M-8270-13B-R **1 x 1 mL**
2.0 mg/mL each in THF 3 comps

- 2-Aminoanthraquinone
- 4-Chloro-1,2-phenylenediamine
- 4-Chloro-1,3-phenylenediamine

M-8270-14A-R1 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 7 comps.

- Benzoic acid
- 1-Chloronaphthalene
- Dibenz[a,j]acridine
- Resorcinol
- Thiophenol
- tris-(2,3-Dibromopropyl)phosphate
- Tri-p-tolyl phosphate

M-8270-14B **1 x 1 mL**
2.0 mg/mL each in THF 5 comps.

- p-Benzoquinone
- Hydroquinone
- Maleic anhydride
- Phthalic anhydride
- Trimethyl phosphate

M-8270-14C ❄ **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:MeOH (75:25) 5 comps.

- 1-Acetyl-2-thiourea
- Diethyl sulfate
- Hexamethylphosphoramide
- 3-Picolyl chloride HCL
- Toluene diisocyanate

M-8270-15 **1** x 1 **mL**
1.0 mg/mL each in CH_2Cl_2:MeOH (90:10) 13 comps.

- Dibenzo[a,e]pyrene
- 1,2-Dibromo-3-chloropropane
- Diethyl stilbestrol
- 1,2-Dinitrobenzene
- 1,4-Dinitrobenzene
- 5,5-Diphenylhydantoin
- Mestranol
- Nicotine
- 5-Nitroacenapthene
- 5-Nitro-o-anisidine
- 4-Nitrobiphenyl
- Propylthiouracil
- Strychnine

Pesticides

M-8270-16 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 10 comps.

- Anilazine
- Azinphos methyl
- Barbamate
- Demeton (mixed isomers)
- Dichlone
- Dioxathion
- Mirex
- Sulfoxide
- Sulfallate
- Trifluralin

M-8270-17 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 7 comps.

- Brominal
- Captafol
- Captan
- Dinex
- Dinocap
- Fluchloralin
- Nitrofen

Carbamates/Pesticides

M-8270-18 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 6 comps.

- Carbaryl
- Carbofuran
- Ethyl carbamate
- Mexacarbate
- Schradan (Octamethylpyrophosphoramide)
- Phenobarbital

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate Source

Pesticides

M-8270-19 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 12 comps.

Carbophenothion	Fensulfothion	Phosalone
Coumaphos	Fenthion	Imidan (Phosmet)
EPN	Leptophos	Terbufos
ETHION	Malathion	Tetrachlorvinphos

M-8270-20 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 9 comps.

Chlorfenvinphos	Dicrotophos	Naled
Ciodrin (Crotoxyphos)	Mevinphos	Phosphamidon
Dichlorvos	Monocrotophos	TEPP (Tetraethyl pyrophosphate)

M-8270-21 — **1 x 1 mL**
2.0 mg/mL each in Acetone — 3 comps.

α-Chlordane	Endrin ketone
γ-Chlordane	

Semi-Volatile additions

M-8270-22 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 2 comps.

Benzidine — 3,3'-Dimethoxybenzidine

APP-9-126-10X — **1 x 1 mL**
1.0 mg/mL in CH_2Cl_2

Methapyrilene

P-427S-10X — **1 x 1 mL**
1.0 mg/mL in MeOH

Dinex

ASL Method 8270C/D Appendix IX Semi-Volatiles by Method 8270

Alternate Source

The following formulations allow the analytical chemist to combine more analytes at one time in the development of a Method 8270C/D calibration curve. Use of these Alternate Source standards allow you to check product comparability from an independent source. AccuStandard has formulated the necessary additional standards required to have the most complete 8270C/D analyte list in the industry.

8270 Semi-Volatile Standards

M-8270-AG01-ASL — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2:Benzene (75:25) — 64 comps.

Acenaphthene	2,4-Dinitrophenol
Acenaphthylene	Dimethyl phthalate
Anthracene	2,4-Dinitrotoluene
Azobenzene	2,6-Dinitrotoluene
Benz[a]anthracene	Di-*n*-octyl phthalate
Benzo[a]pyrene	Fluoranthene
Benzo[b]fluoranthene	Fluorene
Benzo[g,h,i]perylene	Hexachlorobenzene
Benzo[k]fluoranthene	Hexachlorobutadiene
Benzyl butyl phthalate	Hexachlorocyclopentadiene
bis(2-Chloroethoxy)methane	Hexachloroethane
bis(2-Chloroethyl)ether	Indeno[1,2,3-cd]pyrene
bis(2-Chloro-1-methylethyl)ether	Isophorone
bis(2-Ethylhexyl)phthalate	2-Methylnaphthalene
4-Bromophenyl phenyl ether	2-Methylphenol
Carbazole	4-Methylphenol
4-Chloroaniline	Naphthalene
2-Chloronaphthalene	2-Nitroaniline
4-Chloro-3-methylphenol	3-Nitroaniline
2-Chlorophenol	4-Nitroaniline
4-Chlorophenyl phenyl ether	Nitrobenzene
Chrysene	2-Nitrophenol
Dibenz[a,h]anthracene	4-Nitrophenol
Dibenzofuran	n-Nitrosodimethylamine
Dibutyl phthalate	N-Nitrosodi-*n*-propylamine
1,2-Dichlorobenzene	Pentachlorophenol
1,3-Dichlorobenzene	Phenanthrene
1,4-Dichlorobenzene	Phenol
2,4-Dichlorophenol	Pyrene
Diethyl phthalate	1,2,4-Trichlorobenzene
2,4-Dimethylphenol	2,4,5-Trichlorophenol
4,6-Dinitro-2-methylphenol	2,4,6-Trichlorophenol

M-8270-AG02-ASL — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 39 comps.

Aniline	4-Nitroquinoline-N-oxide
Acetophenone	N-Nitrosodi-n-butylamine
2-Acetamidofluorene	N-Nitrosodiethylamine
4-Aminobiphenyl	N-Nitrosomethylethylamine
Benzyl alcohol	N-Nitrosomorpholine
2,6-Dichlorophenol	N-Nitrosopiperidine
4-Dimethylaminoazobenzene	N-Nitrosopyrrolidine
7,12-Dimethylbenz[a]anthracene	5-Nitro-o-toluidine
1,3-Dinitrobenzene	Pentachlorobenzene
Dinoseb	Pentachloronitrobenzene
Diphenylamine	Pentachloroethane
Ethyl methanesulfonate	Phenacetin
Hexachloropropene	2-Picoline
Isosafrole	Pyridine
Methapyrilene	Safrole
3-Methylcholanthrene	1,2,4,5-Tetrachlorobenzene
Methyl methanesulfonate	2,3,4,6-Tetrachlorophenol
3- Methylphenol	1,3,5-Trinitrobenzene
1-Naphthylamine	*o*-Toluidine
2-Naphthylamine	

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate Source

M-8270-07 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 15 comps.

- Aramite
- Chlorobenzilate
- Diallate
- 2,4-D
- Dimethoate
- Dinoseb
- Disulfoton
- Famphur
- Kepone
- Methyl parathion
- Parathion
- Phorate
- Silvex (2,4,5-TP)
- Sulfotep
- Thionazin

Additions to Method 8270

M-8270-13A-R **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 12 comps.

- 4-Aminoazobenzene
- 3-Amino-9-ethylcarbazole
- *o*-Anisidine
- 5-Chloro-2-methylaniline
- p-Cresidine
- 2,4-Diaminotoluene
- 4,4'-Methylenebis(N,N-dimethylaniline)
- 4,4'-Methylene bis(2-chloroaniline)
- 4,4'-Oxydianiline
- 2-Picoline
- Pyridine
- 2,4,5-Trimethylaniline

M-8270-13B-R **1 x 1 mL**
2.0 mg/mL each in THF 3 comps

- 2-Aminoanthraquinone
- 4-Chloro-1,2-phenylenediamine
- 4-Chloro-1,3-phenylenediamine

M-8270-14A-R1 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 7 comps.

- Benzoic acid
- 1-Chloronaphthalene
- Dibenz[a,j]acridine
- Resorcinol
- Thiophenol
- tris-(2,3-Dibromopropyl)phosphate
- Tri-p-tolyl phosphate

M-8270-14B **1 x 1 mL**
2.0 mg/mL each in THF 5 comps.

- *p*-Benzoquinone
- Hydroquinone
- Maleic anhydride
- Phthalic anhydride
- Trimethyl phosphate

M-8270-14C **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:MeOH (75:25) 5 comps.

- 1-Acetyl-2-thiourea
- Diethyl sulfate
- Hexamethylphosphoramide
- 3-Picolyl chloride HCL
- Toluene diisocyanate

M-8270-15 **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2:MeOH (90:10) 13 comps.

- Dibenzo[a,e]pyrene
- 1,2-Dibromo-3-chloropropane
- Diethyl stilbestrol
- 1,2-Dinitrobenzene
- 1,4-Dinitrobenzene
- 5,5-Diphenylhydantoin
- Mestranol
- Nicotine
- 5-Nitroacenapthene
- 5-Nitro-*o*-anisidine
- 4-Nitrobiphenyl
- Propylthiouracil
- Strychnine

Pesticides

M-8270-16 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 10 comps.

- Anilazine
- Azinphos methyl
- Barbamate
- Demeton (mixed isomers)
- Dichlone
- Dioxathion
- Mirex
- Sulfoxide
- Sulfallate
- Trifluralin

M-8270-17 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 7 comps.

- Brominal
- Captafol
- Captan
- Dinex
- Dinocap
- Fluchloralin
- Nitrofen

Carbamates/Pesticides

M-8270-18 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 6 comps.

- Carbaryl
- Carbofuran
- Ethyl carbamate
- Mexacarbate
- Schradan (Octamethylpyrophosphoramide)
- Phenobarbital

Pesticides

M-8270-19 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 12 comps.

- Carbophenothion
- Coumaphos
- EPN
- Ethion
- Fensulfothion
- Fenthion
- Leptophos
- Malathion
- Phosalone
- Imidan (Phosmet)
- Terbufos
- Tetrachlorvinphos

M-8270-20 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 9 comps.

- Chlorfenvinphos
- Ciodrin (Crotoxyphos)
- Dichlorvos
- Dicrotophos
- Mevinphos
- Monocrotophos
- Naled
- Phosphamidon
- TEPP (Tetraethyl pyrophosphate)

Semi-Volatile additions

M-8270-22 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 2 comps.

- Benzidine
- 3,3'-Dimethoxybenzidine

Pesticides - Mix #2

Z-014C-R **1 x 1 mL**
Z-014C-R-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps.

- Aldrin
- α-BHC
- β-BHC
- γ-BHC
- δ-BHC
- α-Chlordane
- γ-Chlordane
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Endrin ketone
- Heptachlor
- Heptachlor epoxide
- Methoxychlor

Semi-Volatile additions

M-8270-23-R1 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 4 comps.

- 3,3'-Dichlorobenzidine
- 3,3'-Dimethylbenzidine
- *a,a*-Dimethylphenethylamine
- *p*-Phenylenediamine

M-8270-24 **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 4 comps

- Hexachlorophene
- Isodrin
- Pronamide
- *o,o,o*-Triethylphosphorothioate

AS-E0060 **1 x 1 mL**
5.0 mg/mL in MeOH

- N-Nitrosodiphenylamine

EPA Method 8000 Series

Method 8272 PAHs (GC/MS)

M-8272 — **1 x 1 mL**
At stated conc. in Dichloromethane — 12 comps.

Naphthalene	42	Anthracene	0.6
1-Methylnaphthalene	24	Phenanthrene	5.5
2-Methylnaphthalene	20	Fluoranthene	2.1
Acenaphthylene	9	Pyrene	1.8
Acenaphthene	11	Benz(a)anthracene	0.08
Fluorene	7.6	Chrysene	0.03

Internal Standard - Deuterated Analogs

M-8272-IS — **1 x 1 mL**
At stated conc. in Acetone — 8 comps.

Naphthalene-d_8	5	Phenanthrene-d_{10}	0.96
1-Methylnaphthalene-d_{10}	6	Fluranthene-d_{10}	0.93
Acenaphthene-d_{10}	1.2	Perylene-d_{12}	0.84
Fluorene-d_{10}	1.2	Chrysene-d_{12}	0.033

Method 8275A (Thermal Extraction/GC/FID/MS) Semi-Volatiles by Thermal Chromatography

Semi-Volatiles

M-8275 — **1 x 1 mL**
1.0 mg/mL each in Acetone — 17 comps.

Aldrin	2,4-Dinitrotoluene
Benzo[k]fluoranthene	Diphenylamine
Benzo[a]pyrene	Fluorene
Carbazole	Hexachlorobenzene
4-Chloro-3-methylphenol	4-Methylphenol
1-Chloronaphthalene	Naphthalene
2-Chlorophenol	Phenanthrene
Dibenzothiophene	Pyrene
2,4-Dichlorophenol	

Internal Standard

Z-014J — **1 x 1 mL**
Z-014J-PAK — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

Acenaphthene-d_{10}	Naphthalene-d_8
Chrysene-d_{12}	Perylene-d_{12}
1,4-Dichlorobenzene-d_4	Phenanthrene-d_{10}

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

Method 8280A Dioxins & Furans by HRGC/LRMS

Dioxin Mixture

M-8280A — **1 x 1 mL**
M-8280A-PAK — *SAVE* — **5 x 1 mL**
5 µg/mL each in Toluene — 5 comps.

2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	Octachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	

Furan Mixture

M-8280B — **1 x 1 mL**
M-8280B-PAK — *SAVE* — **5 x 1 mL**
5 µg/mL each in Toluene — 5 comps.

2,3,7,8-Tetrachlorodibenzofuran	1,2,3,4,6,7,8-Heptachlorodibenzofuran
1,2,3,7,8-Pentachlorodibenzofuran	Octachlorodibenzofuran
1,2,3,4,7,8-Hexachlorodibenzofuran	

Column Performance Check

M-8280-CPC — **1 x 1 mL**
5 µg/mL each in Toluene — 7 comps.

1,2,3,4-Tetrachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin
1,2,3,4,7-Pentachlorodibenzo-*p*-dioxin	2,3,7,8-Tetrachlorodibenzofuran
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	

Canadian Environmental Method Multi-Component Dioxin Mixtures

Custom Window Defining Mixture

D-WD — 20,000 ng/mL in Toluene — **1 x 1 mL**
D-WD-2.5X — 50,000 ng/mL in Toluene — **1 x 1 mL**
7 comps.

1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin (Isomer pair)
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin
1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-*p*-dioxin (Isomer pair)
1,2,3,4,6,7-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

Formulations at Highest Conc. for Economical Prices

Custom Calibration Mixture

D-CAL — 20,000 ng/mL in Toluene — **1 x 1 mL**
D-CAL-2.5X — 50,000 ng/mL in Toluene — **1 x 1 mL**
6 comps.

1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

Column Performance Check

M-8280-CPC — **1 x 1 mL**
5.0 µg/mL each in Toluene — 7 comps.

1,2,3,4-Tetrachlorodibenzo-*p*-dioxin
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
1,2,3,4,7-Pentachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin
2,3,7,8-Tetrachlorodibenzofuran

Standards of Interest

For more Canadian Methods see the Regional Section of this catalog

Method 8310 PAHs by HPLC

PAH Mixture

M-8310 — **1 x 1 mL**
M-8310-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in AcCN — 16 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

PAH Quality Control Calibration Mixture

M-610-QC — **1 x 1 mL**
At stated conc. in AcCN — 16 comps.

Acenaphthene	(0.1 mg/mL)	Chrysene	(0.01 mg/mL)
Acenaphthylene	(0.1 mg/mL)	Dibenz[a,h]anthracene	(0.01 mg/mL)
Anthracene	(0.1 mg/mL)	Fluoranthene	(0.01 mg/mL)
Benzo[a]anthracene	(0.01 mg/mL)	Fluorene	(0.1 mg/mL)
Benzo[a]pyrene	(0.01 mg/mL)	Indeno[1,2,3-cd]pyrene	(0.01 mg/mL)
Benzo[b]fluoranthene	(0.01 mg/mL)	Naphthalene	(0.1 mg/mL)
Benzo[g,h,i]perylene	(0.01 mg/mL)	Phenanthrene	(0.1 mg/mL)
Benzo[k]fluoranthene	(0.005 mg/mL)	Pyrene	(0.01 mg/mL)

Surrogate Standard

M-8310-SS — **1 x 1 mL**
M-8310-SS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in Acetonitrile

- Decafluorobiphenyl

Internal Standard Post Supercritical Fluid Extraction

M-8310-SFE-IS-100X — **1 x 1 mL**
M-8310-SFE-IS-100X-PAK — *SAVE* — **5 x 1 mL**
20,000 µg/mL in AcCN:THF (50:50)

- Biphenyl

Florida Method PAH Mixture

Z-014G-FL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene (50:50) — 18 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene
- 1-Methylnaphthalene
- 2-Methylnaphthalene

Florida Administrative Code (continued) PAHs by HPLC

Performance Check Solution

M-610-QC-FL — **1 x 1 mL**
M-610-QC-FL-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in AcCN — 18 comps.

Acenaphthene	(0.1 mg/mL)	Dibenz[a,h]anthracene	(0.01 mg/mL)
Acenaphthylene	(0.1 mg/mL)	Fluoranthene	(0.01 mg/mL)
Anthracene	(0.1 mg/mL)	Fluorene	(0.1 mg/mL)
Benz[a]anthracene	(0.01 mg/mL)	Indeno[1,2,3-cd]pyrene	(0.01 mg/mL)
Benzo[a]pyrene	(0.01 mg/mL)	1-Methyl naphthalene	(0.1 mg/mL)
Benzo[b]fluoranthene	(0.01 mg/mL)	2-Methyl naphthalene	(0.1 mg/mL)
Benzo[g,h,i]perylene	(0.01 mg/mL)	Naphthalene	(0.1 mg/mL)
Benzo[k]fluoranthene	(0.005 mg/mL)	Phenanthrene	(0.1 mg/mL)
Chrysene	(0.01 mg/mL)	Pyrene	(0.01 mg/mL)

Matrix Spiking Solution

M-610-MS — **1 x 1 mL**
M-610-MS-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in AcCN — 6 comps.

Benz[a]pyrene	(0.5 mg/mL)	2-Methylnaphthalene	(5.0 mg/mL)
Chrysene	(0.5 mg/mL)	Phenanthrene	(0.5 mg/mL)
1-Methylnaphthalene	(5.0 mg/mL)	Pyrene	(0.5 mg/mL)

PAH Mix Additions

H-001S/002S-M-20X — **1 x 1 mL**
1.0 mg/mL each in MeOH — 2 comps.

- 1-Methyl naphthalene
- 2-Methyl naphthalene

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL — **1 x 1 mL**
M-8310-FL-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL each in AcCN — 18 comps.
M-8310-FL-SET — **18 x 1 mL**

Acenaphthene	M-8310-FL-01
Acenaphthylene	M-8310-FL-02
Anthracene	M-8310-FL-03
Benz[a]anthracene	M-8310-FL-04
Benzo[a]pyrene	M-8310-FL-05
Benzo[b]fluoranthene	M-8310-FL-06
Benzo[g,h,i]perylene	M-8310-FL-07
Benzo[k]fluoranthene	M-8310-FL-08
Chrysene	M-8310-FL-09
Dibenz[a,h]anthracene	M-8310-FL-10
Fluoranthene	M-8310-FL-11
Fluorene	M-8310-FL-12
Indeno[1,2,3-cd]pyrene	M-8310-FL-13
1-Methylnaphthalene	M-8310-FL-14
2-Methylnaphthalene	M-8310-FL-15
Naphthalene	M-8310-FL-16
Phenanthrene	M-8310-FL-17
Pyrene	M-8310-FL-18

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-QC-ATI — **1 x 1 mL**
M-8310-QC-ATI-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in AcCN — 18 comps.

Acenaphthene	(1000 µg/mL)	Dibenz[a,h]anthracene	(200 µg/mL)
Acenaphthylene	(2000 µg/mL)	Fluoranthene	(200 µg/mL)
Anthracene	(100 µg/mL)	Fluorene	(200 µg/mL)
Benz[a]anthracene	(100 µg/mL)	Indeno[1,2,3-cd]pyrene	(100 µg/mL)
Benzo[a]pyrene	(100 µg/mL)	1-Methylnaphthalene	(1000 µg/mL)
Benzo[b]fluoranthene	(200 µg/mL)	2-Methylnaphthalene	(1000 µg/mL)
Benzo[g,h,i]perylene	(200 µg/mL)	Naphthalene	(1000 µg/mL)
Benzo[k]fluoranthene	(100 µg/mL)	Phenanthrene	(100 µg/mL)
Chrysene	(100 µg/mL)	Pyrene	(100 µg/mL)

Method 8315/8315A Ketones/Aldehydes by HPLC

Aldehyde Mixture

M-8315 — **1 x 1 mL**
M-8315-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in H_2O — 2 comps.

- Acetaldehyde
- Formaldehyde

Aldehyde Individuals

Acetaldehyde *(1.0 mg/mL in H_2O)*	**M-8315-01**	**1 x 1 mL**
Formaldehyde *(1.0 mg/mL in H_2O)*	**M-8315-02**	**1 x 1 mL**

Aldehyde as DNPH Derivatives

M-8315-DNPH-10ML — **1 x 10 mL**
1.0 mg/mL each in MeOH — 2 comps. as DNPH derivatives

- Acetaldehyde
- Formaldehyde

Option 1

(Samples Collected from Water, Air, Soil, Waste or Stacks by Method 0011)

Carbonyl Mixture

M-8315-R1 — **1 x 1 mL**
1.0 mg/mL each in AcCN — 12 comps.

- Acetaldehyde
- Butanal *(Butyraldehyde)*
- Crotonaldehyde
- Cyclohexanone
- Decanal
- Formaldehyde
- Heptanal
- Hexanal *(Hexaldehyde)*
- Nonanal
- Octanal
- Pentanal *(Valeraldehyde)*
- Propanal *(Propionaldehyde)*

Carbonyl DNPH Derivative Mixture

M-8315-R1-DNPH — **1 x 1 mL**
0.1 mg/mL each in AcCN — 12 comps. as DNPH derivatives

- Acetaldehyde
- Butanal *(Butyraldehyde)*
- Crotonaldehyde
- Cyclohexanone
- Decanal
- Formaldehyde
- Heptanal
- Hexanal *(Hexaldehyde)*
- Nonanal
- Octanal
- Pentanal *(Valeraldehyde)*
- Propanal *(Propionaldehyde)*

Option 2

(Samples Collected from Indoor Air by Method 0100)

Carbonyl Mixture

M-8315-R2 — **1 x 1 mL**
1.0 mg/mL each in AcCN — 15 comps.

- Acetaldehyde
- Acetone
- Acrolein
- Benzaldehyde
- Butanal *(Butyraldehyde)*
- Crotonaldehyde
- 2,5-Dimethylbenzaldehyde
- Formaldehyde
- Hexanal *(Hexaldehyde)*
- Isovaleraldehyde
- Pentanal *(Valeraldehyde)*
- Propanal *(Propionaldehyde)*
- *m*-Tolualdehyde
- *o*-Tolualdehyde
- *p*-Tolualdehyde

Carbonyl DNPH Derivative Mixture

M-8315-R2-DNPH — **1 x 1 mL**
0.1 mg/mL each in AcCN — 15 comps. as DNPH derivatives

- Acetaldehyde
- Acetone
- Acrolein
- Benzaldehyde
- Butanal *(Butyraldehyde)*
- Crotonaldehyde
- 2,5-Dimethylbenzaldehyde
- Formaldehyde
- Hexanal *(Hexaldehyde)*
- Isovaleraldehyde
- Pentanal *(Valeraldehyde)*
- Propanal *(Propionaldehyde)*
- *m*-Tolualdehyde
- *o*-Tolualdehyde
- *p*-Tolualdehyde

Carbonyl Compound Set

M-8315-R3-10X-SET — **20 x 1 mL**
Each at 1.0 mg/mL in AcCN

- Acetaldehyde (01)
- Acetone (02)
- Acrolein (03)
- Benzaldehyde (04)
- Butanal (05)
- Crotonaldehyde (06)
- Cyclohexanone (07)
- Decanal (08)
- 2,5-Dimethylbenzaldehyde (09)
- Formaldehyde (10)
- Heptanal (11)
- Hexanal (12)
- Isovaleraldehyde (13)
- Nonanal (14)
- Octanal (15)
- Pentanal (16)
- Propanal (17)
- *m*-Tolualdehyde (18)
- *o*-Tolualdehyde (19)
- *p*-Tolualdehyde (20)

Carbonyl DNPH Derivative Set

M-8315-R-DNPH-SET — **20 x 1 mL**
Each at 0.1 mg/mL in AcCN — 20 comps. as DNPH Derivatives

- Acetaldehyde (01)
- Acetone (02)
- Acrolein (03)
- Benzaldehyde (04)
- Butanal *(Butyraldehyde)* (05)
- Crotonaldehyde (06)
- Cyclohexanone (07)
- Decanal (08)
- 2,5-Dimethylbenzaldehyde (09)
- Formaldehyde (10)
- Heptanal (11)
- Hexanal *(Hexaldehyde)* (12)
- Isovaleraldehyde (13)
- Nonanal (14)
- Octanal (15)
- Pentanal *(Valeraldehyde)* (16)
- Propanal *(Propionaldehyde)* (17)
- *m*-Tolualdehyde (18)
- *o*-Tolualdehyde (19)
- *p*-Tolualdehyde (20)

Technical Note

For initial Method 8315 development, AccuStandard offers individual analyte sets (20 x 1 mL) for both the Carbonyl compounds and their corresponding DNPH derivatives. Use of these sets will allow the analytical chemist to rapidly establish individual analyte retention times and to troubleshoot possible extraction recovery problems.

Method 8316 Acrolein, Acrylamide, Acrylonitrile by HPLC

M-8316 ❄ — **1 x 1 mL**
1.0 mg/mL each in Water — 3 comps.

- Acrolein
- Acrylamide
- Acrylonitrile

❄ ColdPAK required to maintain integrity of product.

Method 8318 N-Methylcarbamates by HPLC

N-Methylcarbamates

M-8318-SET — **10 x 1 mL**
Each at 0.1 mg/mL in MeOH
M-8318M — **1 x 1 mL**
Mixture, 0.1 mg/mL each in MeOH — 10 comps.

- Aldicarb (01)
- Aldicarb sulfone (02)
- Carbaryl (03)
- Carbofuran (04)
- Dioxacarb (05)
- 3-Hydroxycarbofuran (06)
- Methiocarb (07)
- Methomyl (08)
- Promecarb (09)
- Propoxur (10)

Method 8321 Non-Volatile Compounds by HPLC/TSP/MS or UV Solvent Extractable

Chlorinated Phenoxyacid Herbicide Mix

M-8321-HERB **1 x 1 mL**
0.1 mg/mL each in AcCN 14 comps.

Dalapon	Dinoseb
Dicamba	MCPA
2,4-D	MCPP
2,4-D, butoxyethanol ester	Silvex *(2,4,5-TP)*
2,4-D, ethylhexyl ester	2,4,5-T
2,4-DB	2,4,5-T, butyl ester
Dichlorprop	2,4,5-T, butoxyethanol ester

Organophosphorus Pesticide Mix

M-8321-OP **1 x 1 mL**
0.1 mg/mL each in AcCN 15 comps.

Asulam	Methyl parathion
Dichlorvos	Monocrotophos
Dimethoate	Naled
Disulfoton	Phorate
Famphur	Thiofanox
Fensulfothion	Trichlorfon
Merphos	Tris(2,3-Dibromopropyl)phosphate
Methomyl	

Method 8325 Benzidines & Nitrogen containing Pesticides by L-L or L-S Extraction & RP HPLC/Particle Beam/MS

Benzidine/Pesticide Mix

M-553 ❄ **1 x 1 mL**
At stated conc. in AcCN:MeOH (50:50) 13 comps.

Benzidine	(250 µg/mL)	3,3'-Dimethylbenzidine	(350 µg/mL)
Benzoylprop ethyl	(350 µg/mL)	Diuron	(450 µg/mL)
Caffeine	(300 µg/mL)	Linuron	(1,300 µg/mL)
Carbaryl	(1,000 µg/mL)	Monuron	(400 µg/mL)
o-Chlorophenyl thiourea	(750 µg/mL)	Rotenone	(3,200 µg/mL)
3,3'-Dichlorobenzidine	(250 µg/mL)	Siduron	(450 µg/mL)
3,3'-Dimethoxybenzidine	(750 µg/mL)		

Performance Check Solution

M-553-PC **1 x 1 mL**
0.1 mg/mL in AcCN

DFTPPO *(Decafluorotriphenylphosphine oxide)*

Method 8323 Organometallic Tin Analysis by Electrospray Ion Trap Mass Spectrometry

The following Organo-tin standards were originally formulated to meet custom applications for a number of our customers. AccuStandard has introduced the below set of standards as regular catalog items to meet the increased requests for Organo-tin standards. The environmental interest in these compounds stems from their addition to the list of endocrine disrupters. Organo-tin compounds such as Tributyl-tin were used as marine antifouling agents and Triphenyl-tin as a crop pesticide.

Organometallic Butyltin Chloride Standard

OMT-001 **1 x 1 mL**
OMT-001-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 4 comps.

Butyltin trichloride	Tetrabutyltin
Dibutyltin dichloride	Tributyltin chloride

Organometallic Phenyltin Chloride Standard

OMT-002 **1 x 1 mL**
OMT-002-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 4 comps.

Diphenyltin dichloride	Tetraphenyltin
Phenyltin trichloride	Triphenyltin chloride

Tri-*n*-propyltin Surrogate Standard

OMT-003 **1 x 1 mL**
OMT-003-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tri-*n*-propyltin chloride

Tripentyltin Chloride Surrogate Standard

OMT-004 **1 x 1 mL**
OMT-004-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tripentyltin chloride

Tetra-*n*-propyl tin Internal Standard

OMT-005 **1 x 1 mL**
OMT-005-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tetra-*n*-propyl tin

Tetrapentyltin Internal Standard

OMT-006 **1 x 1 mL**
OMT-006-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tetrapentyltin

Thousands of Standards, just a click away

AccuStandard.com

❄ ColdPAK required to maintain integrity of product.

Method 8330 Explosives

TNT Metabolites

Analyte	Concentration (µg/mL)	Solvent	Cat. No. (1 mL)
2-Amino-4,6-dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-13-0.1X
4-Amino-2,6-dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-14-0.1X
2,4-Diamino-6-nitrotoluene	100	AcCN	M-8330-ADD-12
2,6-Diamino-4-nitrotoluene	100	AcCN	M-8330-ADD-13
1,3-Dinitrobenzene	100	AcCN:MeOH (50:50)	M-8330-01-0.1X
2,4-Dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-02-0.1X
2,6-Dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-03-0.1X
3,5-Dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-ADD-39
Hexanitrostilbene (HNS)	100	AcCN	M-8330-ADD-26
2-Hydroxylamino-4,6-dinitrotoluene ★	100	AcCN	M-8330-ADD-18 ❄
4-Hydroxylamino-2,6-dinitrotoluene ★	100	AcCN	M-8330-ADD-20 ❄
Nitrobenzene	100	AcCN:MeOH (50:50)	M-8330-06-0.1X
2-Nitrotoluene	100	AcCN:MeOH (50:50)	M-8330-07-0.1X
3-Nitrotoluene	100	AcCN:MeOH (50:50)	M-8330-08-0.1X
4-Nitrotoluene	100	AcCN:MeOH (50:50)	M-8330-09-0.1X
2,2',6,6'-Tetranitro-4,4'-azoxytoluene	100	AcCN:MeOH (50:50)	M-8330-ADD-15
2,2',6,6'-Tetranitro-4,4'-azotoluene	100	AcCN	M-8330-ADD-17
4,4',6,6'-Tetranitro-2,2'-azotoluene	100	AcCN	M-8330-ADD-19
TNT	100	AcCN:MeOH (50:50)	M-8330-11-0.1X
1,3,5-Trinitrobenzene	100	AcCN:MeOH (50:50)	M-8330-12-0.1X

Additional Explosives by HPLC

Ammonium picrate	100	AcCN	M-8330-ADD-27
DEGDN	100	AcCN:MeOH (50:50)	M-8330-ADD-36
1,2-Diaminopropane	100	MeOH	M-8330-ADD-9
2,3-Dimethyl-2,3-dinitrobutane (DMNB)	100	AcCN	M-8330-ADD-21
3,5-Dinitroaniline	100	AcCN:MeOH (50:50)	M-8330-ADD-4
1,3-Dinitrobenzene	100	AcCN:MeOH (50:50)	M-8330-01-0.1X
1,2-Dinitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-33
1,3-Dinitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-34
EGDN	100	AcCN	M-8330-ADD-5
Guanidine nitrate	100	MeOH	M-8330-ADD-10
Hexamethylene diperoxide diamine (HMDD)	100	AcCN	M-8330-ADD-45
NEW	1000	AcCN	M-8330-ADD-45-10X
Hexamethylenetriperoxide diamine (HMTD)	100	AcCN	M-8330-ADD-25
Hexanitrodiphenylamine	100	AcCN:MeOH (50:50)	M-8330-ADD-37
Hexanitrostilbene (HNS)	100	AcCN	M-8330-ADD-26
HMX	100	AcCN:MeOH (50:50)	M-8330-04-0.1X
	1000	AcCN:MeOH (50:50)	M-8330-04
Hydrazine	100	MeOH	M-8330-ADD-8
N-Nitrodimethylamine	100	AcCN	M-8330-ADD-40
Nitroglycerin	100	EtOH	M-8330-ADD-1
	1000	EtOH	M-8330-ADD-1-10X
1-Nitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-31
2-Nitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-32
Nitroguanidine	100	MeOH	M-8330-ADD-6
Nitromethane	100	MeOH	M-8330-ADD-7
PETN	100	MeOH	M-8330-ADD-2
	1000	MeOH	M-8330-ADD-2-10X
Picramic acid	100	AcCN:MeOH (50:50)	M-8330-ADD-22
Picric acid	100	AcCN:MeOH (50:50)	M-8330-ADD-3
PYX(2,6-bis,bis-(pricrylamine)-3,5-dinitropyridine	100	AcCN	M-8330-ADD-11
RDX	100	AcCN:MeOH (50:50)	M-8330-05-0.1X
TEGDN	100	AcCN:MeOH (50:50)	M-8330-ADD-41-R1
Tetryl	100	AcCN:MeOH (50:50)	M-8330-10-0.1X
1,3,5-Triamino-2,4,6-trinitrobenzene (TATB)	40	Dimethyl formamide	M-8330-ADD-14-DMF
Triacetone triperoxide (TATP)	100	AcCN	M-8330-ADD-24 ❄
2,4,6-Triaminotoluene trihydrochloride	N/A	5 mg	M-8330-ADD-23N-5MG
Trimethylolethane trinitrate	100	AcCN:MeOH (50:50)	M-8330-ADD-28
2,4,6-Trinitroresorcinol	100	AcCN:MeOH (50:50)	M-8330-ADD-29

★ 3 month stability

❄ ColdPAK required to maintain integrity of product.

Explosives by HPLC Set

M-8330-R-SET ❄ **14 x 1 mL**
Each at 100 µg/mL in AcCN:MeOH (50:50)
M-8330-R-10X-SET ❄ **14 x 1 mL**
Each at 1000 µg/mL in AcCN:MeOH (50:50)

1,3-Dinitrobenzene (01)
2,4-Dinitrotoluene (02)
2,6-Dinitrotoluene (03)
HMX (04)
RDX (05)
Nitrobenzene (06)
2-Nitrotoluene (07)
3-Nitrotoluene (08)
4-Nitrotoluene (09)
Tetryl (10)
TNT (11)
1,3,5-Trinitrobenzene (12)
2-Amino-4,6-dinitrotoluene (13)
4-Amino-2,6-dinitrotoluene (14)

Technical Note

DMNB (M-8330-ADD-21) is a required taggant added to commercially manufactured plastic explosives.

Additional Explosive Methods

Method 529 Explosive & Related Compounds by SPE & Capillary Column GC/MS

Method 8095 Explosive Intermediate by GC/ECD

Method 8330 Multi-Component Formulations for Explosive Analysis

The following A and B mixes provide better resolution between possible coeluting analytes, assisting the chemist to optimize the HPLC system. We suggest, when first performing Method 8330 development, to purchase the high concentration 14 x 1 mL set "M-8330-R-10X-SET".

M-8330A ❄ — **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330A-10X ❄ — **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) — 7 comps.

- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- HMX
- Nitrobenzene
- RDX
- 1,3,5-Trinitrobenzene
- TNT

M-8330A-R ❄ — **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330A-R-10X ❄ — **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) — 8 comps.

- 2-Amino-4,6-dinitrotoluene
- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- HMX
- Nitrobenzene
- RDX
- 1,3,5-Trinitrobenzene
- TNT

Composite Explosive Mixture

M-8330-R-0.1X — **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330-R-0.5X — **1 x 1 mL**
0.5 mg/mL each in AcCN:MeOH (50:50)

- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- HMX
- RDX
- Nitrobenzene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene
- Tetryl
- TNT
- 1,3,5-Trinitrobenzene
- 2-Amino-4,6-dinitrotoluene
- 4-Amino-2,6-dinitrotoluene

Internal Standard

M-8330-IS — **1 x 1 mL**
M-8330-IS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in MeOH

- 3,4-Dinitrotoluene

Method 8410 Semi-Volatiles by GC/FTIR

Internal Standard

M-8410-IS — **1 x 1 mL**
M-8410-IS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 2 comps.

- 1-Fluoronaphthalene
- *p*-Terphenyl-d_{14}

Method 8430 bis(2-Chloroethyl)ether & Hydrolysis Products

M-8430 — **1 x 1 mL**
1.0 mg/mL each in Water — 5 comps.

- bis(2-Chloroethyl) ether
- 2-Chloroethanol
- 2-(2-Chloroethoxy)-ethanol
- Diethylene glycol
- Ethylene glycol

❄ ColdPAK required to maintain integrity of product.

M-8330B ❄ — **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330B-10X ❄ — **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) — 5 comps.

- Tetryl
- 2,6-Dinitrotoluene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene

M-8330B-R ❄ — **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330B-R-10X ❄ — **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) — 7 comps.

- 2-Amino-4,6-dinitrotoluene
- 4-Amino-2,6-dinitrotoluene
- Tetryl
- 2,6-Dinitrotoluene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene

M-8330B-R2 ❄ — **1 x 1 mL**
0.1 mg/mL each in AcCN:MeOH (50:50)
M-8330B-R2-10X ❄ — **1 x 1 mL**
1.0 mg/mL each in AcCN:MeOH (50:50) — 6 comps.

- 4-Amino-2,6-dinitrotoluene
- Tetryl
- 2,6-Dinitrotoluene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene

Surrogate Standard

M-8330-SS — **1 x 1 mL**
1.0 mg/mL in MeOH

- 1,2-Dinitrobenzene

Method 8440 Total Petroleum Hydrocarbon

Total Recoverable Petroleum Hydrocarbon Mix

M-8440 — **1 x 1 mL**
M-8440-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Tetrachloroethene — 3 comps.

- Chlorobenzene (0.10 w/w %)
- *n*-Hexadecane (0.15 w/w %)
- Isooctane (0.15 w/w %)

Silica Gel Cleanup Calibration Solution

M-8440-SGC — **1 x 1 mL**
M-8440-SGC-PAK — *SAVE* — **5 x 1 mL**
10.0 mg/mL in Tetrachloroethene

- Corn Oil

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON — **1 x 1 mL**
M-8440-CON-PAK — *SAVE* — **5 x 1 mL**
3 comps.

- Chlorobenzene (25.0 vol %)
- *n*-Hexadecane (37.5 vol %)
- Isooctane (37.5 vol %)

REACH Statement

In an effort to ensure that all chemicals are tested and used in safe ways, the European Union has adopted the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) directive, which went into effect on June 1, 2007. This plan originated out of the desire to replace the patchwork of existing regulations in Europe with a more comprehensive law that encompasses all chemicals, including those placed on the market prior to 1981 when the industry did not have to provide documented health and safety information.

Listed below are the current dates outlined in the REACH directive.

June 1, 2013 PHASE 2 - Deadline for registration of substances supplied at ≥ 100 tons per year

June 1, 2018 PHASE 3 - Deadline for registration of substances supplied at ≥ 1 ton per year

AccuStandard fully supports the efforts and objectives of the REACH Directive and will continue to monitor any changes in the scope of this regulation. Changes may include newly banned substances, expiring exemptions or lowered maximum concentration levels. As a leading manufacturer of chemical reference standards in the world, AccuStandard will take all necessary actions under REACH in order to continue to expand the supply of our products in Europe. For other guidance on REACH, please go to the ECHA-website (www.echa.europa.eu).

Standards for International Testing Protocols

AccuStandard has researched and developed standard solutions that meet the requirements of various governmental bodies around the world. If you do not locate a solution that meets your requirements, please contact our Technical Department, and we will quickly develop a formulation that meets your requirements.

Organic Chemicals	USEPA Methods	DIN	ISO
PCBs	508, 617, 680, 1668, 8082		
Congeners	508, 525.1, 525.2, 1668, 8082	38407-3, 38414-20	6468
PCB Metabolites and Derivatives	8082		
Aroclors	505, 508, 508A, 625		
Dibenzofurans	613, 8280A		
PAHs and Derivatives	525, 550, 553, 610, 625, 8100, 8310, 1653	38407-8, 38407-18, 38414-23	
Nitroaromatics	609, 8070A, 8090, 8091	38407-17	
Amines, Anilines and Amino Aromatics	605, 607, 620, 8131, 8325	38407-16	
Nitrogen Containing Compounds (other)	509, 553		
Phenols and Derivatives	528, 604, 642, 8040, 8040, 8041, 8085	12673	17495
Phthalates	506, 606, 8060, 8061A		
Aldehydes	554, 556, 1667A, 8315, 8315A		
Ketones	554, 556, 8315, 8315A, 8091		
Halo Ethers	611, 8110, 8111		
Haloacetic acids	552		
Pesticides and Herbicides	501, 505, 507, 508, 515, 525, 531, 547, 548, 549, 552,551, 555, 608, 614, 615, 619, 608.1, 625, 627, 629, 631, 632, 633, 634, 635, 636, 639, 640, 641, 643, 644, 645, 680, 1618, 1656, 1657, 1658, 1659, 8080, 8081, 8085, 8140, 8141, 8318, 8150, 8151	38407-2, 38407-11, 38407-14, 38407-22	6468, 10695
Volatiles	502, 503, 504, 524, 551B, 556, 601, 602, 603, 624, 1666, 8010, 8011, 8015B, 8020, 8021, 8030, 8031, 8032, 8033,	38407-2, 38407-9	10301
Explosives	8095, 8330	38407-17, 38407-21	

PCB Congeners

Toxicity and Abundance based PCB Congener Formulations
These formulations have been selected by the Institute for Biological Sciences of Canada. The concentration level for these formulations is selected so that 1 mL of standard diluted into 100 mL will show equal response by ECD.

PCB Congener Set
C-CAN-SET — **4 x 1 mL (C-CAN-01, C-CAN-02, C-CAN-03, C-CAN-04)**

PCB Congener Mix #1

C-CAN-01	**1 x 1 mL**
At stated conc. in Isooctane	14 comps.
(Congener No.)	µg/mL
2,2',5-Trichlorobiphenyl (18)	11.8
2,4',5-Trichlorobiphenyl (31)	6.6
2,2',3,3'-Tetrachlorobiphenyl (40)	4.9
2,2',3,5'-Tetrachlorobiphenyl (44)	5.9
2,2',4,5'-Tetrachlorobiphenyl (49)	7.6
2,2',6,6'-Tetrachlorobiphenyl (54)	16.6
3,3',4,4'-Tetrachlorobiphenyl (77)	5.5
2,2',3,4,5-Pentachlorobiphenyl (86)	2.9
2,2',3,4,5'-Pentachlorobiphenyl (87)	3.8
2,3',4,5',6-Pentachlorobiphenyl (121)	3.1
2,2',4,4',5,5'-Hexachlorobiphenyl (153)	2.1
2,3,3',4,4',5-Hexachlorobiphenyl (156)	1.5
2,3,3',4,5,5'-Hexachlorobiphenyl (159)	1.2
Decachlorobiphenyl (209)	1.7

PCB Congener Mix #2

C-CAN-02	**1 x 1 mL**
At stated conc. in Isooctane	15 comps.
(Congener No.)	µg/mL
4,4'-Dichlorobiphenyl (15)	91.9
2,2',5,5'-Tetrachlorobiphenyl (52)	15.2
2,3,4,4'-Tetrachlorobiphenyl (60)	3.9
2,2',4,5',6-Pentachlorobiphenyl (103)	10.8
2,3,3',4,4'-Pentachlorobiphenyl (105)	4
2,2',3,3',4,4'-Hexachlorobiphenyl (128)	4.9
2,2',3,4,5,6'-Hexachlorobiphenyl (143)	5.7
2,2',4,4',5,6'-Hexachlorobiphenyl (154)	6.2
2,2',3,3',4,5,6-Heptachlorobiphenyl (173)	2.3
2,2',3,4,4',5,6'-Heptachlorobiphenyl (182)	3.8
2,2',3,3',5,5',6,6'-Octachlorobiphenyl (202)	3.6
2,3,3',4,4',5,5',6-Octachlorobiphenyl (205)	3.2
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl (207)	3.8
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (208)	2.4
Decachlorobiphenyl (209)	2.8

PCB Congener Mix #3

C-CAN-03	**1 x 1 mL**
At stated conc. in Isooctane	15 comps.
(Congener No.)	µg/mL
4,4'-Dichlorobiphenyl (15)	138.1
2,3,4,4',5-Pentachlorobiphenyl (114)	6.3
2,2',3,3',4,5-Hexachlorobiphenyl (129)	8.3
2,2',3,4,4',5-Hexachlorobiphenyl (137)	7.4
2,2',4,4',5,5'-Hexachlorobiphenyl (153)	7.3
2,2',3,3',4,4',6-Heptachlorobiphenyl (171)	5.2
2,2',3,4,4',5',6-Heptachlorobiphenyl (183)	6.6
2,2',3,4,5,5',6-Heptachlorobiphenyl (185)	3.5
2,3,3',4,4',5,5'-Heptachlorobiphenyl (189)	4.7
2,3,3',4,4',5',6-Heptachlorobiphenyl (191)	5
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (201)	4.8
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (199)	7
2,2',3,4,4',5,5',6-Octachlorobiphenyl (203)	5.1
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (206)	6.7
Decachlorobiphenyl (209)	5.1

PCB Congener Mix #4

C-CAN-04	**1 x 1 mL**
At stated conc. in Isooctane	15 comps.
(Congener No.)	µg/mL
4,4'-Dichlorobiphenyl (14)	76.7
2,2',4,5,5'-Pentachlorobiphenyl (101)	8.9
2,3',4,4',5-Pentachlorobiphenyl (118)	3.9
2,2',3,4,4',5'-Hexachlorobiphenyl (138)	4.2
2,2',3,4,5,5'-Hexachlorobiphenyl (141)	2.8
2,2',3,5,5',6-Hexachlorobiphenyl (151)	5
2,2',4,4',5,5'-Hexachlorobiphenyl (153)	3.3
2,2',3,3',4,4',5-Heptachlorobiphenyl (170)	3
2,2',3,4,4',5,5'-Heptachlorobiphenyl (180)	2.8
2,2',3,4',5,5',6-Heptachlorobiphenyl (187)	3.2
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (194)	2.4
2,2',3,3',4,4',5,6-Octachlorobiphenyl (195)	2.6
2,2',3,3',4,4',5,6'-Octachlorobiphenyl (196)	3.3
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (199)	3.6
Decachlorobiphenyl (209)	2.7

PCB Congener Formulation
Quebec Ministry of Environment

PCB Congener Mix

C-QME-01	**1 x 1 mL**
At stated conc. in Isooctane	41 comps.
(Congener No.)	ng/mL
2,2',4-Trichlorobiphenyl (17)	500
2,2',5-Trichlorobiphenyl (18)	2000
2,4,4'-Trichlorobiphenyl (28)	2000
2,4',5-Trichlorobiphenyl (31)	1500
2',3,4-Trichlorobiphenyl (33)	2000
2,2',3,5'-Tetrachlorobiphenyl (44)	2000
2,2',4,5'-Tetrachlorobiphenyl (49)	2000
2,2',5,5'-Tetrachlorobiphenyl (52)	2000
2,3',4',5-Tetrachlorobiphenyl (70)	2000
2,4,4',5-Tetrachlorobiphenyl (74)	2000
2,2',3,3',4-Pentachlorobiphenyl (82)	500
2,2',3,4,5'-Pentachlorobiphenyl (87)	2000
2,2',3,5',6-Pentachlorobiphenyl (95)	1000
2,2',4,4',5-Pentachlorobiphenyl (99)	2000
2,2',4,5,5'-Pentachlorobiphenyl (101)	2000
2,3,3',4,4'-Pentachlorobiphenyl (105)	500
2,3,3',4',6-Pentachlorobiphenyl (110)	2000
2,3',4,4',5-Pentachlorobiphenyl (118)	2000
2,2',3,3',4,4'-Hexachlorobiphenyl (128)	2000
2,2',3,3',4,6'-Hexachlorobiphenyl (132)	1000
2,2',3,4,4',5'-Hexachlorobiphenyl (138)	2000
2,2',3,4',5',6-Hexachlorobiphenyl (149)	2000
2,2',3,5,5',6-Hexachlorobiphenyl (151)	2000
2,2',4,4',5,5'-Hexachlorobiphenyl (153)	2000
2,3,3',4,4',5-Hexachlorobiphenyl (156)	2000
2,3,3',4,4',6-Hexachlorobiphenyl (158)	500
3,3',4,4',5,5'-Hexachlorobiphenyl (169)	2000
2,2',3,3',4,4',5-Heptachlorobiphenyl (170)	2000
2,2',3,3',4,4',6-Heptachlorobiphenyl (171)	2000
2,2',3,3',4',5,6-Heptachlorobiphenyl (177)	2000
2,2',3,4,4',5,5'-Heptachlorobiphenyl (180)	2000
2,2',3,4,4',5',6-Heptachlorobiphenyl (183)	2000
2,2',3,4',5,5',6-Heptachlorobiphenyl (187)	2000
2,3,3',4,4',5',6-Heptachlorobiphenyl (191)	2000
2,2',3,3',4,4',5,5'-Octachlorobiphenyl (194)	2000
2,2',3,3',4,4',5,6-Octachlorobiphenyl (195)	2000
2,2',3,3',4,5,5',6'-Octachlorobiphenyl (199)	1500
2,3,3',4,4',5,5',6-Octachlorobiphenyl (205)	2000
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (206)	2000
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl (208)	2000
Decachlorobiphenyl (209)	2000

Dioxins: Calibration & Window Defining Mixtures (Canadian Environmental Methods)

Custom Window Defining Mixture

D-WD — **1 x 1 mL**
20,000 ng/mL in Toluene

D-WD-2.5X — **1 x 1 mL**
50,000 ng/mL in Toluene — 7 comps.

1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin (Isomer pair)
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin
1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-*p*-dioxin (Isomer pair)
1,2,3,4,6,7-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

Custom Calibration Mixture

D-CAL — **1 x 1 mL**
20,000 ng/mL in Toluene

D-CAL-2.5X — **1 x 1 mL**
50,000 ng/mL in Toluene — 6 comps.

1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
Octachlorodibenzo-*p*-dioxin

PAH Mixture
Quebec Ministry of Environment

PAH Standard
H-QME-01 **1 x 1 mL**
500 µg/mL each in CH_2Cl_2:Benzene (50:50) 24 comps

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Dibenzo[a,h]pyrene
Anthracene	Dibenzo[a,i]pyrene
Benz[a]anthracene	Dibenzo[a,l]pyrene
Benzo[b]fluoranthene	7,12-Dimethylbenz[a]anthracene
Benzo[j]fluoranthene	Fluoranthene
Benzo[k]fluoranthene	Fluorene
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene
Benzo[c]phenanthrene	3-Methylcholanthrene
Benzo[a]pyrene	Naphthalene
Benzo[e]pyrene	Phenanthrene
Chrysene	Pyrene

Petroleum Brownfield Regulation

The Brownfield Regulation has been approved by the Canadian Ministry of the Environment as of October 1, 2004.

Light Petroleum Fraction
CCME-LPF-SET **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 8 comps.

Compound	0.05X	0.1X	0.2X	0.5X	1X
n-Decane	12.5	25	50	125	250
n-Hexane	12.5	25	50	125	250
Toluene	12.5	25	50	125	250
Benzene	12.5	25	50	125	250
o-Xylene	12.5	25	50	125	250
m-Xylene	6.25	12.5	25	62.5	125
p-Xylene	6.25	12.5	25	62.5	125
Ethylbenzene	12.5	25	50	125	250

Medium & Heavy Petroleum Fraction
CCME-MHPF-SET **3 x 1 mL**
At stated conc. (µg/mL) in n-Hexane 3 comps.

Compound	0.1X	0.5X	1X
n-Decane	40	200	400
n-Hexadecane	40	200	400
n-Tetratriacontane	40	200	400

Performance Check Standard
CCME-QC **1 x 1 mL**
CCME-QC-PAK **5 x 1 mL**
40 µg/mL each in n-Hexane:Cyclohexane (50:50) 2 comps.

n-Pentacontane
n-Tetracontane

Spike Standard
CCME-SPIKE **1 x 1 mL**
2500 µg/mL each in n-Hexane 2 comps.

SAE 30W Motor Oil - Non-Detergent Formula
#2 Diesel Fuel - 50% Weathered

Canadian Atlantic RBCA EPH Mix
CCME-EPH **1 x 1 mL**
1000 µg/mL each in Hexane:CH_2Cl_2 (85:15) 11 comps.

Acenapthene	n-Dotriacontane
Anthracene	n-Heneicosane
Benzo[a]pyrene	n-Hexadecane
Chrysene	n-Octaconsane
n-Decan	Naphthalene
n-Dodecane	

Surrogate Standard
CCME-EPH/SS **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 2 comps.

n-Dotriacontane
Isobutylbenzene

Canadian Atlantic RBCA VPH Mix
CCME-VPH **1 x 1 mL**
1000 µg/mL each in MeOH 12 comps.

Benzene	n-Octane
n-Decane	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
n-Heptane	1,3,5-Trimethylbenzene
n-Hexane	o-Xylene
1-Methyl-3-ethylbenzene	p-Xylene

Surrogate Standard
CCME-VPH/SS **1 x 1 mL**
1000 µg/mL in MeOH

Isobutylbenzene

Canadian Drinking Water Brownfield Regulation

Phenoxyacid Herbicides Mix
CCME-CDW-PHERB **1 x 1 mL**
1000 µg/mL each in Acetone 11 comps.

Bromoxynil	Pentachlorophenol
2,4-D	Picloram
Dicamba	2,4,5-T
2,4-Dichlorophenol	2,3,4,6-Tetrachlorophenol
Diclofop methyl	2,4,6-Trichlorophenol
Dinoseb	

Carbamates Mix
CCME-CDW-CARB **1 x 1 mL**
100 µg/mL each in AcCN 5 comps.

Aldicarb	Carbofuran
Bendiocarb	Triallate
Carbaryl	

Chlorinated Pesticide Mix
CCME-CDW-CPEST **1 x 1 mL**
200 µg/mL each in Hexane:Toluene (50:50) 14 comps.

Aldrin	4,4'-DDT
γ-BHC	Dieldrin
α-Chlordane	Heptachlor
γ-Chlordane	Heptachlor epoxide (Isomer B)
2,4'-DDE	Methoxychlor
4,4'-DDE	Oxychlordane Isomer
2,4'-DDT	Trifluralin

MISA Analytical Test Groups

Set MISA-VH-1/VH-2-SET — 2 x 1 mL (MISA-VH-1, MISA-VH-2)

Group 16: Volatiles, Halogenated

MISA-VH-1 — 1 x 1 mL
MISA-VH-1-PAK — *SAVE* — 5 x 1 mL
0.5 mg/mL each in MeOH — 22 comps.

- Bromoform
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- 1,2-Dibromoethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethane
- *trans*-1,2-Dichloroethene
- 1,1-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene*
- *trans*-1,3-Dichloropropene**
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene

* cis (1.06 x conc.)
** trans (0.94 x conc.)

MISA-VH-2 — 1 x 1 mL
MISA-VH-2-PAK — *SAVE* — 5 x 1 mL
0.5 mg/mL each in MeOH — 5 comps.

- Bromomethane
- Chloroethane
- Chloromethane
- Trichlorofluoromethane
- Vinyl chloride

Group 17: Volatiles, Non-Halogenated

MISA-VNH — 1 x 1 mL
MISA-VNH-PAK — *SAVE* — 5 x 1 mL
0.5 mg/mL each in MeOH — 7 comps.

- Benzene
- Ethylbenzene
- Styrene
- Toluene
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Group 18: Volatiles, Water Soluble

MISA-VWS — 1 x 1 mL
2.0 mg/mL each in Water — 2 comps.

- Acrolein
- Acrylonitrile

Group 19: Extractables, Base-Neutral

Z-014G — 1 x 1 mL
Z-014G-PAK — *SAVE* — 5 x 1 mL
2.0 mg/mL each in CH_2Cl_2: Benzene (50:50) — 16 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benz[a]anthracene
- Benzo[a]pyrene
- Benzo[b]fluroanthene
- Benzo[ghi]perylene
- Benzo[k]fluoranthene
- Chrysene
- Dibenz[a,h]anthracene
- Fluoranthene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Naphthalene
- Phenanthrene
- Pyrene

MISA-BN-1 — 1 x 1 mL
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Biphenyl
- Camphene
- 1-Chloronaphthalene
- 2-Chloronaphthalene
- 1-Methylnaphthalene
- 2-Methylnaphthalene
- 5-Nitroacenaphthene
- Perylene

MISA-BN-2 — 1 x 1 mL
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Benzylbutylphthalate
- 4-Bromophenyl phenyl ether
- bis(2-Chloroethyl) ether
- bis(2-Chloroisopropyl) ether
- 4-Chlorophenyl phenyl ether
- Di-n-butyl phthalate
- Di-n-octyl phthalate
- bis(2-Ethylhexyl)phthalate

MISA-BN-3 — 1 x 1 mL
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- bis(2-Chloroethoxy)methane
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Diphenylamine
- Diphenylether
- Indole
- N-Nitroso-diphenylamine
- N-Nitroso-di-*n*-propyl amine

Group 20: Extractables, Acid (Phenolics)

MISA-A — 1 x 1 mL
MISA-A-PAK — *SAVE* — 5 x 1 mL
2.0 mg/mL each in CH_2Cl_2 — 20 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2-Cresol
- 3-Cresol
- 4-Cresol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 4,6-Dinitro-2-cresol
- 2,4-Dinitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,5-Tetrachlorophenol
- 2,3,4,6-Tetrachlorophenol
- 2,3,5,6-Tetrachlorophenol
- 2,3,4-Trichlorophenol
- 2,3,5-Trichlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Group 22: Organochlorine Pesticides

MISA-PEST — 1 x 1 mL
MISA-PEST-PAK — *SAVE* — 5 x 1 mL
2.0 mg/mL each in Acetone — 18 comps.

- Aldrin
- α-BHC
- β-BHC
- γ-BHC
- δ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Endrin ketone
- Heptachlor
- Heptachlor epoxide isomer B
- Methoxychlor

Group 23: Extractables, Chlorinated Neutrals

MISA-NC — 1 x 1 mL
2.0 mg/mL each in CH_2Cl_2 — 12 comps.

- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Octachlorostyrene
- Pentachlorobenzene
- 1,2,3,4-Tetrachlorobenzene
- 1,2,3,5-Tetrachlorobenzene
- 1,2,4,5-Tetrachlorobenzene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 2,4,5-Trichlorotoluene

Group 27: Polychlorinated Biphenyls

Solutions and Sets

Each at 35 µg/mL	Isooctane	MeOH	1 mL
Aroclor 1016	C-216S	C-216S-M	
Aroclor 1221	C-221S	C-221S-M	
Aroclor 1232	C-232S	C-232S-M	
Aroclor 1242	C-242S	C-242S-M	
Aroclor 1248	C-248S	C-248S-M	
Aroclor 1254	C-254S	C-254S-M	
Aroclor 1260	C-260S	C-260S-M	
Aroclor 1262	C-262S	C-262S-M	
Aroclor 1268	C-268S	C-268S-M	
Set of 9 above	**Z-008S-SET**	**Z-008S-M-SET**	

PCB Congener Standards

PCB Congener Mixture

PCB-W22 **1 x 1 mL**
10 µg/mL each in Isooctane 15 comps.
PCB-W22-PAK ***SAVE*** **5 x 1 mL**

PCB-W22-SET **15 x 1 mL**
100 µg/mL in Isooctane (Set of Individual Solutions)

No.	
18	2,2',5-Trichlorobiphenyl
20	2,3,3'-Trichlorobiphenyl
28	2,4,4'-Trichlorobiphenyl
31	2,4',5-Trichlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
105	2,3,3',4,4'-Pentachlorobiphenyl
118	2,3',4,4',5-Pentachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
149	2,2',3,4',5',6-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
170	2,2',3,3',4,4',5-Heptachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl

Internal Standard

C-EU-IS-10ML **1 x 10 mL**
At stated conc. in Isooctane 2 comps.

2,4,6-Trichlorobiphenyl
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl

ISO 6468 PCB Standard

ISO6468-PCB **1 x 1 mL**
10 µg/mL each in Hexane 7 comps.

2,4,4'-Trichlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl
2,2',3,3',4,4',5,5'-Octachlorobiphenyl

PCB Congener Content Evaluation Mix #1

AE-00059 **1 x 1 mL**
AE-00059-10ML **1 x 10 mL**
10 µg/mL each in Isooctane 6 comps.

No.	
28	2,4,4'-Trichlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl

PCB Congener Content Evaluation Mix #2

AE-00060 **1 x 1 mL**
AE-00060-10ML **1 x 10 mL**
10 µg/mL each in Isooctane 3 comps.

No.	
77	3,3',4,4'-Tetrachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl
169	3,3',4,4',5,5'-Hexachlorobiphenyl

Congener Calibration Mix #27

AE-00081-10ML **1 x 1 mL**
100 µg/mL each in Isooctane 10 comps.

2,4,4'-Trichlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,3,3',4,4'-Pentachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,3,3',4,4',5-Hexachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl
Decachlorobiphenyl

Congener Calibration Mix

AE-00061 **1 x 1 mL**
AE-00061-10ML **1 x 10 mL**
10 µg/mL each in Isooctane 14 comps.

No.	
18	2,2',5-Trichlorobiphenyl
28	2,4,4'-Trichlorobiphenyl
31	2,4',5-Trichlorobiphenyl
44	2,2',3,5'-Tetrachlorobiphenyl
52	2,2',5,5'-Tetrachlorobiphenyl
101	2,2',4,5,5'-Pentachlorobiphenyl
118	2,3',4,4',5-Pentachlorobiphenyl
138	2,2',3,4,4',5'-Hexachlorobiphenyl
149	2,2',3,4',5',6-Hexachlorobiphenyl
153	2,2',4,4',5,5'-Hexachlorobiphenyl
170	2,2',3,3',4,4',5-Heptachlorobiphenyl
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl
209	Decachlorobiphenyl

Internal Standards

Each in 100 µg/mL in Isooctane

C-030S-TP **1 x 1 mL**
2,4,6-Trichlorobiphenyl
C-209S-TP **1 x 1 mL**
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl

Technical Note

These Congener Content Evaluation Mixes have proven useful for European Laboratories estimating the PCB content of a sample when following EU guideline 96/59/EU for cleanup of PCBs.

Thousands of Standards, just a click away

AccuStandard.com

Regional Standards
European Methodologies

Volatiles

DIN 38407-2 Benzene Standard
Determination of water, waste water and sludge for low volatile halogenated hydrocarbons by GC.
DIN38407-2-BENZ **1 x 1 mL**
10 µg/mL each in n-Hexane 5 comps.

Hexachlorobenzene
Pentachlorobenzene
Pentachloronitrobenzene
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene

Volatile Standard
AE-00048 **1 x 1 mL**
100 µg/mL each in MeOH 5 comps.

1,1,1-Trichloroethane
Trichloroethene
Tetrachloroethene
Dichloromethane
Tetrachloromethane

Calibration Solution
Set of 5 ampules with a conc. each in MeOH of 1 µg/mL, 5 µg/mL, 10 µg/mL, 50 µg/mL and 100 µg/mL

Compound	Cat. No.	Unit
1,1,1-Trichloroethane	AE-00034-CAL-SET	5 x 1 mL
Trichloroethene	AE-00035-CAL-SET	5 x 1 mL
Tetrachloroethene	AE-00036-CAL-SET	5 x 1 mL
Dichloromethane	AE-00037-CAL-SET	5 x 1 mL
Carbon tetrachloride	AE-00038-CAL-SET	5 x 1 mL

DIN 38407-9 Benzene Mix
Determination of Benzene and Benzene derivatives in water, wastewater and sludge by GC.
DIN38407-9-BENZ **1 x 1 mL**
100 µg/mL each in MeOH 8 comps.

Benzene
Toluene
Ethylbenzene
Chlorobenzene
1,4-Dichlorobenzene
o-Xylene
m-Xylene
p-Xylene

DIN EN ISO 10301 - Halogenated VOCs
Determination of water, waste water and sludge for low volatile halogenated hydrocarbons by GC.
DINENISO-10301 **1 x 1 mL**
1 µg/mL each in MeOH 17 comps.

Dichloromethane
Trichloromethane
Carbon tetrachloride
1,1-Dichloroethane
1,2-Dichloroethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Tetrachloroethene
1,2-Dichloropropane
1,3-Dichloropropane
1,3-Dichloropropene
Dibromomethane
Tribromoethene
Bromochloromethane
Bromodichloromethane
Dibromochloromethane

Volatiles Calibration Curve Mix 1
AE-00039-CAL-SET **5 x 1 mL**
1 µg/mL, 5 µg/mL, 10 µg/mL, 50 µg/mL, 100 µg/mL
Each comp. in MeOH 5 comps.

Dichloromethane
Tetrachloroethene
Tetrachloromethane
1,1,1-Trichloroethane
Trichloroethene

Volatiles Calibration Curve Mix 2
AE-00040-CAL-SET **5 x 1 mL**
1 µg/mL, 5 µg/mL, 10 µg/mL, 50 µg/mL, 100 µg/mL
Each comp. in MeOH 6 comps.

Chloroform
Dichloromethane
Tetrachloroethene
Tetrachloromethane
1,1,1-Trichlorothane
Trichloroethene

Chlorinated Organic Volatile

Calibration Standards
Appendix 2, Drinking Water Regulation of May 22, 1986.

Compound	Cat. No.	*Each at 100 µg/mL in MeOH* 1 mL
1,1,1-Trichloroethane	APP-9-202	
Trichloroethene	APP-9-204	
Tetrachloroethene	APP-9-194	
Dichloromethane	APP-9-074	
Carbon tetrachloride	APP-9-036	

Nitroaromatic Compounds

DIN-38407-17 Nitroaromatic Compounds
Examination of water, wastewater, and sludge for the determination of selected nitroaromatic compounds by Gas-Liquid Chromatography
DIN38407-17 **1 x 1 mL**
500 µg/mL each in MeOH 12 comps.

Nitrobenzene
2-Nitrotoluene
4-Nitrotoluene
1,3-Dinitrobenzene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
3,4-Dinitrotoluene
2-Amino-6-nitrotoluene
4-Amino-2-nitrotoluene
4-Amino-2,6-dinitrotoluene
2-Amino-4,6-dinitrotoluene
2,4,6-Trinitrotoluene

Explosives

DIN 38407-21 Explosives
Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection
DIN38407-21-A **1 x 1 mL**
10 µg/mL each in MeOH 12 comps.

Picric acid
HMX
RDX
Tetryl
EGDN
DEGDN
Nitroglycerin
TNT
2-Nitrotoluene
PETN
4-Nitrotoluene
3-Nitrotoluene

DIN 38407-21 Related Compounds
Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection
DIN38407-21-B **1 x 1 mL**
10 µg/mL each in MeOH:AcCN (98:2) 8 comps.

1,3,5-Trinitrobenzene
1,3-Dinitrobenzene
4-Amino-2,6-dinitrotoluene
2,2',4,4',6,6'-Hexanitrodiphenylamine
2-Amino-4,6-dinitrotoluene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
Diphenylamine

PAHs

DIN 38407-8 PAH Mix (WHO 6 List)

Determination of PAH in water, wastewater and sludge by HPLC.

DIN38407-8-PAH **1 x 1 mL**
2 µg/mL each in Acetonitrile 6 comps.

Fluoranthene	Benzo[a]pyrene
Benzo[b]fluoranthene	Benzo[k]fluoranthene
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene

DIN 38407-18 PAH Solution

Examination of water, wastewater, and sludge for the determination of 15 polycyclic aromatic hydrocarbons (PAH) by HPLC with fluorescence detection.

DIN38407-18 **1 x 1 mL**
10 µg/mL each in Acetonitrile 15 comps.

Naphthalene	Benzo[k]fluoranthene
Acenaphthene	Benzo[a]pyrene (Ames grade)
Fluorene	Dibenz[a,h]anthracene
Phenanthrene	Benzo[g,h,i]perylene
Anthracene	Pyrene
Fluoranthene	Benz[a]anthracene
Chrysene	Indeno[1,2,3-cd]pyrene
Benzo(b)fluoranthene	

DIN 38414-23 PAHs

Determination of 15 PAHs in water, waste water and sludge by HPLC and Fluorescence detection.

DIN38414-23 **1 x 1 mL**
10 µg/mL each in Acetonitrile 15 comps.

Naphthalene	Benzo[k]fluoranthene
Acenaphthene	Benzo[a]pyrene (Ames grade)
Fluorene	Dibenz[a,h]anthracene
Phenanthrene	Benzo[g,h,i]perylene
Anthracene	Pyrene
Fluoranthene	Benz[a]anthracene
Chrysene	Indeno[1,2,3-cd]pyrene
Benzo[b]fluoranthene	

PAH Standard Kits and Solutions

The following mixtures and kits have been prepared to meet the needs of laboratories utilizing European and USEPA methodologies.
Minimum purity 99%, except where indicated.

PAH Mix #1

Regulations for drinking water analysis, (E-DIN 38407-F-18, E-DIN 38414-F-21). Regulations for sediment and sludge

AE-00025 **1 x 1 mL**
AE-00025-10ML **1 x 10 mL**
At stated conc. in Acetonitrile 16 comps.

Acenaphthene	(25 µg/mL)	Chrysene	(20 µg/mL)
Acenaphthylene	(25 µg/mL)	Dibenz[a,h]anthracene	(40 µg/mL)
Anthracene	(25 µg/mL)	Fluoranthene	(40 µg/mL)
Benz[a]anthracene	(10 µg/mL)	Fluorene	(40 µg/mL)
Benzo[b]fluoranthene	(25 µg/mL)	Indeno[1,2,3-cd]pyrene	(25 µg/mL)
Benzo[k]fluoranthene	(10 µg/mL)	Naphthalene	(50 µg/mL)
Benzo[g,h,i]perylene	(25 µg/mL)	Phenanthrene (98%)	(30 µg/mL)
Benzo[a]pyrene	(20 µg/mL)	Pyrene	(40 µg/mL)

PAH Mix #2

For European methods according to customer requests.

AE-00045 **1 x 1 mL**
AE-00045-10ML **1 x 10 mL**
At stated conc. in Acetonitrile 7 comps.

Benzo[b]fluoranthene	(2 µg/mL)	Fluoranthene	(10 µg/mL)
Benzo[k]fluoranthene	(2 µg/mL)	Indeno[1,2,3,cd]pyrene	(2 µg/mL)
Benzo[g,h,i]perylene	(2 µg/mL)	Perylene	(10 µg/mL)
Benzo[a]pyrene	(2 µg/mL)		

PAH Mix #3

German method for drinking water analysis.

AE-00032 **1 x 1 mL**
AE-00032-10ML **1 x 10 mL**
10 µg/mL each in Acetonitrile 7 comps.

Benzo[b]fluoranthene	Fluoranthene
Benzo[k]fluoranthene	Indeno[1,2,3,cd]pyrene
Benzo[g,h,i,]perylene	Perylene
Benzo[a]pyrene	

PAH Mix #4

For European methods according to customer requests.

AE-00033 **1 x 1 mL**
AE-00033-10ML **1 x 10 mL**
In Acetonitrile 7 comps.

Benzo[b]fluoranthene	(20 µg/mL)	Fluoranthene	(50 µg/mL)
Benzo[k]fluoranthene	(20 µg/mL)	Indeno[1,2,3,cd]pyrene	(40 µg/mL)
Benzo[g,h,i,]perylene	(20 µg/mL)	Perylene	(20 µg/mL)
Benzo[a]pyrene	(20 µg/mL)		

ISO/DIS 22032 PBDEs in Sediment & Sludge

DRAFT INTERNATIONAL STANDARD

ISO/DIS 22032 Calibration Curve Set

ISO/DIS-22032-SET **7 x 1 mL**
At stated conc. (ng/mL) in Isooctane 8 comps. each

ISO/DIS-22032 (Congener No.)	01	02	03	04	05	06	07
2,2',4,4'-Tetrabromodiphenyl ether (#47)	5	12.5	25	50	100	150	250
2,2',4,4',5-Pentabromodiphenyl ether (#99)	5	12.5	25	50	100	150	250
2,2',4,4',6-Pentabromodiphenyl ether (#100)	5	12.5	25	50	100	150	250
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	5	12.5	25	50	100	150	250
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	5	12.5	25	50	100	150	250
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	5	12.5	25	50	100	150	250
2,3,3',4,4',5,5',6-Octabromodiphenyl ether (#205)	5	12.5	25	50	100	150	250
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (#209)	25	50	100	200	500	700	1000

Internal Standard for BDE# 47, 99 and 100

ISO22032-IS-1-5ML **1 x 5 mL**
ISO22032-IS-1-10ML **1 x 10 mL**
100 ng/mL each in Isooctane

3,3',4,4'-Tetrabromodiphenyl ether

Internal Standard for BDE# 153, 154 and 183

ISO22032-IS-2-5ML **1 x 5 mL**
ISO22032-IS-2-10ML **1 x 10 mL**
100 ng/mL each in Isooctane

2,2',3,4,4',5,6-Heptabromodiphenyl ether

Aliphatic, Aromatic Amines and Derivatives

Aryl Amine Multi-Component Solution

AE-00049-SET **2 x 1 mL**
10 µg/mL each in Ethyl acetate 24 comps. (Includes AE-00049-R1 plus RAC-08)
AE-00049-R1 **1 mL**
10 µg/mL each in Ethyl acetate 23 comps.

o-Aminoazotoluene
4-Aminobiphenyl
2-Amino-4-nitrotoluene
Benzidine
4-Chloroaniline
4-Chloro-*o*-toluidine
p-Cresidine
4,4'-Diaminodiphenylmethane
2,4-Diaminotoluene
3,3'-Dichlorobenzidine
3,3'-Dimethoxybenzidine
3,3'-Dimethylbenzidine
3,3'-Dimethyl-4,4'-diaminodiphenylmethane
4,4'-Methylenebis(2-chloroaniline)
2-Naphthylamine
4,4'-Oxydianiline
4,4'-Thiodianiline
o-Toluidine
2,4,5-Trimethylaniline
p-Aminoazobenzene
2-Aminobiphenyl
o-Anisidine
3-Chloro-*o*-toluidine

RAC-08 **1 mL**
100 µg/mL each in Pyridine

2,4-Diaminoanisole

Note: 2,4-Diaminoanisole is introduced with the sulfate hydrate

EFSA for Isopropylthioxanthone (ITX)

Responding to the hazard found in Italy, France, Spain, and Portugal, AccuStandard has formulated Isopropylthioxanth-9-one (a photographical chemical) found in baby milk in Italy. The 2-isomer as well as the technical mixture also contains the 4-isomer.

2-Isopropylthioxanthone (ITX)

EFSA-ITX-01 **1 x 1 mL**
1.0 mg/mL in Isooctane

2-Isopropylthioxanth-9-one

Isopropylthioxanthone (ITX) Mixed Isomers

EFSA-ITX-02 **1 x 1 mL**
1.0 mg/mL in Isooctane

2- and 4- Isopropylthioxanth-9-one

Service with a smile

Halo Acetic Acids

DIN 38407-25 Selected Halo Acetic Acids

DIN38407-25 **1 x 1 mL**
10 µg/mL in MtBE 7 comps.

Bromochloroacetic acid
Dalapon
Dibromoacetic acid
Dichloroacetic acid
Bromoacetic acid
Chloroactic acid
Trichloroacetic acid

Pesticide Standards

The following Pesticide Standards are for German Regulations (for residue thresholds), Swiss Regulations (for components and contaminants in food), and DFG collected methods.

Pesticide / Congener Mix #1

AE-00010 **1 x 1 mL**
AE-00010-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 31 comps.

2,4,4'-Trichlorobiphenyl	1
2,2',5,5'-Tetrachlorobiphenyl	1
2,2',4,5,5'-Pentachlorobiphenyl	1
2,2',3,4,4',5'-Hexachlorobiphenyl	1
2,2',4,4',5,5'-Hexachlorobiphenyl	1
2,2',3,4,4',5,5'-Heptachlorobiphenyl	1
Aldrine	10
cis-Chlordane	10
trans-Chlordane	10
oxy-Chlordane	10
o,p'-DDD	10
p,p'-DDD	10
o,p'-DDE	10
p,p'-DDE	10
o,p'-DDT	10
p,p'-DDT	10
Dieldrine	10
Endosulfan I	10
Endosulfan II	10
Endrine	10
α-HCH	10
β-HCH	10
γ-HCH	10
δ-HCH	10
Heptachlor	10
cis-Heptachlorepoxide	10
trans-Heptachlorepoxide	10
Hexachlorbenzene	10
Isodrin	10
Methoxychlor	10
Mirex	10

Pesticide Mix #2

AE-00011 **1 x 1 mL**
AE-00011-10ML **1 x 10 mL**
10 µg/mL each in Toluene 22 comps.

Anilazine	Tecnacene
Captan	Tetradifon
Chlorthalonil	Tetrasul
Clorfenson	Tridiamefon
Dichlofluanid	Tridiamenol
Dicofol	Trifluarin
Endosulfane-sulfate	Pentachloroaniline
Fenson	Procymidon
Folpet	Propyzamid
Imazalil	Quintozen
Iprodion	Vinclozolin

Pesticide Mix #3

AE-00012 **1 x 1 mL**
AE-00012-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 10 comps.

Captafol	200
Captan	100
Demethon-S-methyl	500
Demethon-S-methyl-sulfone	500
Dicofol	200
Pentachlorophenol	100
Tetrachlorvinphos	10
Trichlorfon	100
Tolyfluanid	100
Vamidithion	200

Pesticide Mix #4

AE-00013 **1 x 1 mL**
AE-00013-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 5 comps.

Cyproconazole	500
Hexaconazole	500
Penconazole	500
Tebuconazole	500
Tetrachlorvinphos	10

Pesticide Mix #5

AE-00014 **1 x 1 mL**
AE-00014-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Ethyl acetate 8 comps.

Atrazine	200
Cyanazine	200
Desmertryn	500
Metribuzin	500
Prometryne	500
Simazine	200
Terbutryn	500
Tetrachlorvinphos	10

Tetrachlorvinphos Surrogate / Internal Standard

AE-00047 **1 x 1 mL**
1000 µg/mL in Acetonitrile

Tetrachlorvinphos

Pesticide Mix #6

AE-00015 **1 x 1 mL**
AE-00015-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 8 comps.

Chlorpyriphos-methyl	100
Diazinon	100
Ethion	100
Etrimfos	50
Iodofenphos	200
Malathion	100
Phosphamidon	200
Tetrachlorvinphos	10

Pesticide Mix #7

AE-00016 **1 x 1 mL**
AE-00016-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 8 comps.

Bromophos-methyl	100
Bromophos-ethyl	150
Fenitrothion	200
Methacryfos	150
Omethoate	150
Phosalone	100
Tetrachlorvinfos	10
Tolclofos-methyl	100

Pesticide Mix #8

AE-00017 **1 x 1 mL**
AE-00017-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene:Acetone:Hexane (90:5:5) 6 comps.

Chlorbufam	500
Chlorpropham	500
Dichlobenil	200
Imazalil	500
Pyrazon	500
2,3,5,6-Tetrachloronitrobenzene	100

Pesticide Mix #9

AE-00018 **1 x 1 mL**
AE-00018-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 9 comps.

Azinophos-ethyl	100
Fenchlorvos	100
Fonophos	150
Methidathion	100
Mevinphos	200
Parathion-ethyl	150
Parathion-methyl	100
Pirimiphos-methyl	100
Tetrachlorvinphos	10

Pesticide Mix #10

AE-00019 **1 x 1 mL**
AE-00019-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 7 comps.

Benalaxyl	500
Carbaryl	500
Oxadixyl	500
Terbuthylazine	250
Tetrachlorvinphos	10
Triadimefon	500
Triadimenol	500

Pesticide Standards continued on next page

Pesticide Standards

The following Pesticide Standards are for German Regulations (for residue thresholds), Swiss Regulations (for components and contaminants in food), and DFG collected methods.

Pesticide Mix #11

AE-00020 **1 x 1 mL**
AE-00020-10ML **1 x 10 mL**
10 µg/mL each in Toluene 19 comps.

Aldrin	β-HCH
Chloridazon	γ-HCH
o,p'-DDD	δ-HCH
p,p'-DDD	Heptachlor
o,p'-DDE	cis-Heptachlorepoxide
p,p'-DDE	trans-Heptachlorepoxide
o,p'-DDT	Hexachlorobenzene
p,p'-DDT	Tecnazene
Endrin	Tetrachlorvinphos
α-HCH	

Pesticide Mix #12

AE-00021 **1 x 1 mL**
AE-00021-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 9 comps.

Carbophenthion	100
Disulfoton	150
Fenthion	100
Methamidophos	100
Phorate	150
Phorate-sulfatone	100
Phorate-sulfone	150
Tetrachlorvinphos	10
Thiomethon	100

Pesticide Mix #13

AE-00022 **1 x 1 mL**
AE-00022-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 8 comps.

Chlorfenvinphos (CFVP)	100
Chlorpyriphos	100
Dichlorvos	100
Dimethoate	100
Heptenophos	100
Quinalphos	100
Tetrachlorvinphos	10
Triazophos	100

Pesticide Mix #14

AE-00023 **1 x 1 mL**
AE-00023-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 10 comps.

Cyfluthrin	500
λ-Cyhalothrin	500
Cypermethrin	500
Deltamethrin	500
Dichloran	100
Fenvalerate	500
Pendimethalin	100
Permethrin	500
Tefluthrin	100
Tetrachlorvinphos	10

Regulations for drinking water and water used in food manufacturing, May 27, 1986, BGBI, I,S. 760.

Pesticide Mix #15

AE-00024 **1 x 1 mL**
AE-00024-10ML **1 x 10 mL**
0.02 µg/mL each in Ethyl acetate 33 comps.

Atrazine	Linuron
Bifenox	Pencycuron
Bromacil	Pendimethalin
Carbetamide	Prometryne
Chloridazo	Propazine
Chloroxuron	Metamitron
Chlorpropham	Metazachlor
Chlortoluron	Methabenzthiazuron
Crimidine	Methoprotryne
Cyanazine	Metobromuron
Desethylatrazine	Metolachlor
Desisopropylatrazine	Monolinuron
Desethylterbuthylazine	Sebuthylazin
Dimefuron	Simazine
Diuron	Terbutryn
Isoproturon	Terbuthylazine
Karbutilate	

Regulations for drinking water analysis, (E-DIN 38407-F-18, E-DIN 38414-F-21) Regulations for sediment and sludge.

Pesticide Mix #16

AE-00030 **1 x 1 mL**
AE-00030-10ML **1 x 10 mL**
10 µg/mL each in Ethyl acetate 20 comps.

Aldicarb	Lindane
Atrazine	MCPA *
Bentazone *	Mecoprop *
Chlortofuron	Metazachlor
Cyanazine	Metobromuron
2,4-D *	Metoxuron
Dichlorprop *	Sebuthylazin
1,3-Dichloropropene	Simazine
Endosulfan I	Terbuthylazine
Endosulfan II	
Isoproturon	

* Underivatized

Regulations - Test methods for organochlorine and organophosphorus compounds and pyrethroid Current Science and Technology, German Book of Medicine (1996).

Pesticide Mix #17

AE-00027 **1 x 1 mL**
AE-00027-10ML **1 x 10 mL**
10 µg/mL each in Toluene 14 comps.

Alachlor	Methyl pentachlorophenyl sulfide
Bromopropylate	Pentachloraniline
Carbophenothion	cis-Permethrin
Cypermethrin	trans-Permethrin
Deltamethrin	Piperonyl butoxide
Endosulfane sulfate	Pyrethrins
Fenvalerate	Quintozene

Pesticide Mix #18

AE-00028 **1 x 1 mL**
AE-00028-10ML **1 x 10 mL**
10 µg/mL each in Toluene 16 comps.

Azinphos-methyl	Ethyl parathion
Carbophenothion	Fenitrothion
Chlorfenvinphos	Fonofos
Chlorpyrifos-ethyl	Methyl parathion
Chlorpyrifos-methyl	Malathion
Diazinon	Methidathion
Dichlorphos	Phosalone
Ethion	Pirimiphos-methyl

Pesticide Mix #19

AE-00029 **1 x 1 mL**
AE-00029-10ML **1 x 10 mL**
10 µg/mL each in Toluene 13 comps.

Chlorpyrifos-methyl	Fenitrothion
p,p'-DDT	Lindane
Deltamethrin	Methyl parathion
Dichlorvos	Phosalone
Dieldrin	Quintozene
Endosulfan sulfate	Tecnazene
Ethion	

Pesticide Standards

Pesticide Mix #20

AE-00050 **1 x 1 mL**
AE-00050-10ML **1 x 10 mL**
10 µg/mL each in Ethyl acetate 20 comps.

Aldicarb	Isoproturon
Atrazine	γ-BHC
Bentazon	MCPA
Chlortoluron	MCPP acid
Cyanazine	Metazachlor
2,4-D	Metobromuron
Dichlorprop	Metoxuron
1,1-Dichloropropene	Sebutylazin
Endosulfan I	Simazine
Endosulfan II	Terbuthylazine

Pesticide Mix #20

Regulation DIN V 38407 Part 12 Method F12
AE-00031 **1 x 1 mL**
AE-00031-10ML **1 x 10 mL**
10 µg/mL each in Ethyl acetate 17 comps.

Atrazine	Metazachlor
Chlortoluron	Methabenzthiazuron
Cyanazine	Metobromuron
Desethyl atrazine	Metolachlor
Hexazinone	Metoxuron
Isoproturon	Monolinuron
Karmex	Sebuthylazin
Linuron	Simazine
	Terbuthylazine

Pesticide Mix #21

AE-00051 **1 x 1 mL**
10 µg/mL each in Cyclohexane 16 comps.

Aldrin	Endrin
p,p'-DDD	Heptachlor
p,p'-DDE	Heptachlor epoxide (isomer B)
o,p'-DDT	Hexachlorobenzene
p,p'-DDT	α-BHC
Dieldrin	β-BHC
Endosulfan I	γ-BHC
Endosulfan II	Methoxychlor

Pesticide Mix #22

AE-00052 **1 x 1 mL**
AE-00052-10ML **1 x 10 mL**
10 µg/mL each in Acetonitrile 8 comps.

Atrazine	Metoxuron
Desethyl atrazine	Propazine
Bromacil	Simazine
Chloridazon	Terbuthylazine

Pesticide Mix #23

AE-00053 **1 x 1 mL**
AE-00053-10ML **1 x 10 mL**
10 µg/mL each in Acetonitrile 6 comps.

2,4-D	MCPA
2,4-DB	MCPB
Dichlorprop	MCPP acid

Pesticide Mix #24

AE-00054 **1 x 1 mL**
AE-00054-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Cyclohexane 6 comps.

Aldrin	0.2	α-BHC	0.15
p,p'-DDT	0.4	γ-BHC	0.15
Dieldrin	0.3	Heptachlor	0.2

Pesticide Mix #25

AE-00055 **1 x 1 mL**
AE-00055-10ML **1 x 10 mL**
10 µg/mL each in Cyclohexane 4 comps.

α-BHC	γ-BHC
β-BHC	δ-BHC

Pesticide Mix #26

AE-00056 **1 x 1 mL**
AE-00056-10ML **1 x 10 mL**
1.0 µg/mL each in Cyclohexane 5 comps.

α-BHC	δ-BHC
β-BHC	ε-BHC
γ-BHC	

Pesticide Mix #27

AE-00057 **1 x 1 mL**
AE-00057-10ML **1 x 10 mL**
1.0 µg/mL each in Isooctane 13 comps.

α-BHC	p,p'-DDE
β-BHC	Dieldrin
γ-BHC	Endrin
δ-BHC	Heptachlor epoxide (isomer B)
o,p'-DDD	Methoxychlor
p,p'-DDD	Mirex
o,p'-DDE	

2-Part Label System

Smudgeproof, tear and solvent resistant *

(Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents: Methylene chloride, Methanol and Acetone

Pesticide Standards

ISO 6468 Pesticide Standard

Water quality determination of certain organochlorine insecticides, polychlorine biphenyls and chlorobenzenes by GC after liquid-liquid extraction.

ISO6468-PEST **1 x 1 mL**
10 µg/mL each in n-Hexane 19 comps.

- α-BHC
- β-BHC
- γ-BHC
- δ-BHC
- o,p'-DDE
- p,p'-DDE
- o,p'-DDD
- p,p'-DDD
- o,p'-DDT
- p,p'-DDT
- Methoxychlor
- Aldrin
- Dieldrin
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer A)
- Heptachlor epoxide (Isomer B)
- Endosulfan I
- Endosulfan II

EN ISO 10695 Pesticide Mix

Water quality determination of selected organic nitrogen and phosphorous compound by GC.

ENISO10695-PEST **1 x 1 mL**
10 µg/mL each in Acetone 12 comps.

- Atrazine
- Cyanazine
- Metazachlor
- Parathion
- Methyl parathion
- Pendimethalin
- Propazine
- Sebuthylazin
- Simazine
- Terbuthylazine
- Trifluralin
- Vinclozolin

DIN 38407-2 Pesticide Standard

Determination of water, waste water and sludge for low volatile halogenated hydrocarbons by GC.

DIN38407-2-PEST **1 x 1 mL**
10 µg/mL each in n-Hexane 17 comps.

- Aldrin
- p,p'-DDD
- o,p'-DDE
- p,p'-DDE
- o,p'-DDT
- p,p'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer A)
- Heptachlor epoxide (Isomer B)
- α-BHC
- β-BHC
- γ-BHC
- Methoxychlor

EN ISO 11369 Pesticide Mix 20

Regulation DIN V 38407 Part 12 Method F12

AE-00031 **1 x 1 mL**
AE-00031-10ML **1 x 10 mL**
10 µg/mL each in Ethyl acetate 17 comps.

- Atrazine
- Chlortoluron
- Cyanazine
- Desethyl atrazine
- Hexazinone
- Isoproturon
- Karmex (Diuron)
- Linuron
- Metazachlor
- Methabenzthiazuron
- Metobromuron
- Metolachlor
- Metoxuron
- Monolinuron
- Sebuthylazin
- Simazine
- Terbuthylazine

DIN V 38407-11 Pesticide Mix

Scope: Determination of plant protection agents in water, wastewater and sludge.

DINV38407-11-PST **1 x 1 mL**
DINV38407-11-PST-PAK **5 x 1 mL**
5 µg/mL each in Acetonitrile 21 comps.

- Alachlor
- Atrazine
- Chlorfenvinphos
- Chlortoluron
- Cyanazine
- 2,4-D
- MCPA acid
- Metazachlor
- Metobromuron
- Metolachlor
- Metoxuron
- Monuron
- Parathion
- Pendimethalin
- Propazine
- Sebuthylazin
- Simazine
- 2,4,5-T
- Terbuthylazine
- Trifluralin
- Vinclozolin

DIN 38407-14 Methyl Esters Mix

Examination of water, wastewater and sludge for phenoxyalkyl carbonic acids by GC and MS detection after solid-liquid extraction and derivatization.

DIN38407-14-ME **1 x 1 mL**
500 µg/mL each in n-Hexane 8 comps.

- Mecoprop methyl ester
- MCPA methyl ester
- Dichlorprop methyl ester
- 2,4-D methyl ester
- Fenoprop methyl ester
- MCPB methyl ester
- 2,4,5-T methyl ester
- 2,4-DB methyl ester

DIN 38407-22 Glyphosate & AMPA

Examination of water, wastewater, and sludge for Glyphosate and Aminomethyl phosphonic acid (AMPA)

DIN38407-22 **1 x 1 mL**
100 µg/mL each in Water 2 comps.

- Glyphosate
- Aminomethylphosphonic acid

Pesticide Mix 16

Regulations for drinking water analysis, (E-DIN 38407-F-18, E-DIN 38414-F-21) Regulations for sediment and sludge.

AE-00030 **1 x 1 mL**
AE-00030-10ML **1 x 10 mL**
10 µg/mL each in Ethyl acetate 20 comps.

- Aldicarb
- Atrazine
- Bentazone *
- Chlortoluron
- Cyanazine
- 2,4-D *
- Dichlorprop *
- 1,3-Dichloropropene
- Endosulfan I
- Endosulfan II
- Isoproturon
- Lindane
- MCPA *
- Mecoprop *
- Metazachlor
- Metobromuron
- Metoxuron
- Sebuthylazine
- Simazine
- Terbuthylazine

* Underivatized

DIN 38407-14 Acid Mix

Examination of water, wastewater and sludge for phenoxyalkyl carbonic acids by GC and MS detection after solid-liquid extraction and derivatization.

DIN38407-14-ACID **1 x 1 mL**
500 µg/mL each in n-Hexane 8 comps.

- Mecoprop acid
- MCPA acid
- Dichlorprop acid
- 2,4-D acid
- Fenoprop acid
- MCPB acid
- 2,4,5-T acid
- 2,4-DB acid

Phenols & Derivatives

DIN EN 12673 Chlorophenols

Scope: Determination of selected chlorophenols in water by GC

DINEN-12673 **1 x 1 mL**
At stated conc. (µg/mL) in Ethanol 19 comps.

2-Chlorophenol	30	2,3,5-Trichlorophenol	3
3-Chlorophenol	30	2,3,6-Trichlorophenol	3
4-Chlorophenol	30	2,4,5-Trichlorophenol	3
2,3-Dichlorophenol	4	2,4,6-Trichlorophenol	3
2,4-Dichlorophenol	4	3,4,5-Trichlorophenol	3
2,5-Dichlorophenol	4	2,3,4,5-Tetrachlorophenol	2
2,6-Dichlorophenol	4	2,3,4,6-Tetrachlorophenol	2
3,4-Dichlorophenol	4	2,3,5,6-Tetrachlorophenol	2
3,5-Dichlorophenol	4	Pentachlorophenol	1
2,3,4-Trichlorophenol	3		

DIN EN ISO 17495 Nitrophenols

Scope: determination of selected nitrophenols by solid-phase extraction and gas chromatography with mass spectrometric detection.

DINENISO-17495 **1 x 1 mL**
500 µg/mL each in Acetone 14 comps.

- 2,4-Dinitrophenol
- 2,5-Dinitrophenol
- 2,6-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2,6-Dimethyl-4-nitrophenol
- 2,4-Dichlor-6-nitrophenol
- 2,6-Dichlor-4-nitrophenol
- 2-Nitrophenol
- 3-Nitrophenol
- 4-Nitrophenol
- 4-Methyl-2-nitrophenol
- 3-Methyl-4-nitrophenol
- 5-Methyl-2-nitrophenol
- 3-Methyl-2-nitrophenol

ENISO 9377 Determination of Hydrocarbon Oil Index

Diesel #2/Mineral Oil Standard
ENISO9377-2-1 **1 x 1 mL**
10000 µg/mL total hydrocarbons in Hexane 2 comps.

#2 Diesel Fuel	(5000 µg/mL)
Mineral Oil	(5000 µg/mL)

Quality Control Standard Mix
ISO/DIS9377-4-1 **1 x 1 mL**
1000 µg/mL total hydrocarbons in Acetone 2 comps.

#2 Diesel Fuel	(500 µg/mL)
Mineral Oil	(500 µg/mL)

Extraction Solvent Stock Solution
ENISO9377-2-3 **1 x 5 mL**
At stated conc. in Hexane 2 comps.

n-Decane	(20 µl/L)
n-Tetracontane	(20 mg/L)

System Performance Standard of n-alkanes
ENISO9377-2-2 **1 x 1 mL**
50 µg/mL each in Hexane 16 comps.

n-Decane	n-Hexacosane
n-Dodecane	n-Octacosane
n-Tetradecane	n-Triacontane
n-Hexadecane	n-Dotriacontane
n-Octadecane	n-Tetratriacontane
n-Eicosane	n-Hexatriacontane
n-Docosane	n-Octatriacontane
n-Tetracosane	n-Tetracontane

Stearyl Stearate Test Solution
ISO/DIS9377-4-2 **1 x 10 mL**
2000 µg/mL in Cyclohexane

Stearyl stearate

ISO/DIS 9377-4 Standard Mix Stock Solution
TPH-006-10X **1 x 1 mL**
TPH-006-10X-PAK ***SAVE*** **5 x 1 mL**
5000 µg/mL each in Cyclohexane 2 comps.

#2 Diesel fuel
Mineral oil

Florisil Cartridge QC Standard Mix
ENISO9377-2-4 **1 x 10 mL**
2000 µg/mL total hydrocarbons in Hexane 2 comps.

#2 Diesel Fuel	(1000 µg/mL)
Mineral Oil	(1000 µg/mL)

European Equivalents of Alcohol Oxidation Products in Automotive Engine Exhaust by HPLC of DNPH Derivatives

Carbonyl-DNPH Mix #1
AE-00043 **1 x 1 mL**
20 µg/mL each in Acetonitrile 13 comps.

Acetaldehyde-DNPH	Formaldehyde-DNPH (40 µg/mL)
Acetone-DNPH	Hexanal-DNPH
Acrolein-DNPH	Methacrolein-DNPH
Benzaldehyde-DNPH	Propionaldehyde-DNPH
Butanonal-DNPH	*p*-Tolualdehyde-DNPH
Methyl ethyl ketone-DNPH	Valeraldehyde-DNPH
Crotonaldehyde-DNPH	

Carbonyl-DNPH Mix #2
AE-00044 **1 x 1 mL**
2 µg/mL each in Acetonitrile 14 comps.

Acetaldehyde-DNPH	Cyclohexanone-DNPH (5 µg/mL)
Acetone-DNPH	Formaldehyde-DNPH (4 µg/mL)
Acrolein-DNPH	Hexanal-DNPH
Benzaldehyde-DNPH	Methacrolein-DNPH
Butanone-DNPH	Propionaldehyde-DNPH
n-Butyraldehyde-DNPH	*p*-Tolualdehyde-DNPH
Crotonaldehyde-DNPH	Valeraldehyde-DNPH

Cyclohexanone
AE-00046 **1 x 1 mL**
500 µg/mL in Acetonitrile

Cyclohexanone-DNPH

Thousands of Standards, just a click away

AccuStandard.com

Japan Ministry of Health and Welfare Standards

Volatile Organic Solution

JMHW-001 **1 x 1 mL**
JMHW-001-PAK *SAVE* **5 x 1 mL**
1000 µg/mL each in MeOH 23 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromochloromethane
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *cis*-1,2-Dichloroethene
- *trans*-1,2-Dichloroethene
- Dichloromethane
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene

Volatile Organic Solution

JMHW-002 **1 x 1 mL**
JMHW-002-PAK *SAVE* **5 x 1 mL**
2000 µg/mL each in MeOH 16 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromochloromethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *cis*-1,2-Dichloroethene
- Dichloromethane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene

Method of Interests

Japanese Methods JIS-K0311 and JIS-K0312
See EPA Method 1613 Dioxins & Furans which can be used for EPA Method 23, 8280, 8290 and EU Method EN-1948

Volatile Organic Solution B

JMHW-003 **1 x 1 mL**
JMHW-003-PAK *SAVE* **5 x 1 mL**
2000 µg/mL each in MeOH 7 comps.

- 1,4-Dichlorobenzene
- trans-1,2-Dichloroethene
- 1,2-Dichloropropane
- Toluene
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene

Tuning Solution/Surrogate Standard Mixture

CLP-004-100X **1 x 1 mL**
CLP-004-100X-PAK *SAVE* **5 x 1 mL**
2.5 mg/mL in MeOH

- *p*-Bromofluorobenzene

Japan Environmental Agency Standards

Volatile Organic Solution

JEAM-001 **1 x 1 mL**
JEAM-001-PAK *SAVE* **5 x 1 mL**
1000 µg/mL each in MeOH 12 comps.

- Benzene
- Carbon Tetrachloride
- 1,1-Dichloroethene
- *cis*-1,2-Dichloroethene
- Dichloromethane
- 1,2-Dichloroethane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene

Method Aldehydes as DNPH Derivatives

JEAM-002 **1 x 1 mL**
JEAM-002-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in Ethyl acetate 6 comps.

- Acetaldehyde-DNPH
- Butyraldehyde-DNPH
- Isobutyraldehyde-DNPH
- Isovaleraldehyde-DNPH
- Propionaldehyde-DNPH
- Pentanal-DNPH

Internal Standard

M-524-IS **1 x 1 mL**
M-524-IS-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in MeOH 2 comps.

- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

Drinking Water Odor Standard

ODOR-JDWOS **1 x 1 mL**
100 µg/mL each in MeOH 2 comps.

- (+/-) Geosmin
- 2-methylisoborneol

Korean Drinking Water Regulations Standards

VOC Mix A

KDWR-001 **1 x 1 mL**
KDWR-001-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in MeOH 15 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Chloroform
- Dibromochloromethane
- Ethylbenzene
- Dichloromethane
- Phenol
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- Trichloroethene
- *m*-Xylene
- *p*-Xylene
- *o*-Xylene

VOC Mix B

KDWR-002 **1 x 1 mL**
KDWR-002-PAK *SAVE* **5 x 1 mL**
100 µg/mL each in MeOH 8 comps.

- Bromodichloromethane
- Bromoform
- Chloroform
- Dibromochloromethane
- Dichloromethane
- Tetrachloroethene
- 1,1,1-Trichloroethane
- Trichloroethene

Pesticide Mix

KDWR-003 **1 x 1 mL**
KDWR-003-PAK *SAVE* **5 x 1 mL**
1000 µg/mL each in MeOH 5 comps.

- Carbaryl
- Diazinon
- Fenitrothion
- Malathion
- Parathion

California Methods

California Air Resources Board Method 1004 Carbonyl Compounds as DNPH derivatives by HPLC

M-1004 **1 x 1 mL**
At stated conc. in AcCN 13 comps.
M-1004-10X **1 x 1 mL**
At 10 times the stated conc. in AcCN 13 comps.

Carbonyl Compound		DNPH Derivative
Acetaldehyde	3.0 µg/mL	15.3 µg/mL
Acetone	3.0 µg/mL	12.3 µg/mL
Acrolein	3.0 µg/mL	12.7 µg/mL
Benzaldehyde	3.0 µg/mL	8.1 µg/mL
2-Butanone *(MEK)*	3.0 µg/mL	10.5 µg/mL
n-Butyraldehyde	3.0 µg/mL	10.5 µg/mL
Crotonaldehyde	3.0 µg/mL	10.7 µg/mL
Formaldehyde	3.0 µg/mL	21.0 µg/mL
Hexanal	3.0 µg/mL	8.4 µg/mL
Methacrolein	3.0 µg/mL	10.7 µg/mL
Propionaldehyde	3.0 µg/mL	12.3 µg/mL
m-Tolualdehyde	3.0 µg/mL	7.5 µg/mL
Valeraldehyde	3.0 µg/mL	9.3 µg/mL

CAR-DNPH **1 x 1 mL**
At stated conc. in AcCN as DNPH derivatives 7 comps.

Acetaldehyde-DNPH	1000 µg/mL	Butyraldehyde-DNPH	500 µg/mL
Acetone-DNPH	500 µg/mL	Formaldehyde-DNPH	1500 µg/mL
Acrolein-DNPH	500 µg/mL	Propionaldehyde-DNPH	500 µg/mL
Benzaldehyde-DNPH	500 µg/mL		

Reference Gas Oil Sample

RGS-001 **1 x 1 mL**

Hydrocarbon Mixture *(boiling point range 250-850°F)*

California Method 750-M Standard

BDE-CALEWS **1 x 1 mL**
10 µg/mL each in Isooctane 13 comps.

2,2',4-Tribromodiphenyl ether (#17)
2,4,4'-Tribromodiphenyl ether (#28)
2,2',4,4'-Tetrabromodiphenyl ether (#47)
2,3',4,4'-Tetrabromodiphenyl ether (#66)
2,3',4',6-Tetrabromodiphenyl ether (#71)
2,2',4,4',5-Pentabromodiphenyl ether (#99)
2,2',4,4',6-Pentabromodiphenyl ether (#100)
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (#209)
2,2',6,6'-Tetrabromobisphenol A

Florida Methods PAH by HPLC

Z-014G-FL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:Benzene 18 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benz[a]anthracene	Indeno[1,2,3-cd]pyrene
Benzo[a]pyrene	Naphthalene
Benzo[b]fluoranthene	Phenanthrene
Benzo[g,h,i]perylene	Pyrene
Benzo[k]fluoranthene	1-Methylnaphthalene
Chrysene	2-Methylnaphthalene

Performance Check Solution

M-610-QC-FL **1 x 1 mL**
M-610-QC-FL-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in AcCN 18 comps.

Acenaphthene	(0.1 mg/mL)	Dibenz[a,h]anthracene	(0.01 mg/mL)
Acenaphthylene	(0.1 mg/mL)	Fluoranthene	(0.01 mg/mL)
Anthracene	(0.1 mg/mL)	Fluorene	(0.1 mg/mL)
Benz[a]anthracene	(0.01 mg/mL)	Indeno[1,2,3-cd]pyrene	(0.01 mg/mL)
Benzo[a]pyrene	(0.01 mg/mL)	1-Methyl naphthalene	(0.1 mg/mL)
Benzo[b]fluoranthene	(0.01 mg/mL)	2-Methyl naphthalene	(0.1 mg/mL)
Benzo[g,h,i]perylene	(0.01 mg/mL)	Naphthalene	(0.1 mg/mL)
Benzo[k]fluoranthene	(0.005 mg/mL)	Phenanthrene	(0.1 mg/mL)
Chrysene	(0.01 mg/mL)	Pyrene	(0.01 mg/mL)

Matrix Spiking Solution

M-610-MS **1 x 1 mL**
M-610-MS-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in AcCN 6 comps.

Benz[a]pyrene	(0.5 mg/mL)	2-Methylnaphthalene	(5.0 mg/mL)
Chrysene	(0.5 mg/mL)	Phenanthrene	(0.5 mg/mL)
1-Methylnaphthalene	(5.0 mg/mL)	Pyrene	(0.5 mg/mL)

PAH Mix Additions

H-001S/002S-M-20X **1 x 1 mL**
1.0 mg/mL each in MeOH 2 comps.

1-Methyl naphthalene	2-Methyl naphthalene

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL **1 x 1 mL**
M-8310-FL-PAK ***SAVE*** **5 x 1 mL**
0.5 mg/mL each in AcCN 18 comps.
M-8310-FL-SET **18 x 1 mL**

Acenaphthene	M-8310-FL-01
Acenaphthylene	M-8310-FL-02
Anthracene	M-8310-FL-03
Benzo[a]anthracene	M-8310-FL-04
Benzo[a]pyrene	M-8310-FL-05
Benzo[b]fluoranthene	M-8310-FL-06
Benzo[g,h,i]perylene	M-8310-FL-07
Benzo[k]fluoranthene	M-8310-FL-08
Chrysene	M-8310-FL-09
Dibenz[a,h]anthracene	M-8310-FL-10
Fluoranthene	M-8310-FL-11
Fluorene	M-8310-FL-12
Indeno[1,2,3-cd]pyrene	M-8310-FL-13
1-Methylnaphthalene	M-8310-FL-14
2-Methylnaphthalene	M-8310-FL-15
Naphthalene	M-8310-FL-16
Phenanthrene	M-8310-FL-17
Pyrene	M-8310-FL-18

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-QC-ATI **1 x 1 mL**
M-8310-QC-ATI-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in AcCN 18 comps.

Acenaphthene	(1000 µg/mL)	Dibenz[a,h]anthracene	(200 µg/mL)
Acenaphthylene	(2000 µg/mL)	Fluoranthene	(200 µg/mL)
Anthracene	(100 µg/mL)	Fluorene	(200 µg/mL)
Benz[a]anthracene	(100 µg/mL)	Indeno[1,2,3-cd]pyrene	(100 µg/mL)
Benzo[a]pyrene	(100 µg/mL)	1-Methylnaphthalene	(1000 µg/mL)
Benzo[b]fluoranthene	(200 µg/mL)	2-Methylnaphthalene	(1000 µg/mL)
Benzo[g,h,i]perylene	(200 µg/mL)	Naphthalene	(1000 µg/mL)
Benzo[k]fluoranthene	(100 µg/mL)	Phenanthrene	(100 µg/mL)
Chrysene	(100 µg/mL)	Pyrene	(100 µg/mL)

Minnesota Method 465-D

List of Volatiles

Liquids

M-502A-R **1 x 1 mL**
M-502A-R-PAK *SAVE* **5 x 1 mL**
0.2 mg/mL each in MeOH 54 comps.

Benzene (01)
Bromobenzene (02)
Bromochloromethane (03)
Bromodichloromethane (04)
Bromoform (05)
n-Butylbenzene (07)
sec-Butylbenzene (08)
tert-Butylbenzene (09)
Carbon tetrachloride (10)
Chlorobenzene (11)
Chloroform (13)
2-Chlorotoluene (15)
4-Chlorotoluene (16)
Dibromochloromethane (17)
1,2-Dibromo-3-chloropropane (18)
1,2-Dibromoethane (19)
Dibromomethane (20)
1,2-Dichlorobenzene (21)
1,3-Dichlorobenzene (22)
1,4-Dichlorobenzene (23)
1,1-Dichloroethane (25)
1,2-Dichloroethane (26)
1,1-Dichloroethene (27)
cis-1,2-Dichloroethene (28)
trans-1,2-Dichloroethene (29)
1,2-Dichloropropane (30)
1,3-Dichloropropane (31)
2,2-Dichloropropane (32)
1,1-Dichloropropene (33)
cis-1,3-Dichloropropene (34A) *
trans-1,3-Dichloropropene (34B) **
Ethylbenzene (35)
Hexachlorobutadiene (36)
Isopropylbenzene *(Cumene)* (37)
p-Isopropyltoluene *(p-Cymene)* (38)
Methylene chloride (39)
Naphthalene (40)
n-Propylbenzene (41)
Styrene (42)
1,1,1,2-Tetrachloroethane (43)
1,1,2,2-Tetrachloroethane (44)
Tetrachloroethene (45)
Toluene (46)
1,2,3-Trichlorobenzene (47)
1,2,4-Trichlorobenzene (48)
1,1,1-Trichloroethane (49)
1,1,2-Trichloroethane (50)
Trichloroethene (51)
1,2,3-Trichloropropane (53)
1,2,4-Trimethylbenzene (54)
1,3,5-Trimethylbenzene (55)
o-Xylene (57)
m-Xylene (58)
p-Xylene (59)

* cis (1.06 x conc.) (34A)
** trans (0.94 x conc.) (34B)

Gases

M-465B-10X **1 x 1 mL**
M-465B-10X-PAK *SAVE* **5 x 1 mL**
0.2 mg/mL each in MeOH 7 comps.

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane
Dichlorofluoromethane
Trichlorofluoromethane
Vinyl chloride

M-465D-ADD-R ❄ **1 x 1 mL**
0.2 mg/mL each in MeOH 8 comps.

Acetone
Allyl chloride
Ethyl ether
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl-t-butyl ether
Tetrahydrofuran
Trichlorotrifluoroethane

❄ ColdPAK required to maintain integrity of product.

Method 465-D Volatiles Set

M-465D-SET **3 x 1 mL**
(M-502A-R, M-465B-10X, M-465D-ADD-R)
M-465D-SET-PAK *SAVE* **5 x (3 x 1 mL)**

Pesticides & Herbicides

List 1 - Pesticide Standard

MDA-PEST-01-R1 **1 x 1 mL**
MDA-PEST-01-R1-PAK *SAVE* **5 x 1 mL**
500 µg/mL each in CH_2Cl_2 22 comps.

Acetochlor
Alachlor
Atrazine
Atrazine-desisopropyl
Cyanazine
Desethyl atrazine
Dimethenamid
Dursban
Dyfonate
EPTC
Ethalfluralin
Metolachlor
Metribuzin
Pendimethalin
Phorate
Propachlor
Prometon
Propazine
Simazine
Terbufos
Triallate
Trifluralin

P-088S-10X **1 x 1 mL**
100 µg/mL in MeOH

Butylate

List 2 - Herbicide Acids Standards

MDA-HERB-01 **1 x 1 mL**
At stated conc. in Acetone 9 comps.

2,4-D	(0.1 mg/mL)	Dicamba	(0.1 mg/mL)
2,4-DB	(0.1 mg/mL)	MCPA	(10 mg/mL)
2,4,5-T	(0.1 mg/mL)	Picloram	(0.1 mg/mL)
Silvex	(0.1 mg/mL)	Triclopyr	(0.1 mg/mL)
Bentazon	(0.1 mg/mL)		

Technical Note

This expanded analyte list for Method 465-D contains all the analytes in one multi-component standard at a high concentration. This eliminates the need to combine more than one standard to cover the complete analyte list. The "Butylate" pesticide in conjunction with the MDA Method 465 formulation has all the required analytes for the Wisconsin DATCP pesticide program. Since many labs perform work in both Minnesota and Wisconsin, a single calibration curve can be used to monitor analytes covered by both methods.

Wisconsin DNR VOC Mixture

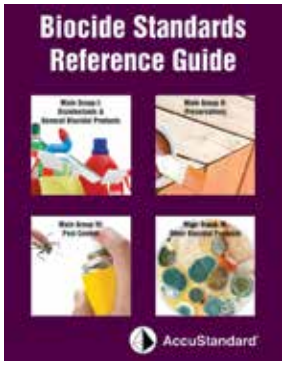
S-989 **1 x 1 mL**
2.0 mg/mL each in MeOH 52 comps.

Benzene
Bromobenzene
Bromodichloromethene
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
Chloromethane
2-Chlorotoluene
4-Chlorotoluene
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
Diisopropyl ether
Ethylbenzene
Hexachlorobutadiane
Isopropylbenzene
p-Isopropyltoluene
Methylene chloride
Methyl tert-butyl ether
Naphthalene
n-Propylbenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
o-Xylene
m-Xylene
p-Xylene

Biocides

Biocides are used in all types of industries to control viruses, bacteria, fungi, insects and animals. The intended use and chemical potency of biocides require that their use, storage and disposal be controlled to prevent adverse effects to the public and/or environment. To ensure the safety of biocides, government regulations are in place to assess the active substances within commercial products.

One such regulation is the Biological Products Directive 98/8/EC (BPD) which has been recently revised and is now designated as EU Biocides Regulation 528/2012 (EU BPR). Under this legislation, active compounds are submitted for approval on the list of Approved Active Substances. This regulation went into effect in September 2013, and classifies biocides into 22 biocide product types, grouped into four main areas.



Biocide Guide include chemical structures and physical data.

MAIN GROUP I: Disinfectants and general biocidal products

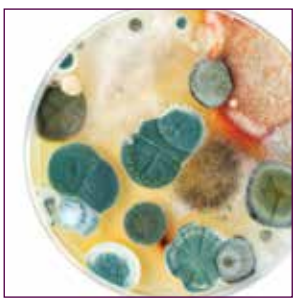
Product-type

1: Human hygiene biocidal products
2: Private and public health areas disinfectants and other biocidal products
3: Veterinary hygiene biocidal products
4: Food and feed areas disinfectants
5: Drinking water disinfectants

MAIN GROUP II: Preservatives

Product-type

6: In-can preservatives
7: Film preservatives
8: Wood preservatives
9: Fiber, leather, rubber and polymerized materials preservatives
10: Masonry preservatives
11: Preservatives for liquid-cooling and processing systems
12: Slimicides
13: Metalworking-fluid preservatives



MAIN GROUP III: Pest control

Product-type

14: Rodenticides
15: Avicides
16: Molluscicides
17: Piscicides
18: Insecticides, acaricides and products to control other arthropods
19: Repellents and attractants

MAIN GROUP IV: Other biocidal products

Product-type

20: Preservatives for food or feedstocks
21: Anti-fouling products
22: Embalming and taxidermist fluids
23: Control of other vertebrates

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Abamectin	71751-41-2	III / 18	BIOC-236N-10MG	10 mg
Acetamiprid	135410-20-7	III / 18	BIOC-237N-10MG	10 mg
Allethrin	584-79-2	III / 18	BIOC-239N-10MG	10 mg
Ammonium bromide	1212-97-9	I, II / 2, 4, 6, 7, 9, 11, 12	BIOC-095N-10MG	10 mg
Ammonium sulfate	7783-20-2	II / 11, 12	BIOC-168N	100 mg
Azamethiphos	35575-96-3	III / 18	BIOC-215N-10MG	10 mg
Bendiocarb	22781-23-3	III / 18	BIOC-211N-10MG	10 mg
Benzalkonium chloride (Tech)	63449-41-2	I, II, III, IV / 1,2,3,4,5,6,7,9,10, 11,12,13,17, 22	BIOC-052N	100 mg
Benzethonium chloride	121-54-0	I / 1	BIOC-018N-25MG	25 mg
1,2-Benzisothiazol-3(2H)-one	2634-33-5	I, II, IV / 2, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-082S-W 19.3% wt. in Water	1 mL
Benzoic acid	65-85-0	I, II, IV / 1, 2, 3, 4, 6, 11, 20	BIOC-006N-25MG	25 mg
Benzyl benzoate	120-51-4	I, III / 2, 18	BIOC-067N	100 mg
2-Benzyl-4-chlorophenol	120-32-1	I, II / 1, 2, 3, 4, 6	BIOC-017N	100 mg
Bifenthrin	82657-04-3	II, III / 8, 18	BIOC-161N-10MG	10 mg
2-Biphenylol sodium salt tetrahydrate	132-27-4	I, II / 1, 2, 3, 4, 6, 7, 9, 10, 13	BIOC-022N	100 mg
N,N'-Bis(hydroxymethyl)urea (MFG)	140-95-4	I, II / 2, 6, 9, 11, 12, 13	BIOC-074N	100 mg
Bis(trichloromethyl) sulphone	3064-70-8	II, IV / 6, 9, 10, 11, 12, 22	BIOC-128N-10MG	10 mg
Boric acid	10043-35-3	I, II, III, IV / 1, 2, 3, 6,7,8,9,10,11,12,13,18,22	BIOC-044N-1G	1 gram
Brodifacoum	56073-10-0	III / 14	BIOC-180N-10MG	10 mg

Biocide Standards continued on next page

Biocides

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Bromadiolone	28772-56-7	III / 14	BIOC-178N-10MG	10 mg
Bromoacetic acid	79-08-3	I / 4	BIOC-114N	100 mg
2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	II / 6, 7, 9, 10, 11, 13	BIOC-136N	100 mg
2-Bromo-2-nitropropane-1,3-diol	52-51-7	I, II, IV / 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-002N-25MG	25 mg
Busan (TCMTB)	21564-17-0	I, II / 2, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-097S-CN 100 µg/mL in Acetonitrile	1 mL
Calcium hydroxide	1305-62-0	I / 2, 3	BIOC-078N	100 mg
Calcium hypochlorite	7778-54-3	I, II / 1, 2, 3, 4, 5, 11	BIOC-041N	100 mg
Calcium oxide	1305-78-8	I / 2, 3	BIOC-079N	100 mg
Calcium sorbate	7492-55-9	I, II, IV / 1, 3, 6, 7, 9, 20	BIOC-032N	100 mg
Captan	133-06-2	II / 6, 7, 9, 10	BIOC-122N-10MG	10 mg
Carbendazim	10605-21-7	II / 6, 7, 9, 10, 11, 12, 13	BIOC-133N-10MG	10 mg
Cetylpyridinium chloride	123-03-5	I, II, IV / 1, 2, 3, 4, 5, 6, 7, 9, 20	BIOC-020N	100 mg
Chloralose	15879-93-3	III, IV / 14, 15, 23	BIOC-177N-10MG	10 mg
Chloramine T trihydrate	7080-50-4	I, II / 1, 2, 3, 4, 5, 6, 9, 10, 11	BIOC-021N	100 mg
Chlorfenapyr	122453-73-0	II, III / 6, 7, 8, 9, 10, 12, 13, 18	BIOC-143N-10MG	10 mg
Chloroacetamide	79-07-2	I, II / 3, 6, 7, 9, 10, 11, 13	BIOC-109N	100 mg
4-Chloro-3,5-dimethylphenol	88-04-0	I, II / 1, 2, 3, 4, 5, 6	BIOC-012N-25MG	25 mg
4-Chloro-3-methylphenol	59-50-7	I, II / 1, 2, 3, 4, 6, 9, 10, 13	BIOC-003N-25MG	25 mg
Chlorophacinone	3691-35-8	III / 14	BIOC-175N-10MG	10 mg
Chlorothalonil	1897-45-6	II / 6, 7, 9, 10	BIOC-126N-10MG	10 mg
Chlorotoluron	15545-48-9	II / 6, 7, 9, 10, 11, 12, 13	BIOC-134N-10MG	10 mg
Cinnamal	104-55-2	I / 2	BIOC-062N	100 mg
Citric acid	77-92-9	I / 1, 2, 3	BIOC-010N-25MG	25 mg
Clothianidin	210880-92-5	I, II, III / 3, 8, 18	BIOC-112N-10MG	10 mg
Copper	7440-50-8	I, II, IV / 2, 4, 5, 11, 21	BIOC-089S 1000 µg/mL in tr. Nitric acid	100 mL
Copper (II) carbonate basic	12069-69-1	II / 8	BIOC-154N	100 mg
Copper dihydroxide	20427-59-2	II / 8	BIOC-155N	100 mg
Copper (I) oxide	1317-39-1	IV / 21	BIOC-151N	100 mg
Copper (II) oxide	1317-38-0	II / 8	BIOC-203N	100 mg
Copper (II) sulfate	7758-98-7	I / 1, 2, 4	BIOC-039N-1G	1 gram
Copper thiocyanate	1111-67-7	III, IV / 19, 21	BIOC-202N	100 mg
Coumatetralyl	5836-29-3	III / 14	BIOC-176N-10MG	10 mg
Creosote from beechwood tar	8021-39-4	II / 8	BIOC-153N	100 mg
m-Cresol	108-39-4	I / 2, 3	BIOC-064N	100 mg
Cyanamide	420-04-2	I, III / 3, 18	BIOC-110N	100 mg
N-Cyclopropyl-1,3,5-triazine-2,4,6-triamine	66215-27-8	III / 18	BIOC-221N-10MG	10 mg
Cyfluthrin	68359-37-5	III / 18	BIOC-222N-10MG	10 mg
L-Cyhalothrin	91465-08-6	III / 18	BIOC-227N-10MG	10 mg
a-Cypermethrin	67375-30-8	II, III / 6, 9, 18	BIOC-142N-10MG	10 mg
Cypermethrin	52315-07-8	II, III / 8, 9, 18	BIOC-156N-10MG	10 mg
Cyphenothrin	39515-40-7	III / 18	BIOC-216N-10MG	10 mg
Cyproconazole	94361-06-5	II / 8	BIOC-162S 100 µg/mL in Methanol	1 mL
Dazomet	533-74-4	I, II / 6, 7, 8, 9, 10, 11, 12	BIOC-125N-10MG	10 mg
Decanoic acid	334-48-5	I, III / 4, 18, 19	BIOC-116N ❄	100 mg
Deltamethrin	52918-63-5	III / 18	BIOC-218N-10MG	10 mg
Diazinon	333-41-5	III / 18	BIOC-201N-10MG	10 mg
Diazolidinyl urea	78491-02-8	II / 6, 7	BIOC-140N	100 mg
Diboron trioxide	1303-86-2	II / 8	BIOC-150N	100 mg
2,2-Dibromo-2-cyanoacetamide	10222-01-2	I, II / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13	BIOC-046N	100 mg
1,3-Dibromo-5,5-dimethylhydantoin	77-48-5	I, II / 2, 11, 12	BIOC-057N	100 mg
Dichlofluanid	1085-98-9	II, IV / 7, 8, 10, 21	BIOC-146N-10MG	10 mg
2,4-Dichlorobenzyl alcohol	1777-82-8	I, II / 2, 6, 7, 9, 10, 12, 13	BIOC-081N	100 mg
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	I, II / 2, 11, 12	BIOC-066N-1G	1 gram
Dichlorophen	97-23-4	I, II / 2, 3, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-061N-10MG	10 mg
Dichlorvos	62-73-7	III / 18	BIOC-185N-10MG	10 mg
Didecyldimethylammonium chloride	7173-51-5	I, II / 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13	BIOC-030N-10MG	10 mg
1,3-Didecyl-2-methyl-1H-imidazolium chloride	70862-65-6	I, II / 2, 3, 4, 6, 7, 10, 11, 12, 13	BIOC-103N	100 mg
N,N-Diethyl-m-toluamide (DEET, OFF)	134-62-3	III, IV / 19, 22	BIOC-196N-10MG	10 mg
Difenacoum	56073-07-5	III / 14	BIOC-179S-D 100 µg/mL in Dichloromethane	1 mL
Diflubenzuron	35367-38-5	III / 18	BIOC-214N-10MG	10 mg
Dimethyloctadecyl[3-(trimethoxysilyl)propyl ammonium chloride]	27668-52-6	I, II / 2, 7, 9, 10	BIOC-098N	100 mg
4,4-Dimethyloxazolidine	51200-87-4	II / 6, 11, 12, 13	BIOC-137N-10MG	10 mg
Diphenoxarsin-10-yl oxide	58-36-6	II / 9	BIOC-163N	100 mg
Dipotassium disulfite	16731-55-8	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-047N-1G	1 gram
Diuron (Karmex)	330-54-1	II / 6, 7, 10	BIOC-124N-10MG	10 mg
Disilver oxide	20667-12-3	II / 11	BIOC-169N	100 mg
2,2'-Dithiobis(pyridine-N-oxide)	3696-28-4	II / 9	BIOC-165N-10MG	10 mg
Empenthrin	54406-48-3	III / 18	BIOC-219N-10MG	10 mg
Esfenvalerate	66230-04-4	III / 18	BIOC-235N-10MG	10 mg
Ethanol	64-17-5	I / 1, 2, 3, 4	BIOC-004N-25MG	25 mg
5-Ethyl-1-aza-3,7-dioxabicyclo[3,3,0]octane	7747-35-5	II / 6, 11, 12, 13	BIOC-132N	100 mg

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Ethyl butylacetcylaminopropionate	52304-36-6	III / 18	BIOC-217S 100 µg/mL in Methanol	1 mL
Ethylene oxide	75-21-8	I, IV / 2, 20	BIOC-056S-TP 5 mg/mL in Isooctane	1 mL
Etofenprox	80844-07-1	I, II, III / 2, 3, 8, 18	BIOC-106N-10MG	10 mg
Fenitrothion	122-14-5	III / 18	BIOC-191S 100 µg/mL in Methanol	1 mL
Fenoxycarb	72490-01-8	II / 8	BIOC-157N-10MG	10 mg
Fenpropimorph	67564-91-4	II / 6, 7, 8, 9, 10, 12, 13	BIOC-139N-10MG	10 mg
Fipronil	120068-37-3	III / 18	BIOC-229N-10MG	10 mg
Flocoumafen	90035-08-8	III / 14	BIOC-181S 100 µg/mL in Methanol	1 mL
Flufenoxuron	101463-69-8	II, III / 8, 18	BIOC-158N-10MG	10 mg
Fluometuron	2164-17-2	II / 6, 7, 9, 10, 11, 12, 13	BIOC-127N-10MG	10 mg
Folpet	133-07-3	II / 6, 7, 9, 10	BIOC-123N-10MG	10 mg
Formic acid	64-18-6	I, II / 1, 2, 3, 4, 5, 6, 9, 11, 12, 13	BIOC-005N-25MG	25 mg
Geraniol	106-24-1	III / 18, 19	BIOC-188N	100 mg
Gluteraldehyde	111-30-8	I, II, IV / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-016S-W 50% wt. in Water	1 mL
Glycolic acid	79-14-1	I, II / 2, 3, 4, 12	BIOC-058N	100 mg
Guazatine acetate (Tech)	115044-19-4	I / 2	BIOC-108N-10MG	10 mg
Hexaflumuron	86479-06-3	III / 18	BIOC-224N-10MG	10 mg
Hexahydro-1,3,5-tris(hydroxyethyl)triazine	4719-04-4	I, II / 2, 3, 4, 6, 9, 11, 12, 13	BIOC-086N	100 mg
Hydramethylnon	67485-29-4	III / 18	BIOC-226S 100 µg/mL in Methanol	1 mL
2-Hydroxy-4-isopropyl-2,4,6-cycloheptatrien-1-one	499-44-5	II / 10	BIOC-167N	100 mg
Icaridin	119515-38-7	III / 19	BIOC-228S-CN 100 µg/mL in Acetonitrile	1 mL
Imazalil	35554-44-0	I, II, IV / 2, 3, 4, 13, 20	BIOC-099N-10MG	10 mg
Imidacloprid	138261-41-3	III / 18	BIOC-230N-10MG	10 mg
Imiprothrin	72963-72-5	III / 18	BIOC-231S-CN 100 µg/mL in Acetonitrile	1 mL
Iodine	7553-56-2	I, II, IV / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 22	BIOC-033N	100 mg
3-Iodo-2-propynyl butylcarbamate	5546-53-6	II / 6, 7, 8, 9, 10, 11, 13	BIOC-138N	100 mg
Irgarol	28159-98-0	II / 7, 9, 10	BIOC-148N-10MG	10 mg
Isopropanol	67-63-0	I, II / 1, 2, 3, 4, 5, 6, 9, 10, 11, 12	BIOC-007N-25MG	25 mg
Isoproturon	34123-59-6	II / 6, 7, 9, 10, 11, 12, 13	BIOC-135N-10MG	10 mg
L-(+)-Lactic acid	79-33-4	I, II, IV / 2, 3, 4, 6, 20	BIOC-059N-50MG	50 mg
Lauric acid	143-07-7	III / 19	BIOC-199N	100 mg
Lauryl dimethylamine oxide	70592-80-2	I / 1, 2	BIOC-053N	100 mg
Lignin (Alkaline)	9005-53-2	I, II / 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-043N-1G	1 gram
Linalool	78-70-6	III / 19	BIOC-186N	100 mg
Magnesium bis(monoperoxyphthalate) hexahydrate	84665-66-7	I / 2, 3, 4	BIOC-104N	100 mg
Margosa extract	84696-25-3	III / 18, 19	BIOC-223N	100 mg
(R)-p-Mentha-1,8-diene	5989-27-5	II / 12	BIOC-170N	100 mg
(+)-cis-p-Menthane-3,8-diol	42822-86-6	I, III / 1, 2, 19	BIOC-050S-CN 100 µg/mL in Acetonitrile	1 mL
2-Mercaptobenzothiazole	149-30-4	I, II / 2, 7, 9, 11, 12, 13	BIOC-077N-10MG	10 mg
Metam-sodium dihydrate	6734-80-1	I, II, IV / 2, 4, 6, 9, 11, 12, 13, 20	BIOC-073N-10MG	10 mg
S-Methoprene	65733-16-6	III / 18	BIOC-234S 100 µg/mL in Methanol	1 mL
Methyl anthranilate	134-20-3	III / 19	BIOC-195N	100 mg
N,N'-Methylenebismorpholine	5625-90-1	II / 6, 9, 11, 13	BIOC-129S 100 µg/mL in Methanol	1 mL
Methylene dithiocyanate	6317-18-6	II, IV / 6, 7, 9, 10, 11, 12, 13, 22	BIOC-130N	100 mg
2-Methyl-2H-isothiazol-3-one	2682-20-4	I, II, IV / 2, 4, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-083N-10MG	10 mg
Monolinuron	1746-81-2	I / 2	BIOC-080N-10MG	10 mg
Myristyltrimethylammonium bromide	1119-97-7	I / 1	BIOC-024N	100 mg
Nabam	142-59-6	I, II / 2, 4, 6, 9, 10, 11, 12, 13	BIOC-075N-10MG	10 mg
Naled	300-76-5	III / 18	BIOC-200N-10MG	10 mg
Naphthalene	91-20-3	III / 19	BIOC-187N	100 mg
Nonanoic acid	112-05-0	I, II, III / 2, 10, 19	BIOC-065N	100 mg
Octanoic acid	124-07-2	I, III / 4, 18	BIOC-115N	100 mg
Oct-1-ene-3-ol	3391-86-4	III / 19	BIOC-205N	100 mg
2-Octyl-2H-isothiazol-3-one	26530-20-1	I, II / 4, 6, 7, 9, 10, 11, 12, 13	BIOC-119N-10MG	10 mg
Orthophosphoric acid	7664-38-2	I / 4	BIOC-117N-1G	1 gram
Oxazolidine	121776-33-8	I, II / 2, 6, 10, 11, 12, 13	BIOC-102S 100 µg/mL in Methanol	1 mL
Peracetic acid	79-21-0	I, II / 1, 2, 3, 4, 5, 6, 11, 12	BIOC-011N	100 mg
Permethrin	52645-53-1	I, II, III, IV / 2, 3, 5, 8, 9, 18, 22	BIOC-100N-10MG	10 mg
2-Phenoxyethanol	122-99-6	I, II / 1, 2, 3, 4, 6, 7, 10, 11, 13	BIOC-019N-25MG	25 mg
o-Phenylphenol	90-43-7	I, II / 1, 2, 3, 4, 6, 7, 9, 10, 13	BIOC-013N-25MG	25 mg
Piperonyl butoxide	51-03-6	III / 18, 19	BIOC-184N-10MG	10 mg
Poly(vinylpyrrolidone) Iodine complex	25655-41-8	I, II, III, IV / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 22	BIOC-055N	100 mg
Potassium dimethyl dithiocarbamate	128-03-0	I, II / 2, 4, 6, 9, 10, 11, 12, 13	BIOC-069N-50MG	50 mg

Biocide Standards continued on next page

Biocides

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Potassium monopersulfate triple salt	70693-62-8	I, II / 1, 2, 3, 4, 5, 11, 12	BIOC-054N-1G	1 gram
Potassium permanganate	7722-64-7	I / 5	BIOC-121N	100 mg
Potassium sorbate	24634-61-5	I, II / 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	BIOC-049N	100 mg
Potassium sulfite	10117-38-1	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-045N	100 mg
Prallethrin	23031-36-9	III / 18	BIOC-212S 100 µg/mL in Methanol	1 mL
Prometryne	7287-19-6	II / 6, 7, 9, 10, 11, 12, 13	BIOC-131N-10MG	10 mg
1-Propanol	71-23-8	I / 1, 2, 3, 4	BIOC-009N-25MG	25 mg
Propiconazole	60207-90-1	I, II, IV / 1, 2, 4, 7, 8, 9, 10, 12, 13, 20	BIOC-051N-10MG	10 mg
Propoxur	114-26-1	III / 18	BIOC-190N-10MG	10 mg
Pyrethrins (Tech Mix)	8003-34-7	III / 18, 19	BIOC-209N-10MG	10 mg
Pyridine-2-thiol-1-oxide, sodium salt	3811-73-2	I, II / 2, 3, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-085N-10MG	10 mg
Pyriproxyfen	95737-68-1	III / 18	BIOC-232N-10MG	10 mg
Quaternium-15	51229-78-8	II / 6, 9, 12, 13	BIOC-141N	100 mg
Rotenone	83-79-4	III / 17	BIOC-183N-10MG	10 mg
Salicylic acid	69-72-7	I, II / 1, 2, 3, 4, 6	BIOC-008N-25MG	25 mg
Silicium dioxide	61790-53-2	III / 18	BIOC-233N	100 mg
Silicon dioxide	7631-86-9	I, III, IV / 3, 18, 20	BIOC-111N	100 mg
Silver	7440-22-4	I, II / 2, 4, 5, 9, 11	BIOC-088S 1000 µg/mL in tr. Nitric acid in H_2O	100 mL
Silver chloride	7783-90-6	I, II / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13	BIOC-042N	100 mg
Silver nitrate	7761-88-8	I / 1	BIOC-040N	100 mg
Sodium benzoate	532-32-1	I, II, IV / 1, 2, 6, 11, 20	BIOC-023N	100 mg
Sodium bisulfite	7631-90-5	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-034N-1G	1 gram
Sodium bromide	7647-15-6	I, II / 2, 4, 6, 7, 9, 11, 12, 13	BIOC-091N	100 mg
Sodium chlorate	7775-09-9	I, II / 2, 5, 11, 12	BIOC-093N	100 mg
Sodium chloride	7647-14-5	I / 5	BIOC-120N	100 mg
Sodium chlorite	7758-19-2	I, II, IV / 2, 3, 4, 5, 11, 12, 20	BIOC-092N	100 mg
Sodium dichloroisocyanurate dihydrate	51580-86-0	I, II / 1, 2, 3, 4, 5, 6, 9, 11, 12	BIOC-028N	100 mg
Sodium dimethylarsinate	124-65-2	III / 18	BIOC-194N-10MG	10 mg
Sodium dimethyldithiocarbamate hydrate	207233-95-2	I, II / 2, 3, 4, 5, 6, 9, 10, 11, 12, 13	BIOC-070N	100 mg
Sodium lignosulfonate (Tech)	8061-51-6	II / 12	BIOC-171N	100 mg
Sodium metabisulfite	7681-57-4	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-036N-1G	1 gram
Sodium persulfate	7775-27-1	I / 4	BIOC-118N	100 mg
Sodium sulphite	7757-83-7	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-038N-1G	1 gram
Sodium tetraborate	1330-43-4	I, II / 1, 2, 7, 8, 9, 10, 11, 13	BIOC-025N	100 mg
Sorbic acid	110-44-1	I, II / 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	BIOC-015N	100 mg
Spinosad (Tech)	168316-95-8	I, III / 3, 18	BIOC-113N-10MG	10 mg
Sumithrin	26002-80-2	III / 18	BIOC-238N-10MG	10 mg
Symclosene	87-90-1	I, II / 2, 3, 4, 5, 6, 7, 9, 11, 12	BIOC-060N	100 mg
Tebuconazol	107534-96-3	II / 7, 8, 9, 10	BIOC-149N-10MG	10 mg
Terbuthylazine	5915-41-3	I, II / 2, 11, 12	BIOC-087N-10MG	10 mg
Terbutryn	886-50-0	II / 7, 9, 10	BIOC-145N-10MG	10 mg
Tetramethrin	7696-12-0	III / 18	BIOC-207N-10MG	10 mg
Thiabendazole	148-79-8	I, II, IV / 2, 6, 7, 8, 9, 10, 11, 12, 13, 20	BIOC-076N-10MG	10 mg
Thiamethoxam	153719-23-4	II, III / 8, 9, 18	BIOC-159N-10MG	10 mg
Thiram	137-26-8	I, II / 2, 6, 7, 9, 10, 11, 12	BIOC-071N	100 mg
THPS (Tech Grade)	55566-30-8	I, II / 2, 6, 9, 11, 12	BIOC-101N	100 mg
Tolnaftate	2398-96-1	II / 9	BIOC-164N-25MG	25 mg
Tolylfluanide	731-27-1	II, IV / 7, 8, 10, 21	BIOC-144N-10MG	10 mg
Transfluthrin	118712-89-3	III / 18	BIOC-225N-10MG	10 mg
Tributyltetradecylphosphonium chloride	81741-28-8	I, II / 2, 4, 9, 11, 12	BIOC-105N	100 mg
2,4,6-Trichlorophenol sodium salt	3784-03-0	I, II / 2, 3, 6, 9	BIOC-084N	100 mg
Triclocarban	101-20-2	I / 1, 2, 4	BIOC-014N-25MG	25 mg
Triclosan	3380-34-5	I, II / 1, 2, 3, 7, 9	BIOC-029N	100 mg
cis-Tricos-9-ene	27519-02-4	III / 18, 19	BIOC-213N	100 mg
Triflumuron	64628-44-0	III / 18	BIOC-220N-10MG	10 mg
Tris(hydroxymethyl)nitromethane	126-11-4	I, II / 2, 3, 6, 11, 12, 13	BIOC-068N	100 mg
Undecan-2-one (Methyl-nonyl-ketone)	112-12-9	III / 19	BIOC-189S-CN 100 µg/mL in Acetonitrile	1 mL
Warfarin	81-81-2	III / 14	BIOC-172N-10MG	10 mg
Warfarin sodium	129-06-6	III / 14	BIOC-174N	100 mg
Zinc borate (Tech)	12767-90-7	II / 9	BIOC-166N	100 mg
Zinc pyrithione	13463-41-7	I, II, IV / 2, 6, 7, 9, 10, 13, 21	BIOC-096N	100 mg
Zinc sulfide	1314-98-3	II / 7, 9, 10	BIOC-147N	100 mg
Zineb	12122-67-7	IV / 21	BIOC-210N-10MG	10 mg
Ziram	137-30-4	I, II / 2, 6, 7, 9, 10, 11, 12	BIOC-072N-10MG	10 mg

Methods Other Than EPA
Halobenzoquinone, Nonylphenol and Octylphenol Ethoxylates

Halobenzoquinones (disinfectant by-products)

Halobenzoquinones (HBQs) are disinfection by-products formed by reactions between disinfectants and organic matter in water. HBQs likely exhibit carcinogenic properties due to their structural similarities with benzoquinone and related compounds.

Halobenzoquinones

All in 10 µg/mL in AcCN NEW

Compound	CAS	Cat. No.	1 mL
2,3-Dibromo-5,6-dimethyl-1,4-benzoquinone	38969-08-3	HBQ-001S	
2,6-Dichloro-1,4-benzoquinone	697-91-6	HBQ-002S	
2,5-Dibromo-(1,4)benzoquinone	1633-14-3	HBQ-003S	
2,3,5,6-Tetrabromo-(1,4)benzoquinone	488-48-2	HBQ-004S	
3,4,5,6-Tetrabromo-(1,2)benzoquinone	2435-54-3	HBQ-005S	
2,6-Dibromo-3,5-dimethyl-1,4-benzoquinone	87405-27-4	HBQ-006S	
2,6-Dibromo-3-chloro-5-methyl-(1,4)benzoquinone		HBQ-007S	

Nonylphenols (NPs) have been known to disrupt endocrine function and sexual development in aquatic organisms. Environmental exposure occurs from breakdown products of the industrially important alkylphenol (poly)ethoxylates (APEs). Due to the outstanding surfactant properties of APEs they have been produced from NP in large quantities and used in detergents and cleaning products as well as emulsifiers in paints, pesticides, and textiles. Ninety percent of the APEs produced are nonylphenol ethoxylates (NPEs). Octylphenol ethoxylates are less commonly used.

The US EPA is working collaboratively with ASTM to develop and validate an analytical method for NPs and APEs. Under its plan, the US EPA will add nonylphenols (NPs) and nonylphenol ethoxylates (NPEs) to the Toxic Release Inventory thus requiring companies to report their discharge of the substances into water, air, or land. Some U.S. corporations have recognized the dangers of NPEs and voluntarily eliminated NPEs in their products.

The European Union and Canada have already banned the use of NPEs in detergents. According to the European Union's Directive 76/769/EEC, the use of these compounds is restricted.

ASTM D7065-06 4-tert-Octylphenol, 4-Nonylphenol and their Tech Equivalents, Mono and Multi-Ethoxylates

Nonylphenol Calibration Standard Solution

M-1626 — **1 x 1 mL**
At stated conc. in CH_2Cl_2 — 7 comps.

Nonylphenol	(160 µg/mL)
Nonylphenol monoethoxylate	(320 µg/mL)
Nonylphenol diethoxylate	(640 µg/mL)
4-tert-Octylphenol	(32 µg/mL)
Bisphenol A (BPA)	(32 µg/mL)
4-Nonylphenol	(32 µg/mL)
4-Nonylphenol monoethoxylate	(32 µg/mL)

Nonylphenol Internal Standard

M-1626-IS — **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 2 comps.

Acenaphthene-d_{10} Phenanthrene-d_{10}

Nonylphenol Target Component Spike Standard

M-1626-S — **1 x 1 mL**
At stated conc. in MeOH — 5 comps.

Nonylphenol	(160 µg/mL)
Nonylphenol monoethoxylate	(320 µg/mL)
Nonylphenol diethoxylate	(640 µg/mL)
4-tert-Octylphenol	(32 µg/mL)
Bisphenol A	(32 µg/mL)

Nonylphenol Surrogate Component Spike Standard

M-1626-SS — **1 x 1 mL**
32 µg/mL each in MeOH — 2 comps.

4-Nonylphenol 4-Nonylphenol monoethoxylate

M-1626-01S — **1 x 1 mL**
1000 µg/mL in MeOH

Bisphenol A (BPA)

ASTM D7485

Nonylphenols in Environmental Water Set

D-7485-SET — **5 x 1 mL**
*2500 µg/mL each in AcCN:MeOH(90:10), * except (50:50)* — 7 comps.

Nonylphenol	D-7485-1 *	1 mL
Nonylphenol monoethoxylate	D-7485-2	1 mL
Nonylphenol diethoxylate	D-7485-3	1 mL
Octylphenol	D-7485-4	1 mL
2-Bromo-4-(1,1,3,3-tetramethylbutyl)phenol	D-7485-09-SS	1 mL

Storage Refrig (0-5°C)

Alkyl-Phenol-Metabolites

Compound	CAS No.	100 µg/mL in MeOH Cat. No.	1 mL
Tech Grades			
Nonylphenol (tech)	84852-15-3	PEO-002S	
Nonylphenol monoethoxylate (tech)	68412-54-4	PEO-005S	
Nonylphenol diethoxylate (tech)		PEO-006S	
Nonylphenol triethoxylate (tech)		PEO-008S	
Nonylphenoxy acetic acid (tech)	3115-49-9	PEO-009S	
Nonylphenoxyethoxyacetic acid (tech)		PEO-012S	
4-n-Nonylphenol	104-40-5	PEO-004S	
4-n-Nonylphenol monoethoxylate	104-35-8	PEO-007S	
4-n-Nonylphenol diethoxylate	20427-84-3	PEO-014S	
4-tert-Octylphenol	140-66-9	PEO-003S	
4-tert-Octylphenol monoethoxylate		PEO-010S	
4-tert-Octylphenol diethoxylate		PEO-011S	
4-tert-Octylphenol triethoxylate		PEO-013S	
4-n-Octylphenol	1806-26-4	PEO-001S	
4-n-Octylphenol monoethoxylate	51437-89-9	PEO-016S	
4-n-Octylphenol diethoxylate	51437-90-2	PEO-017S	
4-n-Octylphenol triethoxylate		PEO-018S	
2-Bromo-4-tert-octylphenol (Internal Standard)		PEO-015S-IS	

Method USP 467 VOCs from Stack Gas Effluents

USP/National Formulary VOC Mixtures

NF-467 — **1 x 1 mL**
NF-467-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 5 comps.

Benzene	(200 µg/mL)	Methylene chloride	(200 µg/mL)
Chloroform	(100 µg/mL)	Trichloroethene	(200 µg/mL)
1,4-Dioxane	(200 µg/mL)		

NF-467-R — **1 x 1 mL**
NF-467-R-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in DMSO — 6 comps.

Benzene	(200 µg/mL)	Ethylene oxide	(20 µg/mL)
Chloroform	(100 µg/mL)	Methylene chloride	(200 µg/mL)
1,4-Dioxane	(200 µg/mL)	Trichloroethene	(200 µg/mL)

NF-467-R3 — **1 x 1 mL**
NF-467-R3-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 5 comps.

Benzene	(2 µg/mL)	Dichloromethane	(600 µg/mL)
Chloroform	(60 µg/mL)	Trichloroethene	(80 µg/mL)
p-Dioxane	(380 µg/mL)		

NF-467-R4 — **1 x 1 mL**
NF-467-R4-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Dimethyl sulfoxide — 5 comps.

Benzene	(2 µg/mL)	Dichlorometane	(600 µg/mL)
Chloroform	(60 µg/mL)	Trichloroethene	(80 µg/mL)
p-Dioxane	(380 µg/mL)		

NF-467-R6 — **1 x 1 mL**
NF-467-R6-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Dimethyl sulfoxide — 5 comps.

Benzene	(100 µg/mL)	Dichlorometane	(500 µg/mL)
Chloroform	(50 µg/mL)	Trichloroethene	(100 µg/mL)
p-Dioxane	(100 µg/mL)		

F-List Hazardous Waste from Non-Specific Sources

F001 & F002 Solvent List Components

FL-0102 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 10 comps.

Carbon tetrachloride	1,1,1-Trichloroethane
Chlorobenzene	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
Methylene chloride	1,1,2-Trichloro-1,2,2-trifluoroethane
Tetrachloroethene	Trichlorofluoromethane

F003 List Components (excluding MeOH as analyte)

FL-0003 — **1 x 1 mL**
2.0 mg/mL in MeOH — 10 comps.

Acetone	Ethyl ether
n-Butanol	Methyl isbutyl ketone
Cyclohexanone	*m*-Xylene
Ethyl acetate	*o*-Xylene
Ethylbenzene	*p*-Xylene

Additional Alcohol Solvents

FL-OADD — **1 x 1 mL**
2.0 mg/mL each in H_2O — 3 comps.

Ethanol	Methanol
Isopropanol	

F004 List Component Mixes

FL-0004-CR — **1 x 1 mL**
2.0 mg/mL in MeOH — 3 comps.

m-Cresol	*p*-Cresol
o-Cresol	

FL-0004-CA — **1 x 1 mL**
2.0 mg/mL in MeOH

Cresylic acid (technical mixture of phenol, cresols & xylenes)

F005 List Components (includes Nitrobenzene)

FL-0005-NB — **1 x 1 mL**
2.0 mg/mL each in MeOH — 9 comps.

Benzene	Nitrobenzene
Carbon disulfide	2-Nitropropane
2-Ethoxyethanol	Pyridine
Isobutanol	Toluene
Methyl ethyl ketone	

Petrochemical Standards

Table of Contents

Over 100
ASTM Methods

Cross references to ISO, DIN, IP, JIS and AFNOR methods.

Our selection of Biofuel reference standards include FAMEs, FAEEs (from popular biomasses), sulfurs, physical standards, wear metals and free and total glycerin.

Reference standards to meet the most common UOP LLC (a Honeywell company) methods.

ASTM Table of Contents

ASTM Methods

Sulfur Standards Group

D2622	Sulfur by XRF
D3120	Sulfur by Oxidative Microcoulometry
D3246	Sulfur in Petro Gas by Oxidative Microcoulometry
D4294	Sulfur by ED-XRF
D5453	Sulfur by Ultra Violet Fluorescence
D5623	Sulfur Compounds by Sulfur Selective Detection
D6334	Sulfur in Gasoline by Wavelength WD-XRF
D6445	Sulfur in Gasoline by ED-XRF

ASTM

Wear Metals Group

D3605	Trace Metals in Gas Turbine Fuel by AA
D4628	Wear Metals in Lube Oil
D4927	Wear Metals and Additives by WDXRF
D4951	Wear Metals and Additives by ICP
D5185	Wear Metals and Additives by ICP
D5708	Trace Metals by ICP
D5863	Trace Metals by AA
D6443	Metals in Oil
D6481	Lube Oils by ED-XRF

MEMBER

ASTM INTERNATIONAL
Standards Worldwide

Additional Methods

ASTM

ASTM Committee D02 has jurisdiction over 580 published methods pertaining to petroleum products and lubricants. AccuStandard is a member of this technical committee, as well as ASTM Committee D16 on Aromatic Hydrocarbons. Working with fellow committee members has given us the opportunity to formulate products to meet the requirements of many of these methods.

In addition, AccuStandard can prepare, package and ship products for both ASTM PTP's (proficiency testing programs) and round robin studies. Please contact our Technical Service Department for more information.

Use this Cross-reference Table to match other Methods for known Petrochemical analysis.

ANALYSIS	ASTM	IP	ISO	DIN	JIS	AFNOR
Tag Flash Point	D56			51411	K 2580	M07-003
Distillation	D86	123	3405	51751	K 2254	M07-002
COC Flash Point	D92	36	2592	51376	K 2265	T60-118
PMCC Flash Point	D93	34	2719	51758	K 2265	M07-019
Kinematic Viscosity	D445	71-1	3104	51562	K 2283	T60-100
Aniline Point	D611	2	2977	51775		M07-021
Hydrocarbon Types by FID	D1319	156	3837	51791	K 2536	M07-024
Water (Karl Fischer)	D1744		6296			T60-154
Freezing Point	D2386	16	3013	51421	K 2276	M07-048
Cloud Point	D2500	219	3015	51597	K 2269	T60-105
Sulfur by XRF	D2622			51400T6	K 2541	
Boiling Range By GC	D2887		3924			
Sulfur by Oxidative Microcoulometry	D3120		16591			
Lead by AAS	D3237	428				
Sulfur by Oxidative Microcoulometry	D3246	373				M07-052
Metals by AA	D3605	413	8691	51790T3		
Benzene by GC	D3606	425				
Sulfur by ED-XRF	D4294	336	8754			M07-053
Water (Karl Fischer)	D4377	356	10336			
Metals by AA	D4628	308		51391T1		
Nitrogen by Chemiluminescence Detection	D4629	379				M07-058
Metals by WD-XRF	D4927	407		51391T2		
Water (Karl Fischer)	D4928	386	10337			
Lead in Gas By X-Ray	D5059	228				
Vapor Pressure	D5191	394				M07-079
Oxygenates	D5599	408				
Cloud Point	D5771	444				
Cloud Point	D5772	445				
Cloud Point	D5773	446				
Freezing Point	D5901	434				
Auto-Freeze Point	D5972	435				
Hydrocarbons Automatic	D6379	436				
Hydrocarbons Automatic	D6591	391				
Metals			14597			

This is a partial list of Standards available for ASTM Methods.

Tables Generated from

(a) R.A. Nadkarni, "Guide to ASTM Test Methods for the Analysis of Petroleum Products and Lubricants," Manual 44 (200), ASTM West Conshohocken, PA
(b) Annual Book of ASTM Standards 2000, Volumes 05.01 to 05.05

Shipping Symbols

▲ Hazardous fee required.
▼ Hazardous fee not required
❄ A ColdPAK is required
Can not be shipped by Air
Reformulated to ship by Air

On site Viscosity testing

ASTM D56, D92, D93 Flash Point Standards

The reference material is a stable, pure hydrocarbon with a method specific flash point determined by using the ASTM Method # referenced.

ASTM #	Nominal Flash Point	Cat. No.	Unit
PMCC D93	60 °C	ASTM-P-132-01	250 mL
PMCC D93	93 °C	ASTM-P-132-02	250 mL
COC D92	200 °C	ASTM-P-132-03	250 mL
COC D92	230 °C	ASTM-P-132-04	250 mL
PMCC D93	65 °C	ASTM-P-133-01	250 mL
PMCC D93	134 °C	ASTM-P-133-02	250 mL
COC D92	138 °C	ASTM-P-133-03	250 mL
TCC D56	67 °C	ASTM-P-133-04	250 mL

Note: nominal 250 mL fill

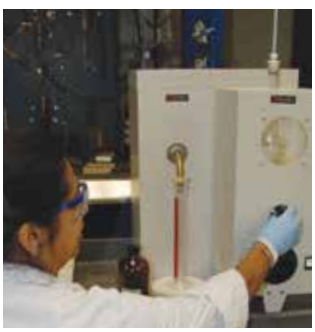
ASTM D86 Distillation Standards

The automatic distillation apparatus duplicates the distillation conditions of the manual method. The increased reliance on electronic control requires an independent standard to verify that the apparatus is performing correctly. This synthetic blend of hydrocarbons boil in the temperature range specified in ASTM D86 distillation Groups 1 and 2, and a fuel oil that meets the group 4 criteria.

The Group 1 and 2 standards cover the boiling range 129-368°F (54-187°C). The Group 4 standard covers the range from 410-670°F (210-355°C).

Group	Description	Cat. No.	Unit
1, 2	Synthetic Distillation Standard	ASTM-P-126-01 ▲	500 mL
		ASTM-P-126-VAP ▲	2 x 500 mL
4	Distillation Standard	ASTM-P-127-01 ▲	250 mL
		ASTM-P-127-02 ▲	500 mL

Note: nominal 500 mL fill, or 250 mL fill



Distillation apparatus

ASTM D445 Viscosity Calibration Standards

Viscosity @ 40°C	Cat. No.	Unit
4 Cst	ASTM-P-128-01	500 mL
7 Cst	ASTM-P-128-02	500 mL
19 Cst	ASTM-P-128-03	500 mL
61 Cst	ASTM-P-128-04	500 mL
180 Cst	ASTM-P-128-05	500 mL
520 Cst	ASTM-P-128-06	500 mL

Note: nominal 500 mL fill

ASTM D611 Aniline Point Standards

The accuracy of automated aniline point apparatus can be verified using a range of standards whose aniline points are determined using ASTM D611 (Method A) and ASTM D611 (Method E). Standards are packaged in 20 mL ampules in an inert atmosphere.

Aniline Point Verification Method 611(A)

Set include 5 Standards listed below

Nominal Aniline Point	Cat. No. D-611-SET	Unit 5 x 20 mL
0°C	D-611-01	20 mL
30°C	D-611-02	20 mL
55°C	D-611-03	20 mL
68°C	D-611-04	20 mL
94°C	D-611-05	20 mL

Aniline Point Verification Method 611(E)

Set include 3 Standards listed below

Nominal Aniline Point	Cat. No. D-611E-SET	Unit 3 x 20 mL
43 °C	D-611E-01	20 mL
62 °C	D-611E-02	20 mL
77 °C	D-611E-03	20 mL
Pure Aniline	ASTM-P-134-PAK	5 x 15 mL

Technical Note

For routine purposes pure Aniline is packaged in ampules under dry nitrogen. This minimizes the risk of oxidation.

ASTM D1015, D2386, D5972 Freezing Points of High Purity Hydrocarbons

Nominal Freezing Point	Cat. No.	Unit
- 50 °C	ASTM-P-129-01	250 mL
- 45 °C	ASTM-P-129-02	250 mL

Note: nominal 250 mL fill

▲ Hazardous fee required.

ASTM D1319 Calibration Standards by Fluorescent Indicator Adsorption FIA

Olefin FIA Calibration Curve

FIA-CAL-SET — **Set of 7 x 1 mL**

	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Total Olefins	2.0	4.0	5.0	6.0	8.0	10.0	12.0
Total Paraffins	57.0	55.0	52.0	51.0	45.0	45.0	40.0
Total Aromatics	23.0	24.0	25.0	26.0	29.0	28.0	30.0
Total Oxygenate	18.0	17.0	18.0	17.0	18.0	17.0	18.0

D1319 Meets EPA Guidelines for RFG Analysis

	Cat. No.	1 mL
Standard 1	FIA-CAL-01	
Standard 2	FIA-CAL-02	
Standard 3	FIA-CAL-03	
Standard 4	FIA-CAL-04	
Standard 5	FIA-CAL-05	
Standard 6	FIA-CAL-06	
Standard 7	FIA-CAL-07	

FIA Olefin Standard

FIA-OLE — **1 x 1 mL**
FIA-OLE-5ML — **1 x 5 mL**
3 comps.

	Vol. %		Vol. %
1-Pentene	33.3	1-Heptene	33.3
2,3-Dimethyl-2-butene	33.3		

FIA Paraffin Standard

FIA-PAR — **1 x 1 mL**
FIA-PAR-5ML — **1 x 5 mL**
8 comps.

	Vol. %		Vol. %
n-Pentane	8	2,3-Dimethylpentane	14
n-Hexane	9	Isooctane	16
Cyclohexane	15	*n*-Octane	14
n-Heptane	14	*n*-Decane	7

FIA Aromatic Standard

FIA-ARO — **1 x 1 mL**
FIA-ARO-5ML — **1 x 5 mL**
10 comps.

	Vol. %		Vol. %
Benzene	4	*m*-Xylene	16
Toluene	32	1,2,4-Trimethylbenzene	8
Ethylbenzene	8	1,3,5-Trimethylbenzene	8
p-Xylene	8	1,2,4,5-Tetramethylbenzene	4
o-Xylene	8	Naphthalene	4

Technical Note

These standards have been prepared for the determination of aromatics, olefins, oxygenates and saturates in petroleum fractions by Fluorescent Indicator Adsorption (FIA) IP designation 156/95.

The certificate for the FIA calibration curve lists both the volume percents for the hydrocarbon types and the individual volume percents for each analyte in the functional group.

The weight fraction for each hydrocarbon type and individual analyte is also listed on the certificate.

ASTM D1744, E1064, D4377 Water in Liquid Petroleum Products by Karl Fischer D4928, D6304

Standards are available for coulometric Karl Fischer titrations and are packaged in 2 mL, 5 mL, and 20 mL ampules in sets of 5 and 10. The following concentrations are available:

Description	Cat. No.	Unit
Water content 60 µg/g	KF-0.6X-5ML-VAP	10 x 5 mL
Water content 100 µg/g	KF-1X-2ML-VAP	10 x 2 mL
	KF-1X-5ML-VAP	10 x 5 mL
	KF-1X-20ML-PAK	5 x 20 mL
Water content 1000 µg/g	KF-10X-2ML-VAP	10 x 2 mL
	KF-10X-5ML-VAP	10 x 5 mL
	KF-10X-20ML-PAK	5 x 20 mL
Water content 5000 µg/g	KF-50X-2ML-VAP	10 x 2 mL
	KF-50X-5ML-VAP	10 x 5 mL
	KF-50X-20ML-PAK	5 x 20 mL

Value Added PAK
Packaged in ready to use quantities.

Value Added Paks (Cat. No.'s ending in -VAP) provide multiple single units packaged together for both greater stability and cost savings.

Karl Fischer titrator

ASTM D2500, D5771, D5772, D5773 Cloud Point Calibration Standards

Cloud Point, Approx. Value	Cat. No.	Unit
+ 5 °C	ASTM-P-131-01 ▲	250 mL
- 2 °C	ASTM-P-131-02 ▲	250 mL
- 10 °C	ASTM-P-131-03 ▲	250 mL
- 15 °C	ASTM-P-131-04 ▲	250 mL
- 20 °C	ASTM-P-131-05 ▲	250 mL

▲ Hazardous fee required.

Cloud Point

D2622, D3120, D3246, D4294, D5453, D6334, D6445 & Proposed ASTM Sulfur Methods
These calibration standards are designed for the analysis of sulfur in a wide variety of matrices such as #2 diesel fuel, white mineral oil, kerosene, gasoline, crude oil and residual oil.

Traceability, Quality and Certification
All sulfur standards are manufactured from the highest quality raw materials, including well characterized starting materials and the lowest sulfur matrices available. Most standards are manufactured on a weight/weight basis using balances that are calibrated and verified daily against reference mass standards directly traceable to NIST. The concentration of these working level Sulfur standards have established traceability links to NIST SRM's where available.

Sulfur Standards for ASTM D2622, D3120, D3246, D4294, D5453, D6334, D6445 & Proposed ASTM Sulfur Methods

Sulfur in Heavy Weight Mineral Oil (75 cSt)

Ready-to-Use

Concentration µg/g	Wt. %	Cat. No. 100 mL	PAK Cat. No. 5 x 20 mL
Blank	0.000	SWMO-BL-100ML	SWMO-BL-20ML-PAK
100	0.010	SWMO-1X-100ML	SWMO-1X-20ML-PAK
200	0.020	SWMO-2X-100ML	SWMO-2X-20ML-PAK
300	0.030	SWMO-3X-100ML	SWMO-3X-20ML-PAK
400	0.040	SWMO-4X-100ML	SWMO-4X-20ML-PAK
500	0.050	SWMO-5X-100ML	SWMO-5X-20ML-PAK
750	0.075	SWMO-7.5X-100ML	SWMO-7.5X-20ML-PAK
1,000	0.10	SWMO-10X-100ML	SWMO-10X-20ML-PAK
1,500	0.15	SWMO-15X-100ML	SWMO-15X-20ML-PAK
3,000	0.30	SWMO-30X-100ML	SWMO-30X-20ML-PAK
5,000	0.50	SWMO-50X-100ML	SWMO-50X-20ML-PAK
7,000	0.70	SWMO-70X-100ML	SWMO-70X-20ML-PAK
10,000	1.00	SWMO-100X-100ML	SWMO-100X-20ML-PAK
15,000	1.50	SWMO-150X-100ML	SWMO-150X-20ML-PAK
20,000	2.00	SWMO-200X-100ML	SWMO-200X-20ML-PAK
30,000	3.00	SWMO-300X-100ML	SWMO-300X-20ML-PAK
40,000	4.00	SWMO-400X-100ML	SWMO-400X-20ML-PAK
50,000	5.00	SWMO-500X-100ML	SWMO-500X-20ML-PAK
60,000	6.00	SWMO-600X-100ML	SWMO-600X-20ML-PAK

Set of above **SWMO-CAL-100ML-SET** 19 x 100 mL — At stated concentration 5 x 20 mL ea

Sulfur in Light Weight Mineral Oil (20 cSt)

Ready-to-Use

Concentration µg/g	Wt. %	Cat. No. 100 mL	PAK Cat. No. 5 x 20 mL
Blank	0.000	SWMO-LT-BL-100ML	SWMO-LT-BL-20ML-PAK
100	0.010	SWMO-LT-1X-100ML	SWMO-LT-1X-20ML-PAK
200	0.020	SWMO-LT-2X-100ML	SWMO-LT-2X-20ML-PAK
300	0.030	SWMO-LT-3X-100ML	SWMO-LT-3X-20ML-PAK
400	0.040	SWMO-LT-4X-100ML	SWMO-LT-4X-20ML-PAK
500	0.050	SWMO-LT-5X-100ML	SWMO-LT-5X-20ML-PAK
750	0.075	SWMO-LT-7.5X-100ML	SWMO-LT-7.5X-20ML-PAK
1,000	0.10	SWMO-LT-10X-100ML	SWMO-LT-10X-20ML-PAK
1,500	0.15	SWMO-LT-15X-100ML	SWMO-LT-15X-20ML-PAK
3,000	0.30	SWMO-LT-30X-100ML	SWMO-LT-30X-20ML-PAK
5,000	0.50	SWMO-LT-50X-100ML	SWMO-LT-50X-20ML-PAK
7,000	0.70	SWMO-LT-70X-100ML	SWMO-LT-70X-20ML-PAK
10,000	1.00	SWMO-LT-100X-100ML	SWMO-LT-100X-20ML-PAK
15,000	1.50	SWMO-LT-150X-100ML	SWMO-LT-150X-20ML-PAK
20,000	2.00	SWMO-LT-200X-100ML	SWMO-LT-200X-20ML-PAK
30,000	3.00	SWMO-LT-300X-100ML	SWMO-LT-300X-20ML-PAK
40,000	4.00	SWMO-LT-400X-100ML	SWMO-LT-400X-20ML-PAK
50,000	5.00	SWMO-LT-500X-100ML	SWMO-LT-500X-20ML-PAK
60,000	6.00	SWMO-LT-600X-100ML	SWMO-LT-600X-20ML-PAK

Set of above **SWMO-LT-CAL-100ML-SET** 19 x 100 mL — At stated concentration 5 x 20 mL

Sulfur in #2 Diesel Fuel

Ready-to-Use

Concentration µg/g	Wt. %	100 mL Cat. No.	PAK 5 x 20 mL Cat. No.
Blank	0.000	SDF-BL-100ML ▲	SDF-BL-20ML-PAK
100	0.010	SDF-1X-100ML ▲	SDF-1X-20ML-PAK
200	0.020	SDF-2X-100ML ▲	SDF-2X-20ML-PAK
300	0.030	SDF-3X-100ML ▲	SDF-3X-20ML-PAK
400	0.040	SDF-4X-100ML ▲	SDF-4X-20ML-PAK
500	0.050	SDF-5X-100ML ▲	SDF-5X-20ML-PAK
750	0.075	SDF-7.5X-100ML ▲	SDF-7.5X-20ML-PAK
1,000	0.10	SDF-10X-100ML ▲	SDF-10X-20ML-PAK
1,500	0.15	SDF-15X-100ML ▲	SDF-15X-20ML-PAK
3,000	0.30	SDF-30X-100ML ▲	SDF-30X-20ML-PAK
5,000	0.50	SDF-50X-100ML ▲	SDF-50X-20ML-PAK
7,000	0.70	SDF-70X-100ML ▲	SDF-70X-20ML-PAK
10,000	1.00	SDF-100X-100ML ▲	SDF-100X-20ML-PAK
15,000	1.50	SDF-150X-100ML ▲	SDF-150X-20ML-PAK
20,000	2.00	SDF-200X-100ML ▲	SDF-200X-20ML-PAK
30,000	3.00	SDF-300X-100ML ▲	SDF-300X-20ML-PAK
40,000	4.00	SDF-400X-100ML ▲	SDF-400X-20ML-PAK
50,000	5.00	SDF-500X-100ML ▲	SDF-500X-20ML-PAK
60,000	6.00	SDF-600X-100ML ▲	SDF-600X-20ML-PAK

Set of above **SDF-CAL-100ML-SET** 19 x 100 mL — **SDF-CAL-20ML-SET** 19 x (5 x 20 mL)

Individual Sulfur Standards 100 mL Bottle — At stated concentration 5 x 20 mL

▲ Hazardous fee required.

Sulfur in Light Distillate Kerosene

Ready-to-Use

Concentration µg/g	Wt. %	Cat. No. 100 mL	PAK Cat. No. 5 x 20 mL
Blank	0.000	SK-BL-100ML	SK-BL-20ML-PAK
100	0.010	SK-1X-100ML	SK-1X-20ML-PAK
300	0.030	SK-3X-100ML	SK-3X-20ML-PAK
500	0.050	SK-5X-100ML	SK-5X-20ML-PAK
750	0.075	SK-7.5X-100ML	SK-7.5X-20ML-PAK
1,000	0.10	SK-10X-100ML	SK-10X-20ML-PAK
2,000	0.20	SK-20X-100ML	SK-20X-20ML-PAK
3,000	0.30	SK-30X-100ML	SK-30X-20ML-PAK
4,000	0.40	SK-40X-100ML	SK-40X-20ML-PAK
5,000	0.50	SK-50X-100ML	SK-50X-20ML-PAK
10,000	1.00	SK-100X-100ML	SK-100X-20ML-PAK
20,000	2.00	SK-200X-100ML	SK-200X-20ML-PAK

Set of above **SK-CAL-100ML-SET** ▲ 12 x 100 mL — At stated conc. 5 x 20 mL

Technical Note

Sulfur introduced using di-*n*-butyl sulfide

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

Custom Concentrations

AccuStandard can custom design a sulfur set for your specific needs. Contact our Technical Service Department for assistance or additional information.

Sulfur Standards for ASTM D2622, D3120, D3246, D4294, D5453, D6334, D6445 & Proposed ASTM Sulfur Methods (Continued)

Sulfur in Heavy Distillate Kerosene

Concentration µg/g	Wt. %	Cat. No.	100 mL
Blank	0.000	SK-HD-BL-100ML	
100	0.010	SK-HD-1X-100ML	
200	0.020	SK-HD-2X-100ML	
300	0.030	SK-HD-3X-100ML	
400	0.040	SK-HD-4X-100ML	
500	0.050	SK-HD-5X-100ML	
750	0.075	SK-HD-7.5X-100ML	
1,000	0.10	SK-HD-10X-100ML	
1,500	0.15	SK-HD-15X-100ML	
2,000	0.20	SK-HD-20X-100ML	
3,000	0.30	SK-HD-30X-100ML	
4,000	0.40	SK-HD-40X-100ML	
5,000	0.50	SK-HD-50X-100ML	
7,000	0.70	SK-HD-70X-100ML	
10,000	1.00	SK-HD-100X-100ML	
15,000	1.50	SK-HD-150X-100ML	
20,000	2.00	SK-HD-200X-100ML	
30,000	3.00	SK-HD-300X-100ML	
40,000	4.00	SK-HD-400X-100ML	
50,000	5.00	SK-HD-500X-100ML	
60,000	6.00	SK-HD-600X-100ML	

Set of above **SK-HD-CAL-100ML-SET** ▲
21 x 100 mL

Technical Note

Sulfur introduced using di-*n*-butyl sulfide

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

ASTM D2622, D4294 Sulfur Calibration

Sulfur Calibration Standards for Gasoline & Reformulated Gasoline Analysis

In Isooctane

Sulfur Conc.	Sulfur Wt.%	Cat. No.
Blank	0.0	STP-BL-100ML ▲
10 µg/g	0.001	STP-1X-100ML ▲
20 µg/g	0.002	STP-2X-100ML ▲
30 µg/g	0.003	STP-3X-100ML ▲
50 µg/g	0.005	STP-5X-100ML ▲
100 µg/g	0.010	STP-10X-100ML ▲
200 µg/g	0.020	STP-20X-100ML ▲
300 µg/g	0.030	STP-30X-100ML ▲
400 µg/g	0.040	STP-40X-100ML ▲
600 µg/g	0.060	STP-60X-100ML ▲
1000 µg/g	0.10	STP-100X-100ML ▲
2000 µg/g	0.20	STP-200X-100ML ▲
3000 µg/g	0.30	STP-300X-100ML ▲

100 mL
In Isooctane — Individual Bottles
STP-CAL-100ML-SET ▲ — **13 x 100 mL**
Set of 13 bottles

Technical Note

Di-*n*-butyl sulfide starting material is used with a low sulfur Isooctane matrix for RFG/gasoline sulfur standards.

ASTM D3120, D3246 Sulfur Calibration

Sulfur Calibration Set

D-3120-92-CAL-SET — **8 x 1 mL**
In Isooctane

Sulfur Conc.	Sulfur Wt. %	Cat. No.
Blank	———	D-3120-92-BL
1 µg/g	0.0001	D-3120-92-1X
3 µg/g	0.0003	D-3120-92-3X
10 µg/g	0.0010	D-3120-92-10X
30 µg/g	0.0030	D-3120-92-30X
50 µg/g	0.0050	D-3120-92-50X
75 µg/g	0.0075	D-3120-92-75X
100 µg/g	0.010	D-3120-92-100X

Technical Note

Well characterized di-*n*-butyl sulfide is used in a low sulfur Isooctane matrix for this calibration set.

ASTM D2622, D6334, D6445 Sulfur Calibration

Sulfur Calibration Standards used on XRF Energy Dispersive or Wavelength Instruments

Low Level

In Isooctane:Toluene (3:1)

Sulfur Conc.	Sulfur Wt.%	Cat. No.
Blank	0.0	D-2622-LL-BL-100ML ▲
5 µg/g	0.0005	D-2622-LL-5X-100ML ▲
10 µg/g	0.0010	D-2622-LL-10X-100ML ▲
30 µg/g	0.0030	D-2622-LL-30X-100ML ▲
50 µg/g	0.0050	D-2622-LL-50X-100ML ▲
75 µg/g	0.0075	D-2622-LL-75X-100ML ▲
100 µg/g	0.010	D-2622-LL-100X-100ML ▲
300 µg/g	0.030	D-2622-LL-300X-100ML ▲
500 µg/g	0.050	D-2622-LL-500X-100ML ▲
1000 µg/g	0.100	D-2622-LL-1000X-100ML ▲

D-2622-LL-CAL-100ML-SET ▲ — **10 x 100 mL**
In Isooctane:Toluene (75:25) — Set of 10 bottles

Mid Level Additions

200 µg/g	0.020	D-2622-LL-200X-100ML ▲
400 µg/g	0.040	D-2622-LL-400X-100ML ▲
600 µg/g	0.060	D-2622-LL-600X-100ML ▲
700 µg/g	0.070	D-2622-LL-700X-100ML ▲
800 µg/g	0.080	D-2622-LL-800X-100ML ▲
900 µg/g	0.090	D-2622-LL-900X-100ML ▲
1100 µg/g	0.110	D-2622-LL-1100X-100ML ▲
1200 µg/g	0.120	D-2622-LL-1200X-100ML ▲

In Isooctane:Toluene (75:25) — **100 mL**
Individual Bottles

Technical Note

Thiophene & 2-methyl thiophene are used as starting material in these products.

ASTM Methods - Sulfur in Oil

Sulfur in Crude Oil Standards

µg/g	Wt. %	Cat. No. (100 mL)
1,000	0.10	SCO-10X-100ML ▲
2,500	0.25	SCO-25X-100ML ▲
5,000	0.50	SCO-50X-100ML ▲
10,000	1.00	SCO-100X-100ML ▲
20,000	2.00	SCO-200X-100ML ▲
30,000	3.00	SCO-300X-100ML ▲
40,000	4.00	SCO-400X-100ML ▲
50,000	5.00	SCO-500X-100ML ▲

SCO-CAL-100ML-SET ▲ **8 x 100 mL**
In Crude oil Set of 8 individual bottles

Sulfur in Residual Oil Standards

µg/g	Wt. %	Cat. No. (100 mL)
3,500	0.35	SRO-35X-100ML
7,000	0.70	SRO-70X-100ML
10,000	1.00	SRO-100X-100ML
15,000	1.50	SRO-150X-100ML
20,000	2.00	SRO-200X-100ML
30,000	3.00	SRO-300X-100ML
40,000	4.00	SRO-400X-100ML

SRO-CAL-100ML-SET **x 100 mL**
In Residual oil Set of 7 individual bottles

ASTM Methods Sulfur in Aromatic Hydrocarbons

Total Sulfur in Aromatic Compounds by Hydrogenolysis & Rateometric Colorimetry

ASTM-P-0010-PAK **5 x 1 mL**
1000 µg/mL in Toluene

Sulfur (as Thiophene)

Trace Quantities of Sulfur in Liquid Aromatic Hydrocarbons by Oxidative Microcoulometry

ASTM-P-0020-PAK **5 x 1 mL**
1000 µg/mL in Xylenes

Sulfur (as Dibenzothiophene)

ASTM-SSTDA/B-SET **10 x 2 mL**
in isooctane Set of 10 bottles

Sulfur	Cat. No. (2 mL)
Sulfur Blank	ASTM-SSTDA-BL
Sulfur @ 0.5 µg/g in Isooctane	ASTM-SSTDA-01
Sulfur @ 1.0 µg/g in Isooctane	ASTM-SSTDA-02
Sulfur @ 2.5 µg/g in Isooctane	ASTM-SSTDA-03
Sulfur @ 5.0 µg/g in Isooctane	ASTM-SSTDA-04
Sulfur Blank	ASTM-SSTDB-BL
Sulfur @ 5.0 µg/g in Isooctane	ASTM-SSTDB-04
Sulfur @ 10.0 µg/g in Isooctane	ASTM-SSTDB-05
Sulfur @ 25.0 µg/g in Isooctane	ASTM-SSTDB-06
Sulfur @ 50.0 µg/g in Isooctane	ASTM-SSTDB-07

Standards of Interest

We can provide **Ready-to-Inject** working level calibration standards to meet unique laboratory applications.

ASTM Member

AccuStandard is an active member in ASTM and strives to keep abreast of ASTM method revisions. If our listed formulation does not meet the most recent method revision, please contact Technical Support for an updated product.

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

Antek 900 Series Sulfur Analyzer

XOS Optical Systems, Sufur Analyzer (Monochromatic Wavelength-Dispersive X-Ray Fluorescence Spectrometer)

▲ Hazardous fee required.

PIANO/PONA analysis is useful for fuel type differentiation as well as for estimating alteration by weathering and biodegradation. These complex mixes are prepared from materials of the highest available purity, accurate to four decimal places, and include a detailed data sheet on the formulation composition. The exact composition on a weight % basis for each analyte is provided on the certificate.

Products are prepared and certified gravimetrically.

- All weights are traceable through the National Institute of Standards and Technology.
- The uncertainty value is +/- 1% and is determined in accordance with the CITAC guide to quantifying Uncertainty in Analytical Measurement and is reported as an Expanded Uncertainty [U(Ccd)]. Assuming a normal distribution, a coverage factor K=2 (95% confidence level) is used in the calculation.

PIANO / PONA Analysis

PIANO Mix Set

ASTM-PIANO-R1-SET — **6 x 100 µL**

Set includes the following **ASTM-P-0030, ASTM-P-0031, ASTM-P-0032, ASTM-P-0033, ASTM-P-0034, ASTM-P-0035**

PIANO *n*-Paraffins Mix

ASTM-P-0031-R1 — **1 mL**

11 paraffins listed below at varying Wt. % typically in the range from 7.0 to 11.0 Wt. %. The actual certificate will have the exact Wt. % for each analyte.

	Typ. Wt. %
n-Pentane	9.4375
n-Hexane	9.5661
n-Heptane	9.8048
n-Octane	9.5518
n-Nonane	9.0482
n-Decane	9.2517
n-Undecane	9.3172
n-Dodecane	9.1855
n-Tridecane	8.9332
n-Tetradecane	8.7989
n-Pentadecane	7.1057

PIANO Isoparaffins Mix

ASTM-P-0032-R1 — **100 µL**

35 Isoparaffins listed below at varying Wt. % typically in the range from 0.5 to 6.0 Wt. %. The actual certificate will have the exact Wt. % for each analyte.

	Typ. Wt. %		Typ. Wt. %		Typ. Wt. %
Isopentane	2.1928	2,2-Dimethylhexane	1.3061	2,3-Dimethylheptane	1.4870
2,3-Dimethylbutane	0.4466	2,5-Dimethyl hexane	3.6975	3,4-Dimethylheptane	3.7450
2-Methylpentane	3.2815	2,2,3-Trimethylpentane	1.7371	2-Methyloctane	3.7576
3-Methylpentane	5.3865	2,4-Dimethylhexane	1.6252	3-Methyloctane	5.6020
2,2-Dimethylpentane	1.7747	2,3-Dimethylhexane	1.6212	3,3-Diethylpentane	1.5755
2,4-Dimethylpentane	3.6993	2-Methylheptane	4.4073	2,2-Dimethyloctane	3.4135
2,2,3-Trimethylbutane	3.9291	4-Methylheptane	3.2015	3,3-Dimethyloctane	3.2582
3,3-Dimethylpentane	1.1848	3-Methylheptane	5.5186	2,3-Dimethyloctane	3.8842
2-Methylhexane	2.2384	3-Ethylhexane	0.6999	3-Ethyloctane	3.7482
2,3-Dimethylpentane	1.7883	3,3-Dimethylheptane	1.7011	2-Methylnonane	3.7144
3-Methylhexane	1.6708	2,5-Dimethylheptane	5.6731	3-Methylnonane	5.7687
3-Ethylpentane	0.5080	3,5-Dimethylheptane	0.7565		

PIANO Aromatics Mix

ASTM-P-0033-R1 — **100 µL**

38 Aromatics listed below at varying Wt. % typically in the range from 0.2 to 7.0 Wt. %. The actual certificate will have the exact Wt. % for each analyte.

	Typ. Wt. %
Benzene	3.45
Toluene	4.5738
EthylBenzene	6.7670
m-Xylene	2.2259
p-Xylene	4.4815
o-Xylene	2.2519
Isopropylbenzene	2.2248
n-Propylbenzene	4.4979
1-Methyl-3-ethylbenzene	2.2243
1-Methyl-4-ethylbenzene	2.2206
1,3,5-Trimethylbenzene	1.1076
1-Methyl-2-ethylbenzene	2.2611
1,2,4-Trimethylbenzene	2.2535
tert-Butylbenzene	4.5310
Isobutylbenzene	4.4216
sec-Butylbenzene	2.2368
1-Methyl-3-isopropylbenzene	1.1066
1-Methyl-4-isopropylbenzene	1.0668
1-Methyl-2-isopropylbenzene	1.1241
1-Methyl-3-*n*-propylbenzene	2.1135
1-Methyl-4-*n*-propylbenzene	2.2336
n-Butylbenzene	2.2087
1,2-Diethylbenzene	1.0947
1-Methyl-2-*n*-propylbenzene	2.2641
1,4-Dimethyl-2-ethylbenzene	2.2803
1,3-Dimethyl-5-ethylbenzene	2.2858
1,2-Dimethyl-4-ethylbenzene	2.2558
1,3-Dimethyl-2-ethylbenzene	1.1416
1,2-Dimethyl-3-ethylbenzene	2.1864
1,2,4,5-Tetramethylbenzene	0.2360
2-Methylbutylbenzene	1.1453
1-tert-Butyl-2-methylbenzene	0.7641
n-Pentylbenzene	4.4828
1-tert-Butyl,3,5-dimethylbenzene	2.1641
1-tert-Butyl-4-ethylbenzene	2.2322
1,3,5-Triethylbenzene	4.5671
1,2,4-Triethylbenzene	1.1087
n-Hexylbenzene	4.5029

PIANO Naphthenes Mix

ASTM-P-0034-R1 — **100 µL**

30 Napthenes listed below at varying Wt. % typically in the range from 0.5 to 8.0 Wt. %. The actual certificate will have the exact Wt. % for each analyte.

	Typ. Wt. %
Cyclopentane	4.9143
Methylcyclopentane	3.2829
Cyclohexane	5.3268
1,1-Dimethylcyclopentane	3.4612
cis-1,3-Dimethylcyclopentane	0.5963
trans-1,2-Dimethylcyclopentane	1.4715
trans-1,3-Dimethylcyclopentane	2.7531
Methylcyclohexane	5.6091
Ethylcyclopentane	3.5534
ctc-1,2,3-Trimethylcyclopentane	1.5859
cct-1,2,4-Trimethylcyclopentane	3.7208
ctc-1,2,4-Trimethylcyclopentane	1.6467
trans-1,4-Dimethylcyclohexane	3.6499
1-Ethyl-1-methylcyclopentane	1.0554
trans-1,2-Dimethylcyclohexane	1.6537
ccc-1,2,3-Trimethylcyclopentane	0.7971
Isopropylcyclopentane	3.5042
cis-1,2-Dimethylcyclohexane	3.7159
n-Propylcyclopentane	3.6438
ccc-1,3,5-Trimethylcyclohexane	3.5263
1,1,4-Trimethylcyclohexane	3.6791
ctt-1,2,4-Trimethylcyclohexane	3.6107
ctc-1,2,4-Trimethylcyclohexane	3.5069
1,1,2-Trimethylcyclohexane	3.3354
Isobutylcyclopentane	3.7123
Isopropylcyclohexane	5.7233
n-Butylcyclopentane	3.6944
Isobutylcyclohexane	5.6729
t-1-Methyl-2-propylcyclohexane	3.8434
t-1-Methyl-2-(4MP)cyclopentane	3.7534

PIANO Olefins Mix

ASTM-P-0035-R1 — **100 µL**

25 Olefins listed below at varying Wt. % typically in the range from 1.2 to 9.0 Wt. %. The actual certificate will have the exact Wt. % for each analyte.

	Typ. Wt. %
3-Methyl-1-butene	1.9396
1-Pentene	4.1355
2-Methyl-1-butene	1.4440
2-Methyl-1,3-butadiene	2.3889
trans-2-Pentene	1.8034
cis-2-Pentene	1.9792
4-Methylpentene-1	3.4372
1-Hexene	7.0484
trans-2-Hexene	1.7302
2-Methylpentene-2	3.3901
cis-2-Hexene	3.8765
1-Heptene	7.6134
trans-3-Heptene	3.3469
cis-3-Heptene	5.8657
trans-2-Heptene	3.7217
cis-2-Heptene	5.7679
1-Octene	7.6901
trans-2-Octene	1.9432
cis-2-Octene	3.9502
1-Nonene	7.6425
trans-3-Nonene	1.9972
cis-3-Nonene	4.0042
trans-2-Nonene	1.9848
cis-2-Nonene	2.7952
1-Decene	8.2053

Technical Note

PIANO analytes may be added and/or subtracted and may vary by weight percentage. The certificate will reflect the exact analyte composition.

PIANO Mixture

ASTM-P-0030-R1 — **100 µL**

139 comps.

The PIANO formulation contains the *n*-Paraffins, Isoparaffins, Aromatics, Naphthenes, and Olefins: **ASTM-P-0031-R1, ASTM-P-0032-R1, ASTM-P-0033-R1, ASTM-P-0034-R1, ASTM-P-0035-R1**. Approximate weight %'s for the total: *n*-Paraffins 18.5%, Isoparaffins 17.9%, Aromatics 23.6%, Naphthenes 20.9%, Olefins 19.0%. The certificate lists the weight % for all analytes in the formulation.

ASTM D2789 Hydrocarbon Types in Low Olefinic Gas by MS

Hydrocarbon Mixture

D-2789-CTM **1 x 1 mL**
D-2789-CTM-PAK ***SAVE*** **5 x 1 mL**
9 comps.

	Vol. %		Vol. %
2-Methylpentane	7.2	*cis*-1,2-Dimethylcyclohexane	15.5
2,4-Dimethylpentane	9.4	Benzene	7.7
n-Octane	16.6	Toluene	10
Methylcyclopentane	7.1	*p*-Xylene	16.5
Methylcyclohexane	10		

Technical Note

Actual volume percent ratio and the final weight fractions for each analyte will be listed on the certificate.

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Mixture

DRH-002N **100 mg**
DRH-002N-10X **1 gm**
17 comps.

	Wt. %		Wt. %
n-Hexane	6	*n*-Octadecane	5
n-Heptane	6	*n*-Eicosane	2
n-Octane	8	*n*-Tetracosane	2
n-Nonane	8	*n*-Octacosane	1
n-Decane	12	*n*-Dotriacontane	1
n-Undecane	12	*n*-Hexatriacontane	1
n-Dodecane	12	*n*-Tetracontane	1
n-Tetradecane	12	*n*-Tetratetracontane	1
n-Hexadecane	10		

Hydrocarbon Window Defining Standard

DRH-008S-R2 **1 x 1 mL**
DRH-008S-R2-PAK ***SAVE*** **5 x 1 mL**
500 µg/mL each in Chloroform 35 comps.

Octane	Nonadecane	Triacontane
Nonane	Phytane	*n*-Hentriacontane
Decane	Eicosane	Dotriacontane
Undecane	Heneicosane	Tritriacontane
Dodecane	Docosane	Tetratriacontane
Tridecane	Tricosane	Pentatriacontane
Tetradecane	Tetracosane	Hexatriacontane
Pentadecane	Pentacosane	Heptatriacontane
Hexadecane	Hexacosane	Octatriacontane
Heptadecane	Heptacosane	Nonatriacontane
Octadecane	Octacosane	Tetracontane
Pristane	Nonacosane	

Fuel Oil Degradation/Retention Time Mix for Quantification of C_{17}/Pristane & C_{18}/Phytane ratios

DRH-005S-10X **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:CS_2 (1:1) 4 comps.
DRH-005S-R1-10X **1 x 1 mL**
DRH-005S-R1-10X-PAK*SAVE* **5 x 1 mL**
2.0 mg/mL each in Chloroform 4 comps.

Heptadecane
Octadecane
Phytane *(2,6,10,14-Tetramethylhexadecane)*
Pristane *(2,6,10,14-Tetramethylpentadecane)*

Technical Note

Pristane and phytane are included in the hydrocarbon window defining standard with C_8 to C_{40} odd and even alkanes. Measuring the C_{17}/ pristane and C_{18}/ phytane ratios can be used to estimate fuel oil degradation.

We offer a fuel oil degradation mix containing just the four required analytes to determine the C_{17}/ pristane and C_8/ phytane ratio (DRH-005S-10X).

Column Test Mixture

D-2887 **1 x 1 mL**
1% w/v in n-Octane 2 comps.

n-Hexadecane *n*-Octadecane

Reference Gas Oil Sample Lot #2

D-2887-REFOIL **1 x 1 mL**

Calibration Solutions

DRH-002S-R1 **1 x 1 mL**
DRH-002S-R1-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in Chloroform 17 comps.

	µg/mL		µg/mL
n-Hexane	600	*n*-Octadecane	500
n-Heptane	600	*n*-Eicosane	200
n-Octane	800	*n*-Tetracosane	200
n-Nonane	800	*n*-Octacosane	100
n-Decane	1200	*n*-Dotriacontane	100
n-Undecane	1200	*n*-Hexatriacontane	100
n-Dodecane	1200	*n*-Tetracontane	100
n-Tetradecane	1200	*n*-Tetratetracontane	100
n-Hexadecane	1000		

DRH-002S-R2 **1 x 1 gm**
DRH-002S-R2-PAK ***SAVE*** **5 x 1 gm**
0.1 % Wt./Wt. each in Chloroform 20 comps.

n-Tetratetracontane	*n*-Octadecane	*n*-Octane
n-Tetracontane	*n*-Hexadecane	*n*-Heptane
n-Hexatriacontane	*n*-Tetradecane	*n*-Hexane
n-Dotriacontane	*n*-Dodecane	*n*-Pentane
n-Octacosane	*n*-Undecane	*n*-Pentadecane
n-Tetracosane	*n*-Decane	*n*-Heptadecane
n-Eicosane	*n*-Nonane	

Reformulated to ship by Air

ASTM
Simulated Distillation (SIM DIS)

Simulated Distillation (SIM DIS) and Proposed Motor Oil Volatility Method

AccuStandard has developed an extensive line of SIM DIS standards for normal and high temperature analytical requirements when generating boiling point versus retention time calibration curves. Since normal paraffins above Alkane C60 are not readily available, Polywax 500, 655, 850 and 1000 standards have been incorporated to perform SIM DIS analysis of heavy petroleum fractions with boiling points up to 1350°F.

SIM DIS Simulated Distillation Standards

Stock SIM DIS Paraffin Solution

ASTM-P-0050 **1 x 5 mL**
14 comps.

	Wt. %		Wt. %
n-Pentane	6.66	*n*-Dodecane	13.33
n-Hexane	6.66	*n*-Tetradecane	6.66
n-Heptane	6.66	*n*-Pentadecane	6.66
n-Octane	6.66	*n*-Hexadecane	6.66
n-Nonane	6.66	*n*-Heptadecane	6.66
n-Decane	6.66	*n*-Octadecane	6.66
n-Undecane	6.66	*n*-Eicosane	6.66

Working Level SIM DIS Paraffin Solution with Polywax 500

ASTM-P-0052 **1 x 1 mL**
ASTM-P-0052-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in Carbon disulfide 15 comps.

	Wt. %		Wt. %
n-Pentane	0.0333	*n*-Tetradecane	0.0333
n-Hexane	0.0333	*n*-Pentadecane	0.0333
n-Heptane	0.0333	*n*-Hexadecane	0.0333
n-Octane	0.0333	*n*-Heptadecane	0.0333
n-Nonane	0.0333	*n*-Octadecane	0.0333
n-Decane	0.0333	*n*-Eicosane	0.0333
n-Undecane	0.0333	Polywax 500	0.5
n-Dodecane	0.0666		

Carbon disulfide can not ship by air.
When possible alternate solvents can be used.
Contact our Technical Service Department for other options.

Polywax 850®

ASTM-P-0137N-2G **2 grams**
Polywax 850

Polywax 1000®

ASTM-P-0138N-2G **2 grams**
Polywax 1000

Polywax 500®

ASTM-P-0051N-2G **2 grams**
Polywax 500

Polywax 655®

ASTM-P-0053N-2G **2 grams**
Polywax 655

Standards of Interest

See ASTM Methods D3710, D5307, D5442, D6352 for additional calibration standards for hydrocarbon analysis.

ASTM D3120 & D3246 Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry

Sulfur Calibration Set

D-3120-92-CAL-SET **set of 8 x 1 mL**
In Isooctane

Sulfur Conc.	Sulfur Wt. %	Cat. No.	Sulfur Conc.	Sulfur Wt. %	Cat. No.
Blank	———	D-3120-92-BL	30 µg/g	0.0030	D-3120-92-30X
1 µg/g	0.0001	D-3120-92-1X	50 µg/g	0.0050	D-3120-92-50X
3 µg/g	0.0003	D-3120-92-3X	75 µg/g	0.0075	D-3120-92-75X
10 µg/g	0.0010	D-3120-92-10X	100 µg/g	0.010	D-3120-92-100X

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

ASTM D3230 Determination of Salts in Crude Oil

see page 405

ASTM D3237 Lead in Gasoline by AA Spectroscopy

see page 405

ASTM D3246 Sulfur in Petroleum Gas by Oxidative Microcoulometry

see pages 276-279

ASTM D3524 Diesel Fuel Diluent in Used Diesel Engine Oils by GC

Calibration Curve

D-3524-CAL-5ML-SET **6 x 5 mL**
D-3524-CAL-10ML-SET **6 x 10 mL**

Analyte Target Wt. %	Std. 1	Std. 2 Target Wt. %	Std. 3 Target Wt. %	Std. 4 Target Wt. %	Std. 5 Target Wt. %	Std. 6 Target Wt. %
# 2 Diesel	10	7.5	5.0	2.5	1.0	0
30 W Motor oil	90	92.5	95	97.5	99	100

Internal Standard

D-3524-IS-10ML **1 x 10 mL**
D-3524-IS-10ML-PAK ***SAVE*** **5 x 10 mL**
At stated conc. in n-Heptane 2 comps.

	Wt./Wt. %
n-Decane	1.0
n-Octadecane	0.2

Mid Level Daily QC Solution

D-3524-QC-10ML **1 x 10 mL**
At stated conc. 2 comps.

	Wt. / Wt. %
# 2 Diesel	5.0
30 W Motor oil	95.0

Column Resolution Mix

D-3524-CR **1 x 1 mL**
D-3524-CR-PAK ***SAVE*** **5 x 1 mL**
At stated conc. in n-Heptane 2 comps.

	Wt. / Wt. %
n-Hexadecane	1.0
n-Octadecane	1.0

ASTM D3605 Trace Metals in Gas Turbine Fuels by AA & Flame Emission & Spectroscopy

see page 405

ASTM D3606 Benzene & Toluene in Finished Motor & Aviation Gasoline by GC

Aromatics Quantitative Calibration Standards

Without Internal Standards

D-3606-25ML-SET — **7 x 25 mL**

	Analyte Calibr. range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	5.00	2.50	1.25	0.67	0.33	0.12	0.06
Toluene	0.5 - 20	20.00	15.00	10.00	5.00	2.50	1.00	0.50
Isooctane		75.00	82.50	88.75	94.33	97.17	98.88	99.44

D3606 Meets EPA Guidelines for RFG Analysis

With Internal Standard: MEK

D-3606/IS-SET — **7 x 1 mL**
D-3606/IS-2ML-SET — **7 x 2 mL**
D-3606/IS-2ML-SET-PAK — **5 x (7 x 2) mL**

	Analyte Calibr. range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	4.8	2.4	1.2	0.6432	0.3168	0.1152	0.0576
Toluene	0.5 - 20	19.2	14.4	9.6	4.8000	2.4000	0.9600	0.4800
Isooctane		72.0	79.2	85.2	90.5568	93.2832	94.9248	95.4624
Methyl ethyl ketone (Internal Std.)		4.0	4.0	4.0	4.0	4.0	4.0	4.0

Aromatics Quantitative Calibration Standard

With Internal Standard: sec Butanol

D-3606/IS2-SET — **7 x 1 mL**
D-3606/IS2-SET-PAK — **5 x (7 x 1) mL**

	Analyte Calibr. range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	4.8	2.4	1.2	0.6432	0.3168	0.1152	0.0576
Toluene	0.5 - 20	19.2	14.4	9.6	4.8000	2.4000	0.9600	0.4800
Isooctane		72.0	79.2	85.2	90.5568	93.2832	94.9248	95.4624
sec Butanol (Internal Std.)		4.0	4.0	4.0	4.0	4.0	4.0	4.0

Aromatics Quantitative Calibration Curve

D-3606/IS2-R1-SET — **set of 7 x 1 mL**

	Analyte Calibr. range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	5	4.2	3.4	2.6	1.7	0.9	0.1
Toluene	0.5 - 20	20	17	14	11	8	5	2
Isooctane		75	78.8	82.6	86.4	90.3	94.1	97.9
sec Butanol (Internal Std.)		4	4	4	4	4	4	4

Technical Note

Due to the possible use of other oxygenates (i.e. ethanol) in gasoline, a calibration curve using sec-butanol as an internal standard has been formulated. The use of this internal standard minimizes coelution caused by the oxygenate(s) and pre column - standard column configuration in the GC system.

Daily Gasoline Refinery Quality Control Standards

With Internal Standard: sec Butanol

D-3606-QC-IS2-25ML — **1 x 25 mL**
D-3606-QC-IS2-25ML-PAK — **5 x 25 mL**
Each at stated quantities — 4 comps.

Compound	Target Vol. %
Benzene	0.6432
Toluene	4.8000
Isooctane	90.5568
sec-Butanol (Internal Std.)	4.0
	100

With Internal Standard: MEK

D-3606-QC/IS-10ML — **1 x 10 mL**
D-3606-QC/IS-10ML-PAK — **5 x 10 mL**
Each at stated quantities — 4 comps.

Compound	Target Vol. %
Benzene	0.6432
Toluene	4.8000
Isooctane	90.5568
Methyl ethyl ketone (Internal Std.)	4.0
	100

Without Internal Standard

D-3606-QC-25ML — **1 x 25 mL**
D-3606-QC-25ML-PAK — **5 x 25 mL**
Each at stated quantities — 3 comps.

Compound	Target Vol. %
Benzene	0.67
Toluene	5.00
Isooctane	94.33
	100

ASTM D3710 Boiling Range Distribution of Gasoline & Gasoline Fractions by GC

This **SIM DIS** (Simulated Distillation or GCD) Method is used to determine the boiling range distribution of gasoline and gasoline components. ASTM Method D3710 is used for petroleum products and fractions with a final boiling point of 500°F (260°C) or lower. By having an insight into the composition of the gasoline blend, essential data for the calculation of vapor pressure and a prediction of the D86 distillation curve can be made.

Qualitative Calibration Standard

D-3710-QUAL **1 x 1 mL**
D-3710-QUAL-PAK *SAVE* **5 x 1 mL**
19 comps.

	Approx. Wt./ Wt. %		Approx. Wt./ Wt. %
n-Butane	4.5	*n*-Octane	5.4
n-Butylbenzene	3.2	*n*-Pentadecane	2.2
n-Decane	3.2	*n*-Pentane	7.6
2,4-Dimethylpentane	5.4	*n*-Propane	1.5
n-Dodecane	3.2	*n*-Propylbenzene	4.3
n-Heptane	9.7	*n*-Tetradecane	2.2
n-Hexane	5.4	Toluene	10.8
2-Methylbutane	9.7	*n*-Tridecane	2.2
2-Methylpentane	5.4	*p*-Xylene	13
2-Methylpropane	1.5		

Quanitative Calibration Standard

D-3710 **1 x 1 mL**
D-3710-PAK *SAVE* **5 x 1 mL**
16 comps.

	Vol./Vol. %		Vol./Vol. %
n-Butylbenzene	3.5	n-Octane	5.8
n-Decane	3.5	n-Pentadecane	2.3
2,4-Dimethylpentane	5.8	n-Pentane	8.1
n-Dodecane	3.5	n-Propylbenzene	4.7
n-Heptane	10.5	n-Tetradecane	2.3
n-Hexane	5.8	Toluene	11.6
2-Methylbutane	10.5	n-Tridecane	2.3
2-Methylpentane	5.8	p-Xylene	14.0

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Solution

DRH-002S-R1 **1 x 1 mL**
DRH-002S-R1-PAK *SAVE* **5 x 1 mL**
At stated conc. in Chloroform 17 comps.

Reformulated to ship by Air

	µg/mL		µg/mL		µg/mL		µg/mL
n-Hexane	600	*n*-Undecane	1200	*n*-Octadecane	500	*n*-Dotriacontane	100
n-Heptane	600	*n*-Dodecane	1200	*n*-Eicosane	200	*n*-Hexatriacontane	100
n-Octane	800	*n*-Tetradecane	1200	*n*-Tetracosane	200	*n*-Tetracontane	100
n-Nonane	800	*n*-Hexadecane	1000	*n*-Octacosane	100	*n*-Tetratetracontane	100
n-Decane	1200						

ASTM D3798 Analysis of p-Xylene by GC

p-Xylene Impurity Standards

With Internal Standard

D-3798-IS **1 x 1 mL**
D-3798-IS-PAK *SAVE* **5 x 1 mL**
At stated conc. by weight 11 comps.

	Wt./Wt. %		Wt./Wt. %
n-Pentane	0.15	*o*-Xylene	0.15
n-Octane	0.15	Cumene	0.15
Benzene	0.15	Propylbenzene	0.15
Toluene	0.15		
Ethylbenzene	0.15	Total Analytes	100
p-Xylene	98.65	plus *n*-Undecane* (ISTD)	0.500
m-Xylene	0.15	grams	

Without Internal Standard

D-3798-10ML **/ 1 x 10 mL**
D-3798-10ML-PAK *SAVE* **5 x 10 mL**
At stated conc. by weight 10 comps.

	Wt./Wt. %		Wt./Wt. %
n-Pentane	0.15	*p*-Xylene	98.65
n-Octane	0.15	*m*-Xylene	0.15
Benzene	0.15	*o*-Xylene	0.15
Toluene	0.15	Cumene	0.15
Ethylbenzene	0.15	Propylbenzene	0.15

Technical Note

Other internal standards can be used in conjunction with the bulk packaged D-3798 (1 x 10 mL) to meet your specfic application. If you prefer to eliminate making standards, contact our Technical Service Department with your unique formulation for a custom quotation. A custom quotation request form is located in the back of this catalog.

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

see page 383

ASTM D4059 Polychlorinated Biphenyls in Insulating Liquids by GC

Solutions in PCB-Free Transformer Oil (Individuals, 2 Concentrations)

Aroclor # / CAS No.	Conc. ppm w/w	Individual Cat. No. 1 mL	PAK *SAVE* Cat. No. 5 x 1 mL
Aroclor 1016	50	C-216-ST-1	C-216-ST-1-PAK
12674-11-2	500	C-216-ST-2	C-216-ST-2-PAK
Aroclor 1221	50	C-221-ST-1	C-221-ST-1-PAK
11104-28-2	500	C-221-ST-2	C-221-ST-2-PAK
Aroclor 1232	50	C-232-ST-1	C-232-ST-1-PAK
11141-16-5	500	C-232-ST-2	C-232-ST-2-PAK
Aroclor 1242	50	C-242-ST-1	C-242-ST-1-PAK
53469-21-9	500	C-242-ST-2	C-242-ST-2-PAK
Aroclor 1248	50	C-248-ST-1	C-248-ST-1-PAK
12672-29-6	500	C-248-ST-2	C-248-ST-2-PAK
Aroclor 1254	50	C-254-ST-1	C-254-ST-1-PAK
11097-69-1	500	C-254-ST-2	C-254-ST-2-PAK
Aroclor 1260	50	C-260-ST-1	C-260-ST-1-PAK
11096-82-5	500	C-260-ST-2	C-260-ST-2-PAK
Aroclor 1262	50	C-262-ST-1	C-262-ST-1-PAK
37324-23-5	500	C-262-ST-2	C-262-ST-2-PAK
Aroclor 1268	50	C-268-ST-1	C-268-ST-1-PAK
11100-14-4	500	C-268-ST-2	C-268-ST-2-PAK

Neats (Individuals)

Aroclor #	Cat. No.	Unit
Aroclor 1016	C-216N	100 mg
Aroclor 1221	C-221N-50MG	50 mg
Aroclor 1242	C-242N-50MG	50 mg
Aroclor 1248	C-248N-50MG	50 mg
Aroclor 1254	C-254N-50MG	50 mg
Aroclor 1260	C-260N-50MG	50 mg
Aroclor 1262	C-262N-50MG	50 mg

Aroclor-free Transformer Oil

T-W130 **1 x 1 mL**

ASTM D4291 Trace Ethylene Glycol in Used Engine Oil

D-4291-93 **5 x 1 mL**
D-4291-93-PAK *SAVE* **5 x 1 mL**
2000 µg/mL in water

Ethylene glycol

ASTM D4294 Sulfur in Petroleum Products by ED-XRF Spectroscopy

see pages 276-279

ASTM D4377 Water in Crude oils by Potentiometric Karl Fischer Titration

see page 267

ASTM D4420 Aromatics in Finished Gasoline by GC

see page 402

Aromatics in Gasoline by GC/TC

D-4420-CAL-SET **set of 7 x 1 mL**

Analyte	Std. 1 Target Vol. %	Std. 2 Target Vol. %	Std. 3 Target Vol. %	Std. 4 Target Vol. %	Std. 5 Target Vol. %	Std. 6 Target Vol. %	Std. 7 Target Vol. %
Benzene	0.05	0.10	0.25	0.75	1.25	2.50	5.00
Toluene	0.5	1.00	2.50	5.00	10.00	15.00	25.00
Total Xylenes (C_8 aromatics)	5	10.00	15.00	20.00	25.00	1.00	3.00
n-Butylbenzene (C_9 + aromatics)	30.00	25.00	20.00	10.00	5.00	15.00	2.50
Isooctane	64.45	63.90	62.25	64.25	58.75	66.50	64.50

D-4420-94 **1 x 1 mL**
D-4420-94-PAK *SAVE* **5 x 1 mL**

	5 comps. Vol. %
Benzene	3.00
Toluene	10.00
Total Xylenes (C_8 aromatics)	15.00
n-Butylbenzene(C_9 + aromatics)	15.00
Isooctane	57.00

ASTM D4628 Barium, Calcium, Magnesium & Zinc in Unused Lubricating Oil

see page 380-382

ASTM D4629 Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection. IP 379/88

D4629 is used to determine trace total nitrogen naturally found in liquid hydrocarbons boiling from 50 to 400°C with viscosities 0.2 - 10 cSt. This method monitors feed stocks for nitrogen to prevent the poisoning of some process catalysts when trace nitrogenous materials are present.

Nitrogen Calibration Set - Low Boiling Solvents

D-4629-LB-CAL-R1-SET **8 x 1 mL**
Nitrogen introduced using Pyridine Set includes the following Cat. No.s

Each in Isooctane	Cat. No.	1 mL	Each in Isooctane	Cat. No.	1 mL
Blank	D-4629-91-LB-BL		Nitrogen @ 25 µg/mL	D-4629-91-LB-25X	
Nitrogen @ 0.3 µg/mL	D-4629-91-LB-0.3X		Nitrogen @ 50 µg/mL	D-4629-91-LB-50X	
Nitrogen @ 1 µg/mL	D-4629-91-LB-1X		Nitrogen @ 75 µg/mL	D-4629-91-LB-75X	
Nitrogen @ 10 µg/mL	D-4629-91-LB-10X		Nitrogen @ 100 µg/mL	D-4629-91-LB-100X	

Stock Nitrogen Solution Low Boiling Solvents

D-4629-91-LB-CON **1 x 1 mL**
D-4629-91-LB-CON-PAK **5 x 1 mL**
1000 µg/mL in Isooctane

Nitrogen introduced using Pyridine

Nitrogen Calibration Set - High Boiling Solvents

D-4629-HB-CAL-R1-SET **set of 8 x 1 mL**
Nitrogen introduced using Carbazole Set includes the following Cat. No.s

Each in Toluene	Cat. No.	1 mL	Each in Toluene	Cat. No.	1 mL
Blank	D-4629-91-HB-BL		Nitrogen @ 25 µg/mL	D-4629-91-HB-25X	
Nitrogen @ 0.3 µg/mL	D-4629-91-HB-0.3X		Nitrogen @ 50 µg/mL	D-4629-91-HB-50X	
Nitrogen @ 1 µg/mL	D-4629-91-HB-1X		Nitrogen @ 75 µg/mL	D-4629-91-HB-75X	
Nitrogen @ 10 µg/mL	D-4629-91-HB-10X		Nitrogen @ 100 µg/mL	D-4629-91-HB-100X	

Stock Nitrogen Solution High Boiling Solvents

D-4629-91-HB-CON **1 x 1 mL**
D-4629-91-HB-CON-PAK **5 x 1 mL**
1000 µg/mL in Toluene:Acetone (9:1)

Nitrogen introduced using Carbazole

Nitrogen Calibration Set - Low Level

ASTM-P-0070-SET **6 x 1 mL**
Nitrogen introduced using Aniline Set includes the following Cat. No.s

Each in Isooctane	Cat. No.	Unit	Each in Isooctane	Cat. No.	Unit
Isooctane Blank	ASTM-P-0070-BL	1 mL	Nitrogen @ 2.0 µg/g	ASTM-P-0070-4X	1 mL
Nitrogen @ 0.5 µg/g	ASTM-P-0070-1X	1 mL	Nitrogen @ 5.0 µg/g	ASTM-P-0070-10X	1 mL
Nitrogen @ 1.0 µg/g	ASTM-P-0070-2X	1 mL	Nitrogen @ 10.0 µg/g	ASTM-P-0070-20X	1 mL

Technical Note

Standards are prepared by adding well characterized nitrogen compounds gravimetrically to the matrix. Since the matrix may contain some native nitrogen, a blank must be used for correction and should be purchased with the standard.

Low Level Nitrogen & Sulfur Calibration Set

ASTM-P-0071-SET **4 x 1 mL**
The Nitrogen is introduced using Aniline and the Sulfur is introduced using di-n-butyl sulfide Set includes the following Cat. No.s

Concentration in Benzene	Cat. No.	Unit
Benzene Blank	ASTM-P-0071-BL	1 mL
Nitrogen @ 0.25 µg/g & Sulfur @ 0.25 µg/g	ASTM-P-0071-01	1 mL
Nitrogen @ 0.50 µg/g & Sulfur @ 0.50 µg/g	ASTM-P-0071-02	1 mL
Nitrogen @ 1.00 µg/g & Sulfur @ 1.00 µg/g	ASTM-P-0071-03	1 mL

ASTM D4815 MtBE, EtBE, TAME, DIPE, Tertiary-amyl & C1 to C4 Alcohols in Gasoline by GC

Oxygenate Quantitative Calibration Mixtures

D4815 Meets EPA Guidelines for RFG Analysis

Without Internal Standard

D-4815-10ML-SET **set of 5 x 10 mL** of 5 component mix

Analyte	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
	Target Concentrations				
Ethanol	3.00	0.10	6.00	9.00	12.00
t-Butanol	0.10	3.00	6.00	8.00	12.00
Methyl *t*-butyl ether *(MtBE)*	20.0	15.00	10.00	5.00	0.10
t-Pentanol	1.25	5.00	2.50	3.75	0.10
Isooctane/xylene (65:35)	75.65	76.90	75.50	74.25	75.80

With Internal Standard

D-4815/IS-SET **of 6 component mix** **set of 5 x 1 mL**
D-4815/IS-SET-PAK **set of 5 x (5 x 1 mL)**

Analyte	Calibration Range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
		Target Concentrations				
Ethanol	0.1 - 11.40	2.85	0.095	5.70	8.55	11.40
t-Butanol	0.1 - 11.40	0.095	2.85	5.70	7.60	11.40
Methyl *t*-butyl ether *(MtBE)*	0.1 - 19.0	19.00	14.25	9.50	4.75	0.095
t-Pentanol	0.1 - 4.79	1.19	4.75	2.38	3.56	0.095
1,2-Dimethoxyethane *(DME)* (Internal Standard)		5.00	5.00	5.00	5.00	5.00
Isooctane/xylene (65:35)		71.87	73.06	71.73	70.54	72.01
Total Oxgenates & Internal Standard		**28.14**	**26.95**	**28.28**	**29.46**	**28.00**

Oxygenate Internal Standard

M-GRO-IS-5ML **1 x 5 mL**
M-GRO-IS-5ML-PAK ***SAVE*** **5 x 5 mL**

1,2-Dimethoxyethane (neat)

Oxygenate Free Refinery Gasoline Blank

RFA-BLNK-10ML **1 x 10 mL**
RFA-BLNK-10ML-PAK*SAVE* **5 x 10 mL**

RFA Gasoline (neat)

Quantitative Peak ID and Retention Time Mixture

D-4815-RT **1 x 1 mL**
D-4815-RT-PAK ***SAVE*** **5 x 1 mL**

16 comp. core mix

	Wt. %
Methylcyclopentane	4.00
Methanol	7.30
Ethanol	7.30
Isopropanol	7.30
tert-Butanol	7.30
n-Propanol	7.30
Methyl *tert*-butyl ether *(MtBE)*	4.00
sec-Butanol	7.30
Diisopropyl ether *(DIPE)*	4.00
Isobutanol	7.30
Ethyl *tert*-butyl ether *(EtBE)*	4.00
tert-Pentanol	7.30
1,2-Dimethoxyethane (ISTD)	6.00
n-Butanol	7.30
Benzene	5.00
tert-Amyl methyl ether	7.30
	100

Valve Timing Mixture

D-4815-VT **1 x 1 mL**
D-4815-VT-PAK ***SAVE*** **5 x 1 mL**

5 comps.

	Wt. %
Methylcyclopentane	10.00
Diisopropyl ether *(DIPE)*	10.00
Ethyl *tert*-butyl ether *(EtBE)*	10.00
Methyl *tert*-butyl ether *(MtBE)*	10.00
n-Hexane	60.00

ASTM D4927 Elemental Analysis of Lubricant and Additive Components - Ba, Ca, P, S, and Zn by WD-XRF Spectroscopy

see page 380-382

ASTM D4928 Water in Crude Oils by Potentiometric Karl Fischer Titration

see page 267

ASTM D4929 Organic Chloride Content in Crude Oil - Test Method B Combustion and Microcoulometry

Working Level Chlorine Standard

D-4929-94 **1 x 5 mL**
D-4929-94-PAK ***SAVE*** **5 x 5 mL**

10 µg/mL in Isooctane

Chlorine

Stock Chlorine Standard

D-4929-94-100X **1 x 5 mL**
D-4929-94-100X-PAK ***SAVE*** **5 x 5 mL**

1000 µg/mL in Isooctane

Chlorine

Chlorine in Lube Oils

ASTM-P-0092-100ML-SET **set of 7 x 100 mL**

Each in 75 cSt mineral oil

ASTM-P-0092-BL-100ML **100 mL**

Cat. No.	Chlorine Wt. %	Chlorine µg/g	Unit
ASTM-P-0092-BL-100ML	Blank	Blank	100 mL
ASTM-P-0092-0.1X-100ML	0.001	10	100 mL
ASTM-P-0092-1X-100ML	0.01	100	100 mL
ASTM-P-0092-5X-100ML	0.05	500	100 mL
ASTM-P-0092-10X-100ML	0.1	1,000	100 mL
ASTM-P-0092-100X-100ML	1	10,000	100 mL
ASTM-P-0092-500X-100ML	5	50,000	100 mL

ASTM D4951 Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry

see page 381-382

ASTM D5056 Trace Metals in Petroleum Coke by AA

see pages 375

ASTM D5059 Lead in Gasoline by X-Ray Spectroscopy IP Designation 228/79

Part A - Lead in Gasoline Standards

D-5059-A-CAL-100ML-SET ▲ — **7 x 100 mL**
7 solutions in Isooctane

Lead Concentration g Pb/US gal	g Pb/ UK gal	mg Pb/mL	Cat. No.	100 mL
0.0000	0.000	0.000	D-5059-A-01-100ML ▲	
0.1000	0.120	0.026	D-5059-A-02-100ML ▲	
1.0000	1.200	0.264	D-5059-A-03-100ML ▲	
2.0000	2.400	0.528	D-5059-A-04-100ML ▲	
3.0000	3.600	0.793	D-5059-A-05-100ML ▲	
4.0000	4.800	1.057	D-5059-A-06-100ML ▲	
5.0000	6.000	1.321	D-5059-A-07-100ML ▲	

Part C - Lead in Gasoline Standards

D-5059-C-CAL-100ML-SET ▲ — **set of 7 x 100 mL**
The set contains the following 7 solutions in Isooctane

Lead Concentration g Pb/US gal	g Pb/ UK gal	µg Pb/mL	Cat. No.	100 mL
0.0000	0.000	0.000	D-5059-C-01-100ML ▲	
0.0010	0.001	0.264	D-5059-C-02-100ML ▲	
0.0050	0.006	1.321	D-5059-C-03-100ML ▲	
0.0100	0.012	2.642	D-5059-C-04-100ML ▲	
0.0500	0.060	13.209	D-5059-C-05-100ML ▲	
0.1000	0.120	26.417	D-5059-C-06-100ML ▲	
0.3000	0.360	79.252	D-5059-C-07-100ML ▲	

Internal Standard

D-5059-IS-100ML — **1 x 100 mL**
D-5059-IS-10ML-PAK — **5 x 10 mL ampules**
0.793 mg/mL in Mineral Oil

Bismuth

D5059 Meets EPA Guidelines for RFG Analysis

Technical Note

AccuStandard has formulated D5059 standards to measure the lead content in gasoline for both high and low concentrations using bismuth as an internal standard. The 100 mL quantities are designed for laboratories analyzing many samples while the 10 mL ampules are for laboratories that have limited requests for the test method. Should you require bulk quantities of the internal standard packaged in single-use ampules, contact our Technical Service Department for a quotation.

Technical Note

Certificates for D5059 standards have the lead content listed in 3 concentration units.

ASTM D5134 Petroleum Naphthas through n-Nonane by Capillary GC

Qualitative Reference Petroleum Set

D-5134-92-SET — **3 x 1 mL**

Qualitative Reference Standards	Cat. No.	1 mL
Alkylate Standard neat fraction approx. 30 comps. identified	D-5134-92-ALK	
Naphtha Standard neat fraction approx. 70 comps. identified	D-5134-92-NAP	
Reformate Standard neat fraction approx. 100 comps. identified	D-5134-92-REF	

Column Evaluation Mix

D-5134-92-CEM — **1 x 1 mL**
7 comps.

	Wt. / Wt. %		Wt. / Wt. %
Toluene	0.5	4-Methylheptane	1.0
n-Heptane	1.0	*n*-Octane	1.0
2,3,3-Trimethylpentane	1.0	2-Methylpentane	94.5
2-Methylheptane	1.0		

Linearity Check Mix

D-5134-92-LCM-PAK — **5 x 50 mg**
10% w/w each component — 10 comps.

Benzene	2-Methylheptane
2,4-Dimethylheptane	2-Methylhexane
2,4-Dimethylhexane	*n*-Nonane
n-Heptane	*n*-Octane
n-Hexane	Toluene

ASTM D5184 Al and Si in Fuel Oils by Ashing, Fusion, ICP-AES & AA Spectrometry

see page 370

ASTM D5185 Additive Elements, Wear Metals & Contaminants in Used Lubricating Oils by ICP-AES

see page 375

ASTM D5186 Aromatic Content & Polynuclear Aromatic Content of Diesel Fuels & Aviation Turbine Fuels by SFC

Performance Solution

D-5186-96-PM — **1 x 1 mL**
D-5186-96-PM-PAK *SAVE* — **5 x 1 mL**
At stated approx. Wt. % — 4 comps.

	Wt./Wt. %		Wt./Wt. %
n-Hexadecane	75	Tetralin	3.0
Naphthalene	2.0	Toluene	20

Detector Linearity Check Solution Set

D-5186-96-DLC-SET — **2 x 1 mL**
Set includes the below two Cat. No.'s

#2 Diesel Fuel in n-Hexadecane	
25% w/w	**D-5186-96-DLC-25X**
50% w/w	**D-5186-96-DLC-50X**

Docosane

D-5186-91-PM-0.4X — **1 x 1 mL**
20% w/w in Toluene

▲ Hazardous fee required.

ASTM D5188 Vapor - Liquid Ratio Temperature Standards

Performance Check Samples for daily monitoring of instrument performance

Volume/Liquid Temp	Cat. No.	Set
36.1˚C (96.9˚F)	ASTM-P-125-01-VAP	5 x 20 mL
68.0˚C (155.7˚F)	ASTM-P-125-02-VAP	5 x 20 mL

ASTM D5191 & D5482 Vapor Pressure Standards

Vapor Pressure Quality Control Samples

Vapor Pressure	Cat. No.	Set
68.3kPa (9.91 psi)	ASTM-P-124-01-VAP	10 x 10 mL
68.0kPa (9.86 psi)	ASTM-P-124-02-VAP	10 x 10 mL
51.1kPa (7.41 psi)	ASTM-P-124-03-VAP	10 x 10 mL
46.7kPa (6.77 psi)	ASTM-P-124-04-VAP	10 x 10 mL
22.5kPa (3.26 psi)	ASTM-P-124-05-VAP	10 x 10 mL
7.1kPa (1.03 psi)	ASTM-P-124-06-VAP	10 x 10 mL

Technical Note

Consists of pure solvents with known vapor pressures.

Value Added PAK

Packaged in ready to use quantities.

ASTM D5307 Boiling Range Distribution of Crude Petroleum by GC

Quantitative Paraffins Standard

D-5307-QUANT **1 x 2 mL**
D-5307-QUANT-PAK *SAVE* **5 x 2 mL**
Equal Wt. % 16 comps.

n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Eicosane
n-Tetracosane
n-Octacosane
n-Dotriacontane
n-Hexatriacontane
n-Tetracontane
n-Tetratetracontane

Qualitative Paraffins Standard

D-5307-QUAL **1 x 1 mL**
D-5307-QUAL-PAK *SAVE* **5 x 1 mL**
At stated approx. Wt. % 7 comps.

	Wt./Wt. %		Wt./Wt. %
Propane	10	*n*-Heptane	15
Butane	15	*n*-Octane	15
n-Pentane	15	*n*-Nonane	15
n-Hexane	15		

Internal Standard

D-5307-IS-10ML **1 x 10 mL**
D-5307-IS-10ML-PAK *SAVE* **5 x 10 mL**
4 comps.

	Wt./Wt. %		Wt./Wt. %
n-Tetradecane	25	*n*-Hexadecane	25
n-Pentadecane	25	*n*-Heptadecane	25

Column Resolution Mix

D-5307-CR **1 x 1 mL**
D-5307-CR-PAK *SAVE* **5 x 1 mL**
At stated approx. Wt. % 3 comps.

	Wt./Wt. %		Wt./Wt. %
n-Hexadecane	1.0	*n*-Octane	98.0
n-Octadecane	1.0		

ASTM D5441 Analysis of Methyl tert-butyl ether (MtBE) by GC

ASTM Committee D02 on Petroleum Products and Lubricants has issued the Standard Method D5441 for the determination of the purity of methyl tert-butyl ether (MtBE) by Gas Chromatography. This method provides a procedure to measure impurities in MtBE such as C_4 to C_{12} olefins, methyl, isopropyl and tert-butyl alcohols, methyl sec-butyl and methyl tert-amyl ethers, acetone, and methyl ethyl ketones. The presence of these impurities in MtBE can have a direct effect upon the value of the MtBE as a gasoline additive. The following reference standards have been formulated to meet the method specifications. Different packaging sizes are available to meet various sample testing capacities.

MtBE Contaminant Standard
Low Concentration

D-5441		**1 x 1 mL**
D-5441-PAK	***SAVE***	**5 x 1 mL**
D-5441-5ML		**1 x 5 mL**
D-5441-5ML-PAK	***SAVE***	**5 x 5 mL**
0.1% Wt./Wt. each in MtBE		12 comps.

tert-Amyl methyl ether
tert-Butanol
tert-Butyl ethyl ether
4,4-Dimethyl-2-neopentyl-1-pentene
Methanol
2-Methylbutane
2-Methyl-2-butene
2,2',4,6,6'-Pentamethyl-3-heptene
Pentane
cis-2-Pentene
trans-2-Pentene
2,4,4-Trimethyl-1-pentene

MtBE Contaminant Standard
High Concentration

D-5441-10X		**1 x 1 mL**
D-5441-10X-PAK	***SAVE***	**5 x 1 mL**
D-5441-10X-5ML		**1 x 5 mL**
D-5441-10X-5ML-PAK	***SAVE***	**5 x 5 mL**
1% Wt./Wt. each in MtBE		12 comps.

tert-Amyl methyl ether
tert-Butanol
tert-Butyl ethyl ether
4,4-Dimethyl-2-neopentyl-1-pentene
Methanol
2-Methylbutane
2-Methyl-2-butene
2,2',4,6,6'-Pentamethyl-3-heptene
Pentane
cis-2-Pentene
trans-2-Pentene
2,4,4-Trimethyl-1-pentene

Qualitative Standard

D-5441-QUAL	**1 x 1 mL**
0.1% Wt./Wt. each in n-Dodecane	33 comps.

Methanol
Isobutylene
n-Butane
trans-2-butene
cis-2-butene
3-Methyl-1-butene
Acetone
Isopentane
2-Propanol
1-Pentene
2-Methyl-1-butene
n-Pentane
trans-2-Pentene
t-Butanol
cis-2-Pentene
2-Methyl-2-butene
Cyclopentene
MtBE
2,3-Dimethyl-1-butene
4-Methyl-cis-2-pentene
2-Methylpentane
Methylethyl ketone
3-Methylpentane
sec-Butyl methyl ether
ETBE
TAME
3,5-Dimethyl-1-hexene
2,4,4-Trimethyl-1-pentene
2,4,4-Trimethyl-2-pentene
3,4,4-Trimethyl-trans-2-pentene
2,3,4-Trimethyl-2-pentene
4,4-Dimethyl-2-neopentyl-1-pentene
2,2',4,6,6'-Pentamethyl-3-heptene

Quantitative Standard

D-5441-QUANT-R1	**1 x 1 mL**
0.1% Wt./Wt. each in n-Dodecane	29 comps.

Methanol (0.04 Wt/Wt)
3-Methyl-1-butene
Acetone
Isopentane
2-Propanol
1-Pentene
2-Methyl-1-butene
n-Pentane
trans-2-Pentene
t-Butanol
cis-2-Pentene
2-Methyl-2-butene
Cyclopentene
MtBE
2,3-Dimethyl-1-butene
4-Methyl-*cis*-2-pentene
2-Methylpentane
Methyl ethyl ketone
3-Methylpentane
sec-Butyl methyl ether
Ethyl tert-butyl ether
TAME
3,5-Dimethyl-1-hexene
2,4,4-Trimethyl-1-pentene
2,4,4-Trimethyl-2-pentene
3,4,4-Trimethyl-trans-2-pentene
2,3,4-Trimethyl-2-pentene
4,4-Dimethyl-2-neopentyl-1-pentene
2,2',4,6,6'-Pentamethyl-3-heptene

MtBE Resolution Test Mix

D-5441-RES		**1 x 1 mL**
D-5441-RES-PAK	***SAVE***	**5 x 1 mL**
D-5441-RES-5ML		**1 x 5 mL**
D-5441-RES-5ML-PAK	***SAVE***	**5 x 5 mL**
1% Wt./Wt. each in MtBE		3 comps.

trans-2-Pentene
cis-Pentene
tert-Butanol

AccuStandard is an active member in ASTM and strives to keep abreast of ASTM method revisions. If our listed formulation does not meet the most recent method revision, contact Technical Service for an updated product.

Member

ASTM D5442 Analysis of Petroleum Waxes by GC

Quantitative Wax Standard

D-5442 **1 x 1 mL**
D-5442-PAK ***SAVE*** **5 x 1 mL**
At stated Wt. % in Cyclohexane 16 comps.

	Wt./Wt. %		Wt./Wt.
n-Dodecane	0.02	*n*-Octacosane	0.12
n-Tetradecane	0.03	*n*-Triacontane	0.10
n-Hexadecane	0.04	*n*-Dotriacontane	0.08
n-Octadecane	0.05	*n*-Hexatriacontane	0.06
n-Eicosane	0.06	*n*-Tetracontane	0.05
n-Docosane	0.08	*n*-Tetratetracontane	0.04
n-Tetracosane	0.10	*n*-Pentacontane	0.03
n-Hexacosane	0.12	*n*-Hexacontane	0.02

Column Resolution Standard

D-5442-CR-PAK **5 x 1 mL**
At stated Wt. % in Cyclohexane 2 comps.

	Wt./Wt. %
n-Eicosane	0.05
n-Tetracontane	0.05

Hydrocarbon Standard Brownfield Regulation

D-5442-R1 **1 x 1 mL**
100 µg/mL each in Cyclohexane 18 comps.

n-Decane	n-Octacosane
n-Dodecane	n-Triacontane
n-Tetradecane	n-Dotriacontane
n-Hexadecane	n-Tetratriacontane
n-Octadecane	n-Hexatriacontane
n-Eicosane	n-Octatriacontane
n-Docosane	n-Tetracontane
n-Tetracosane	n-Tetratetracontane
n-Hexacosane	n-Pentacontane

Retention Time Standard Mix 1

D-5442-RT1 **500 mg**
Equal parts by weight 12 comps.

n-Hexadecane (c16)	*n*-Octacosane (c28)
n-Octadecane (c18)	*n*-Triacontane (c30)
n-Eicosane (c20)	*n*-Dotriacontane (c32)
n-Docosane(c22)	*n*-Hexatriacontane (c36)
n-Tetracosane (c24)	*n*-Tetracontane (c40)
n-Hexacosane (c26)	*n*-Tetratetracontane (c44)

Retention Time Standard Mix 2

D-5442-RT2 **500 mg**
Equal parts by weight 16 comps.

n-Dodecane (c12)	*n*-Octacosane (c28)
n-Tetradecane (c14)	*n*-Triacontane (c30)
n-Hexadecane (c16)	*n*-Dotriacontane (c32)
n-Octadecane (c18)	*n*-Hexatriacontane (c36)
n-Eicosane (c20)	*n*-Tetracontane (c40)
n-Docosane (c22)	*n*-Tetratetracontane (c44)
n-Tetracosane (c24)	*n*-Pentacontane (c50)
n-Hexacosane (c26)	*n*-Hexacontane (c60)

Standards of Interest

See ASTM Methods D3710, D5307, and D6352 for additional calibration standards for hydrocarbon analysis.

ASTM D5443 Paraffin, Naphthene and Aromatic Hydrocarbon Type Analysis in Petroleum Distillates through 200°C by Multi-dimensional GC

Hydrocarbon Test Mixture

D-5443-93-HTM **1 x 1 mL**
At stated Wt. % 28 comps.

	Wt./Wt. %		Wt./Wt. %		Wt./Wt. %
Cyclopentane	1.00	1cis,2-Dimethylcyclohexane	5.00	*trans*-Decahydronaphthelene	4.25
n-Pentane	1.00	Isooctane	5.00	*n*-Tetradecane	4.50
Cyclohexane	2.00	*n*-Octane	5.00	Ethylbenzene	4.50
2,3-Dimethylbutane	2.00	1cis,2 cis,4-Trimethylcyclohexane	4.25	*o*-Xylene	4.25
n-Hexane	2.00	*n*-Nonane	4.50	*n*-Propylbenzene	5.00
n-Hexene	1.50	*n*-Decane	4.25	1,2,4-Trimethylbenzene	4.50
Methylcyclohexane	4.25	*n*-Undecane	3.50	1,2,3-Trimethylbenzene	5.00
4-Methyl-1-hexene	1.50	*n*-Dodecane	3.25	1,2,4,5-Tetramethylbenzene	5.00
n-Heptane	3.50	Benzene	2.25	Pentamethylbenzene	5.00
		Toluene	2.25		

ASTM D5453 Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence

Low Level Sulfur Set

D-5453-LL-SET **5 x 2 mL**
Contains the following 5 standards in Isooctane

Description	Unit
Sulfur Blank	2 mL
Sulfur @ 0.5 ng/µL	2 mL
Sulfur @ 2.5 ng/µL	2 mL
Sulfur @ 5.0 ng/µL	2 mL
Sulfur @ 10.0 ng/µL	2 mL

Mid Level Sulfur Set

D-5453-ML-SET **6 x 2 mL**
Contains the following 5 standards in Isooctane

Description	Unit
Sulfur Blank	2 mL
Sulfur @ 5.0 ng/µL	2 mL
Sulfur @ 25 ng/µL	2 mL
Sulfur @ 50 ng/µL	2 mL
Sulfur @ 100 ng/µL	2 mL
Sulfur @ 200 ng/µL	2 mL

High Level Sulfur Set

D-5453-HL-SET **5 x 2 mL**
Contains the following 5 standards in Isooctane

Description	Unit
Sulfur Blank	2 mL
Sulfur @ 100 ng/µL	2 mL
Sulfur @ 250 ng/µL	2 mL
Sulfur @ 500 ng/µL	2 mL
Sulfur @1000 ng/µL	2 mL

Standards of Interest

ASTM Method D5453 Sulfur as Di-n-butyl sulfide in Biodiesel see ASTM D6751.

Real World Sulfur in Various Gasoline & Fuels QC Samples

SBPT-LSGAS-VAP **2 x 15 mL**

Parameter	Method	Approx .Range
Sulfur	D-5453-00	0 - 50 µg/g

As the matrix may contain some native sulfur, AccuStandard encourages purchasing sulfur blanks for calibration analysis

ASTM D5480 Engine Oil Volatility by GC

Stock Column Resolution Standard

D-5480-CR-PAK **5 x 1 mL**
10 µg/mL each in Carbon disufide 5 comps.
D-5480-CR-100X-PAK **5 x 1 mL**
1000 µg/mL each in Carbon disufide 5 comps.

n-Decane
n-Dodecane
n-Hexadecane
n-Octadecane
n-Tetracosane

Carbon disulfide can not ship by air. When possible alternate solvents can be used. Please contact our Technical Service Department for other options.

Tetracosane (Solution A)

D-5480-C40-5ML **1 x 5 mL**
D-5480-C40-5ML-PAK *SAVE* **5 x 5 mL**
500 µg/mL in Carbon disufide
D-5480-C40-R1-5ML **1 x 5 mL**
D-5480-C40-R1-5ML-PAK *SAVE* **5 x 5 mL**
500 µg/mL in Chloroform

n-Tetracosane

Internal Standard Solution

D-5480-IS-5ML **1 x 5 mL**
D-5480-IS-5ML-PAK *SAVE* **5 x 5 mL**
Each comp. at equal weights 3 comps.

n-Decane
n-Dodecane
n-Undecane

ASTM D5482 & D5191 Vapor Pressure Standards

Vapor Pressure Quality Control Samples

Vapor Pressure	Cat. No	Set of 10
68.3kPa (9.91 psi)	ASTM-P-124-01	10 x 10 mL
68.0kPa (9.86 psi)	ASTM-P-124-02	10 x 10 mL
51.1kPa (7.41 psi)	ASTM-P-124-03	10 x 10 mL
46.7kPa (6.77 psi)	ASTM-P-124-04	10 x 10 mL
22.5kPa (3.26 psi)	ASTM-P-124-05	10 x 10 mL
7.1kPa (1.03 psi)	ASTM-P-124-06	10 x 10 mL

ASTM D5501 Ethanol Content of Denatured Fuel Ethanol by GC

Denatured Fuel Ethanol Calibration Set

D-5501-94-SET **7 x 1 mL**

Comp.1	Wt./ Wt.%	Comp.2	Wt./ Wt.%	Comp.3	Wt./ Wt.%	Unit
Ethanol	92	Methanol	0.6	Heptane	7.4	1 mL
Ethanol	93	Methanol	0.5	Heptane	6.5	1 mL
Ethanol	94	Methanol	0.4	Heptane	5.6	1 mL
Ethanol	95	Methanol	0.3	Heptane	4.7	1 mL
Ethanol	96	Methanol	0.2	Heptane	3.8	1 mL
Ethanol	97	Methanol	0.1	Heptane	2.9	1 mL
Ethanol	98	Methanol	0.05	Heptane	1.95	1 mL

ASTM Method D5501-12 Update

NEW

D-5501-12-SET **5 x 1 mL**

	D-5501-12-01 Wt./ Wt.%	D-5501-12-02 Wt./ Wt.%	D-5501-12-03 Wt./ Wt.%	D-5501-12-04 Wt./ Wt.%	D-5501-12-05 Wt./ Wt.%
Ethanol	20	50	75	90	99.4
Methanol	0.6	0.5	0.3	0.2	0.1
Heptane	10	10	10	4	0.5
Isooctane	69.4	39.5	14.8	5.8	0

Technical Note

Additional oxygenate calibration, check standards, and independent reference standards can be found in ASTM method D4815 or D5622. The required QA/QC procedures in EPA methods stipulate a calibration check standard be used once per analytical batch or per 10 sample set. AccuStandard has bulk packaged check standards to meet this increased usage.

ASTM D5580 Benzene, Toluene, Ethylbenzene, m/p-Xylene, o-Xylene, C9 & Heavier Aromatics & Total Aromatics in Finished Gasoline by GC

Aromatics Quantitative Calibration Mixes

Without Internal Standard

D-5580-95-CAL-10ML-SET **5 x 10 mL** (of 6 component mix)

Analyte	Calibration range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	0.10 - 5.00	0.10	0.50	1.00	2.00	5.00
Toluene	1.00 - 15.00	15.00	10.00	5.00	2.50	1.00
Ethylbenzene	0.50 - 10.00	0.50	1.00	2.50	5.00	10.00
o-Xylene	0.50 - 10.00	1.00	2.50	10.00	5.00	0.50
1,2,4-Trimethylbenzene	0.50 - 10.00	1.00	10.00	0.50	5.00	2.50
Isooctane		82.40	76.00	81.00	80.50	81.00

With Internal Standard

D-5580-95-CAL-IS-SET **5 x 1 mL** (of 7 component mix)

Analyte	Calibration range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	0.09 - 4.50	0.09	0.45	0.90	1.80	4.50
Toluene	0.90 - 13.50	13.50	9.00	4.50	2.25	0.90
Ethylbenzene	0.45 - 9.00	0.45	0.90	2.25	4.50	9.00
o-Xylene	0.45 - 9.00	0.90	2.25	9.00	4.50	0.45
1,2,4-Trimethylbenzene	0.45 - 9.00	0.90	9.00	0.45	4.50	2.25
2-Hexanone (Internal Standard)		10.00	10.00	10.00	10.00	10.00
Isooctane		74.16	68.40	72.90	72.45	72.90

Standard 2 D-5580-95-CAL-IS-2 1 mL

Valve Timing Calibration Mixes

With Internal Standard

M-GRA-VT/IS-AS **1 x 1 mL**
M-GRA-VT/IS-AS-PAK ***SAVE*** **5 x 1 mL**
Each at stated conc. 6 comps.

	Wt./Wt. %
Benzene	4.5
Toluene	4.5
Ethylbenzene	9.0
o-Xylene	9.0
2-Hexanone (Internal Std.)	10.0
Isooctane	63.0

Without Internal Standard

M-GRA-VT-AS-10ML **1 x 10 mL**
M-GRA-VT-AS-10ML-PAK*SAVE* **5 x 10 mL**
Each at stated conc. 5 comps.

	Wt./Wt. %
Benzene	5.0
Toluene	5.0
Ethylbenzene	10.0
o-Xylene	10.0
Isooctane	70.0

Internal Standard

M-GRA-IS-AS-5ML **1 x 5 mL**
M-GRA-IS-AS-5ML-PAK ***SAVE*** **5 x 5 mL**

2-Hexanone (Neat)

Selectivity Check Standard

M-GRA-SCS-AS **1 x 1 mL**
M-GRA-SCS-AS-PAK ***SAVE*** **5 x 1 mL**
Each at stated conc. 2 comps.

	Wt./Wt. %
n-Dodecane	1.5
Isooctane	98.5

Daily Quality Control Standard

Without Internal Standard

D-5580-QC-R1-10ML **1 x 10 mL**
D-5580-QC-R1-10ML-PAK*SAVE* **5 x 10 mL**
14 comps.

	Wt./Wt. %		Wt./Wt. %
n-Hexane	12	Toluene	9
n-Heptane	20	Ethylbenzene	2
n-Octane	15	*p*-Xylene	3
n-Decane	10	*o*-Xylene	2
n-Dodecane	1	1,2,4-Trimethylbenzene	3
Isooctane	20	1,2,4,5-Tetramethylbenzene	1
Benzene	1	Naphthalene	1

Daily Quality Control Standard

Without Internal Standard

D-5580-QC-10ML **1 x 10 mL**
D-5580-QC-10ML-PAK ***SAVE*** **5 x 10 mL**
14 comps.

	Wt./Wt. %		Wt./Wt. %
n-Hexane	12	Toluene	9
n-Heptane	20	Ethylbenzene	2
n-Octane	15	*p*-Xylene	3
n-Decane	10	*o*-Xylene	2
n-Tridecane	1	1,2,4-Trimethylbenzene	3
Isooctane	20	1,2,4,5-Tetramethylbenzene	1
Benzene	1	Naphthalene	1

Technical Note

The configuration of the instrument valve time switching and the pre-column incorporated determines which QA/QC standard provides optimum performance when analyzing gasolines samples by Method D5580. Use of the D5580 standards in conjunction with the real world gasoline standards can provide added assurance that the analytical results generated are reproducible and the analytical system is performing to method specifications.

ASTM D5599 Oxygenates in Gas by GC & O-FID

Oxygenates Calibration Curves

With Internal Standard

M-GRO-CAL/IS-SET **8 x 1 mL**
M-GRO-CAL/IS-SET-PAK *SAVE* **5 x (8 x 1) mL**
of 15 Comp. Mix

Calibration range		Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %	Std. 6 Wt. %	Std. 7 Wt. %	Std. 8 Wt. %
Methanol	0.1 - 5.0	---	0.1	2.5	---	5	0.5	1	---
Ethanol	1.0 - 12.0	12	---	3	---	8	5	1	---
Isopropanol	0.1 - 2.0	2	1	---	0.1	0.3	---	0.5	---
t-Butanol	0.1 - 2.0	0.5	0.1	1	---	2	0.3	---	---
Propanol	0.2 - 2.0	2	---	0.7	0.2	1	---	0.4	---
MtBE	1.0 - 17.0	5	17	---	---	1	2.5	10	---
sec-Butanol	0.1 - 2.5	1	---	0.5	0.1	---	2.5	0.7	---
Diisopropyl ether	0.1 - 2.0	---	0.5	0.3	0.1	2	1	---	---
iso-Butanol	0.1 - 2.0	2	0.5	---	1	0.1	0.3	---	---
EtBE	1.0 - 18.0	---	3.5	18	7.5	---	1	12	---
t-Pentanol	0.1 - 2.0	0.3	1	---	0.5	0.1	2	---	---
Butanol	0.1 - 2.0	1	---	0.3	---	0.5	0.1	2	---
TAME	1.0 - 18.0	---	3.5	1	18	7.5	12	---	---
1,2-Dimethoxyethane (ISTD)		4	4	4	4	4	4	4	---
RFA Gasoline		70.2	68.8	68.7	68.5	68.5	68.8	68.4	100
Total oxygenates and ISTD		**29.8**	**31.2**	**31.3**	**31.5**	**31.5**	**31.2**	**31.6**	**0**

Technical Note

This certified oxygenate calibration curve can be used in combination with other aromatic standards for combined oxygenate/aromatic analysis to change the amount of internal standard added, or to incorporate alternative internal standard analytes.

With Internal Standard

M-GRO-CAL/IS-R1-SET **8 x 1 mL**

M-GRO-CAL/IS Analyte Calibration range		01-R1 Wt. %	02-R1 Wt. %	03-R1 Wt. %	04-R1 Wt. %	05-R1 Wt. %	06-R1 Wt. %	07-R1 Wt. %	08-R1 Wt. %
Methanol	0.1 - 5.0	--	0.1	2.5	--	5	0.5	1	--
Ethanol	1.0 - 12.0	12	--	3	--	8	5	1	--
Isopropanol	0.1 - 2.0	2	1	--	0.1	0.3	--	0.5	--
t-Butanol	0.1 - 2.0	0.5	0.1	1	--	2	0.3	--	--
Propanol	0.2 - 2.0	2	--	0.7	0.2	1	--	0.4	--
MtBE	1.0 - 17.0	5	17	--	--	1	2.5	10	--
sec-Butanol	0.1 - 2.5	1	--	0.5	0.1	--	2.5	0.7	--
Diisopropyl ether	0.1 - 2.0	--	0.5	0.3	0.1	2	1	--	--
Isobutanol	0.1 - 2.0	2	0.5	--	1	0.1	0.3	--	--
EtBE	1.0 - 18.0	--	3.5	18	7.5	--	1	12	--
tert-Pentanol	0.1 - 2.0	0.3	1	--	0.5	0.1	2	--	--
Butanol	0.1 - 2.0	1	--	0.3	--	0.5	0.1	2	--
TAME	1.0 - 18.0	--	3.5	1	18	7.5	12	--	--
1,2-Dimethoxyethane (ISTD)		4	4	4	4	4	4	4	--
RFA Gasoline		74.2	72.8	72.7	72.5	72.5	72.8	72.4	100
Total oxygenates and ISTD		**28.6**	**30.0**	**30.1**	**30.3**	**30.3**	**30.0**	**30.4**	**0**

Technical Note

The revised set formulates the product components and gasoline to 100 mL volume and then adds the Internal Standard for a total volume of 104 mL.

D5599 Meets EPA Guidelines for RFG Analysis

Without Internal Standard

M-GRO-CAL-SET **8 x 10 mL**
of 14 Comp. Mix

Calibration range		Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %	Std. 6 Wt. %	Std. 7 Wt. %	Std. 8 Wt. %
Methanol	0.1 - 5.0	---	0.1	2.5	---	5	0.5	1	---
Ethanol	1.0 - 12.0	12	---	3	---	8	5	1	---
Isopropanol	0.1 - 2.0	2	1	---	0.1	0.3	---	0.5	---
t-Butanol	0.1 - 2.0	0.5	0.1	1	---	2	0.3	---	---
Propanol	0.2 - 2.0	2	---	0.7	0.2	1	---	0.4	---
MtBE	1.0 - 17.0	5	17	---	---	1	2.5	10	---
sec-Butanol	0.1 - 2.5	1	---	0.5	0.1	---	2.5	0.7	---
Diisopropyl ether	0.1 - 2.0	---	0.5	0.3	0.1	2	1	---	---
iso-Butanol	0.1 - 2.0	2	0.5	---	1	0.1	0.3	---	---
EtBE	1.0 - 18.0	---	3.5	18	7.5	---	1	12	---
t-Pentanol	0.1 - 2.0	0.3	1	---	0.5	0.1	2	---	---
Butanol	0.1 - 2.0	1	---	0.3	---	0.5	0.1	2	---
TAME	1.0 - 18.0	---	3.5	1	18	7.5	12	---	---
RFA Gasoline		74.2	72.8	72.7	72.5	72.5	72.8	72.4	100
Total oxygenates		**25.8**	**27.2**	**27.3**	**27.5**	**27.5**	**27.2**	**27.6**	**0**

ASTM D5599 (Continued) Oxygenates in Gas by GC & O-FID

Daily QC Standard
Without Internal Standard

M-GRO-QC-10ML — **1 x 10 mL**
M-GRO-QC-10ML-PAK *SAVE* — **5 x 10 mL**
14 comps.

Oxygenate	Target Wt. %	Compound Oxygenate	Target Wt. %
Methanol	1	*Di*-isopropyl ether	3
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
t-Butanol	1	*t*-Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	79

Daily QC Standard
With Internal Standard

M-GRO-QC/IS-5ML — **1 x 5 mL**
M-GRO-QC/IS-5ML-PAK *SAVE* — **5 x 5 mL**
Internal Standard 1,2-Dimethoxyethane is combined in a 4 to 100 weight ratio.
15 comps.

Oxygenate	Target Wt. %	Oxygenate	Target Wt. %
Methanol	1	*Di*-isopropyl ether	3
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
t-Butanol	1	*t*-Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	79

Gasoline Refinery Blank
With Internal Standard

M-GRO-BLNK/IS-10ML — **1 x 10 mL**
M-GRO-BLNK/IS-10ML-PAK *SAVE* — **5 x 10 mL**
2 comps.

	Wt. %
1,2-Dimethoxyethane (ISTD)	4
RFA Gasoline	96

O-FID Gasoline Refinery Blank

RFA-BLNK-10ML — **1 x 10 mL**
RFA-BLNK-10ML-PAK *SAVE* — **5 x 10 mL**

RFA Gasoline (neat)

Revised Daily QC Standard
Without Internal Standard

M-GRO-QC-R-10ML — **1 x 10 mL**
M-GRO-QC-R-10ML-PAK *SAVE* — **5 x 10 mL**
14 comps.

Oxygenate	Target Wt. %	Oxygenate	Target Wt. %
Methanol	1	*Di*-isopropyl ether	1
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
t-Butanol	1	*t*-Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	81

Revised Daily QC Standard
With Internal Standard

M-GRO-QC-R/IS-5ML — **1 x 5 mL**
M-GRO-QC-R/IS-5ML-PAK *SAVE* — **5 x 5 mL**
Internal Standard 1,2-Dimethoxyethane is combined in a 4 to 100 weight ratio.
15 comps.

Oxygenate	Target Wt. %	Oxygenate	Target Wt. %
Methanol	1	*Di*-isopropyl ether	1
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
t-Butanol	1	*t*-Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	81

O-FID/EPA Gasoline Refinery
Internal Standard

M-GRO-IS-5ML — **1 x 5 mL**
M-GRO-IS-5ML-PAK *SAVE* — **5 x 5 mL**

1,2-Dimethoxyethane (Internal Standard)

D5599 Meets EPA Guidelines for RFG Analysis

Technical Note

Additional oxygenate calibration, check standards, and independent reference standards can be found in ASTM method D4815 or D5622. The required QA/QC procedures in EPA methods stipulate a calibration check standard be used once per analytical batch or per 10 sample set. AccuStandard has bulk packaged check standards to meet this increased usage.

Cross Reference Table
ASTM IP ISO DIN JIS AFNOR
see page 265

ASTM D5599 EPA Gasoline Refinery Oxygenates Calibration Curves

EPA O-FID Quantitative Calibration Mixes

Without Internal Standard

M-GRO-CAL-EPA-10ML-SET **5 x 10 mL**

5 comps.

	Calibr. range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Methanol	0.30 - 12.00	6.00	12.00	3.00	0.30	9.00
Ethanol	0.30 - 12.00	0.30	3.00	6.00	9.00	12.00
t-Butanol	0.30 - 12.00	0.30	6.00	9.00	12.00	3.00
MtBE	0.30 - 15.00	15.00	7.50	11.25	3.75	0.30
RFA Gasoline		78.40	71.50	70.75	74.95	75.70

With Internal Standard

M-GRO-CAL-IS/EPA-SET **5 x 1 mL**

6 comps.

	Calibr. range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Methanol	0.29 - 11.40	5.70	11.40	2.85	0.29	8.55
Ethanol	0.29 - 11.40	0.29	2.85	5.70	8.55	11.40
t-Butanol	0.29 - 11.40	0.29	5.70	8.55	11.40	2.85
MtBE	0.29 - 14.29	14.25	7.13	10.69	3.56	0.29
1,2-Dimethoxyethane (ISTD)		5.00	5.00	5.00	5.00	5.00
RFA Gasoline		74.48	67.93	67.31	71.20	71.92

EPA O-FID Quantitative Calibration Check Standard

Without Internal Standard

M-GRO-EPA-CC-10ML **1 x 10 mL**

M-GRO-EPA-CC-10ML-PAK *SAVE* **5 x 10 mL**

5 comps.

	Wt./Wt. %		Wt./Wt. %
Methanol	4.0	Methyl *tert*-butyl ether	12.0
Ethanol	8.0	RFA gasoline	71.0
tert-Butanol	5.0		

EPA O-FID Quantitative Calibration Check Standard

With Internal Standard

M-GRO-EPACC/IS-5ML **1 x 5 mL**

M-GRO-EPACC/IS-5ML-PAK *SAVE* **5 x 5 mL**

6 comps.

	Wt./Wt. %		Wt./Wt. %
Methanol	3.80	Methyl tert-butyl ether	11.40
Ethanol	7.60	RFA gasoline	67.45
tert-Butanol	4.75	DME (Internal Standard)	5.0

EPA O-FID Spiking Solution

M-GRO-EPA-SP-5ML **1 x 5 mL**

M-GRO-EPA-SP-5ML-PAK *SAVE* **5 x 5 mL**

4 comps.

	Wt./Wt. %		Wt./Wt. %
Methanol	14.3	*tert*-Butanol	14.3
Ethanol	28.6	Methyl tert-butyl ether	42.8

Internal Standard

M-GRO-IS-5ML **1 x 10 mL**

M-GRO-IS-5ML-PAK *SAVE* **5 x 10 mL**

1,2-Dimethoxyethane (Internal Standard)

Oxygenate Free Gasoline Refinery Blank

RFA-BLNK-10ML **1 x 10 mL**

RFA-BLNK-10ML-PAK *SAVE* **5 x 10 mL**

RFA Gasoline (neat)

Technical Note

EPA O-FID Oxygenate Petrochemical Standards

This second oxygenate version has been formulated to meet the specific analyte requirements of the EPA methodology.

Technical Note

Additional Oxygenate calibration, check standards, and independent reference standards can be found in ASTM method D4815 or D5622. The required QA/QC procedures in EPA methods stipulate a calibration check standard be used once per analytical batch or per 10 sample set. AccuStandard has bulk packaged check standards to meet this increased usage.

ASTM D5600 Trace Metals in Petroleum Coke by ICP-AES

see page 370

ASTM D5622 Total Oxygen in Gasoline & MeOH Fuels by Reductive Pyrolysis

Description (2 x 10 mL, plus an RFA gasoline blank)	Oxygenate Wt. %	Cat. No.	Unit
Ethanol in Oxygenate free RFA gasoline	5.0	ASTM-P-0061-SET	3 x 10 mL
Ethanol in Oxygenate free RFA gasoline	10.0	ASTM-P-0062-SET	3 x 10 mL
t-Amyl methyl ether in Oxygenate free RFA gasoline	10.0	ASTM-P-0063-SET	3 x 10 mL
t-Amyl methyl ether in Oxygenate free RFA gasoline	15.0	ASTM-P-0064-SET	3 x 10 mL
Ethyl t-butyl ether in Oxygenate free RFA gasoline	10.0	ASTM-P-0065-SET	3 x 10 mL
Ethyl t-butyl ether in Oxygenate free RFA gasoline	15.0	ASTM-P-0066-SET	3 x 10 mL
Methyl t-butyl ether in Oxygenate free RFA gasoline	10.0	ASTM-P-0067-SET	3 x 10 mL
Methyl t-butyl ether in Oxygenate free RFA gasoline	15.0	ASTM-P-0068-SET	3 x 10 mL
Methanol & t-Butanol in Oxygenate free RFA gasoline	10.0 & 5.0	ASTM-P-0069-SET	3 x 10 mL

Technical Note

All oxygenate blends come with a certificate to maintain traceability links to NIST SRMs (when available). The 10 mL size eliminates the need for special packaging and hazardous material fees.

Oxygenate Free Gasoline Refinery Blank

RFA-BLNK-10ML **1 x 10 mL**

RFA Gasoline (neat)

ASTM D5623 Sulfur Compounds in Light Petroleum Liquids by GC & Sulfur Selective Detection

ASTM-P-0091-10X-SET **set of 22 x 1 mL**

Approx. 2.0 mg/mL each in Toluene

Compound	Cat. No.	1 mL
Hydrogen sulfide	ASTM-P-0091-01-10X	
Carbonyl sulfide (Carbon oxysulfide)	ASTM-P-0091-02-10X	
Methyl mercaptan (Methanethiol)	ASTM-P-0091-03-10X	
Ethyl mercaptan (Ethanethiol)	ASTM-P-0091-04-10X	
Methyl sulfide (Dimethyl sulfide)	ASTM-P-0091-05-10X	
Carbon disulfide	ASTM-P-0091-06-10X	
2-Propanethiol (Isopropyl mercaptan)	ASTM-P-0091-07-10X	
2-Methyl-2-propanethiol (t-butyl mercaptan)	ASTM-P-0091-08-10X	
1-Propanethiol (Propyl mercaptan)	ASTM-P-0091-09-10X	
Ethyl methyl sulfide	ASTM-P-0091-10-10X	
1-Methyl-1-propanethiol (2-butanethiol)	ASTM-P-0091-11-10X	
Thiophene	ASTM-P-0091-12-10X	
2-Methyl-1-propanethiol (Isobutyl mercaptan)	ASTM-P-0091-13-10X	
Diethyl sulfide	ASTM-P-0091-14-10X	
1-Butanethiol (Butyl mercaptan)	ASTM-P-0091-15-10X	
Methyl disulfide (Dimethyl disulfide)	ASTM-P-0091-16-10X	
2-Methylthiophene	ASTM-P-0091-17-10X	
3-Methylthiophene	ASTM-P-0091-18-10X	
Diethyl disulfide (Ethyl disulfide)	ASTM-P-0091-19-10X	
3-Methylbenzo[b]thiophene	ASTM-P-0091-20-10X	
5-Methylbenzo[b]thiophene	ASTM-P-0091-21-10X	
Diphenyl sulfide	ASTM-P-0091-22-10X	

Technical Note

This set of qualitative Sulfur Standards is formulated for research evaluation of the presence of the sulfur analytes or their breakdown products.

ASTM D5708 Nickel, Vanadium, & Iron in Crude Oils & Residual Fuels by ICP-AES

see page 379

ASTM D5762 Nitrogen in Petroleum & Petroleum Products by Boat-Inlet Chemiluminescence

Nitrogen Calibration Set

D-5762-95-CAL-SET **6 x 1 mL**

Nitrogen introduced using Acridine

Description	Cat. No.	1 mL
Xylene Blank	D-5762-95-BL	
Nitrogen @ 1.0 µg/mL in Xylene	D-5762-95-1X	
Nitrogen @ 5.0 µg/mL in Xylene	D-5762-95-5X	
Nitrogen @ 10 µg/mL in Xylene	D-5762-95-10X	
Nitrogen @ 50 µg/mL in Xylene	D-5762-95-50X	
Nitrogen @ 100 µg/mL in Xylene	D-5762-95-100X	

Nitrogen Calibration Set - Low Level

ASTM-P-0070-SET **6 x 1 mL**

Nitrogen introduced using Aniline

Description	Cat. No. (1 mL)
Isooctane Blank	ASTM-P-0070-BL
Nitrogen @ 0.5 µg/g in Isooctane	ASTM-P-0070-1X
Nitrogen @ 1.0 µg/g in Isooctane	ASTM-P-0070-2X
Nitrogen @ 2.0 µg/g in Isooctane	ASTM-P-0070-4X
Nitrogen @ 5.0 µg/g in Isooctane	ASTM-P-0070-10X
Nitrogen @ 10.0 µg/g in Isooctane	ASTM-P-0070-20X

Low Level Nitrogen & Sulfur Calibration Set

ASTM-P-0071-SET **4 x 1 mL**

The Nitrogen is introduced using Aniline, the Sulfur is introduced using di-n-butyl sulfide

Description	Cat. No. (1 mL)
Benzene Blank	ASTM-P-0071-BL
Nitrogen @ 0.25 µg/g & Sulfur @ 0.25 µg/g in Benzene	ASTM-P-0071-01
Nitrogen @ 0.50 µg/g & Sulfur @ 0.50 µg/g in Benzene	ASTM-P-0071-02
Nitrogen @ 1.00 µg/g & Sulfur @ 1.00 µg/g in Benzene	ASTM-P-0071-03

Stock Nitrogen Standard

D-5762-95-500X-PAK **5 x 1 mL**

Nitrogen @ 500 µg/mL in Xylene (Acridine @ 6397 µg/mL)

Technical Note

Standards are prepared by adding well characterized nitrogen and/or sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native nitrogen and/or sulfur, a blank must be used for correction and should be purchased with the standard.

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

These standards and methods are used in the monitoring of total aromatics according to the methods and amendments to the US Clean Air Act. Amendments containing more stringent specifications are in effect and can be found listed under this method. Standards for Method D5769 are listed on pages 299-306.

Calibration Curve with 3 Component Deuterated Internal Standard Added

Aromatics Calibration Standards Kit
Internal Standard Version

M-GRA-CAL/IS-SET — **set of 5 x 1 mL**

Core Calibration Mix 24 Comps.	Target Vol. %	Std. 1 Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %
Benzene	3	1.50	0.75	0.375	0.1875	
Toluene	19	9.50	4.75	2.375	1.1875	
Ethylbenzene	5	2.50	1.25	0.625	0.3125	
m-Xylene	6	3.00	1.50	0.750	0.3750	
p-Xylene	6	3.00	1.50	0.750	0.3750	
o-Xylene	6	3.00	1.50	0.750	0.3750	
Isopropylbenzene	3	1.50	0.75	0.375	0.1875	
n-Propylbenzene	3	1.50	0.75	0.375	0.1875	
1-Methyl-3-ethylbenzene	3	1.50	0.75	0.375	0.1875	
1-Methyl-4-ethylbenzene	3	1.50	0.75	0.375	0.1875	
1,3,5-Trimethylbenzene	3	1.50	0.75	0.375	0.1875	
1-Methyl-2-ethylbenzene	3	1.50	0.75	0.375	0.1875	
1,2,4-Trimethylbenzene	5	2.50	1.25	0.625	0.3125	
1,2,3-Trimethylbenzene	3	1.50	0.75	0.375	0.1875	
Indan	3	1.50	0.75	0.375	0.1875	
1,4-Diethylbenzene	3	1.50	0.75	0.375	0.1875	
n-Butylbenzene	3	1.50	0.75	0.375	0.1875	
1,2-Diethylbenzene	3	1.50	0.75	0.375	0.1875	
1,2,4,5-Tetramethylbenzene	2	1.00	0.50	0.250	0.1250	
1,2,3,5-Tetramethylbenzene	2	1.00	0.50	0.250	0.1250	
Naphthalene	2	1.00	0.50	0.250	0.1250	
Pentamethylbenzene	2	1.00	0.50	0.250	0.1250	
1-Methylnaphthalene	2	1.00	0.50	0.250	0.1250	
2-Methylnaphthalene	2	1.00	0.50	0.250	0.1250	
Isooctane	--	Bal	Bal	Bal	Bal	
Internal Standard (M-GRA-IS)						
Benzene-d_6	2	2	2	2	2	
Ethylbenzene-d_{10}	2	2	2	2	2	
Naphthalene-d_8	1	1	1	1	1	

Optional Sixth Standard
Internal Standard Added

M-GRA-ADD/IS — **1 x 1 mL**

Core Calibr. Mix 24 Comps.	Optional Std. 6 Target Vol. %
Benzene	2.25
Toluene	15
Ethylbenzene	3.75
m-Xylene	4.50
p-Xylene	4.50
o-Xylene	4.50
Isopropylbenzene	2.25
n-Proplylbenzene	2.25
3-Ethyltoluene	2.25
4-Ethyltoluene	2.25
1,3,5-Trimethylbenzene	2.25
2-Ethyltoluene	2.25
1,2,4-Trimethylbenzene	3.75
1,2,3-Trimethylbenzene	2.25
Indan	2.25
1,4-Diethylbenzene	2.25
n-Butylbenzene	2.25
1,2-Diethylbenzene	2.25
1,2,4,5-Tetramethylbenzene	4.0
1,2,3,5-Tetramethylbenzene	1.5
Naphthalene	1.5
Pentamethylbenzene	1.5
1-Methylnaphthalene	1.5
2-Methylnaphthalene	1.5
Isooctane	Bal
Internal Standard (M-GRA-IS)	
Benzene-d_6	2
Ethylbenzene-d_{10}	2
Naphthalene-d_8	1

CD Provided
CALAMTS™
Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

Daily Quality Control Standard
Without Internal Standard

M-GRA-QC-10ML — **1 x 10 mL**
M-GRA-QC-10ML-PAK *SAVE* — **5 x 10 mL**
13 comps.

Wt. Ratio		Wt. Ratio	
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1		

Technical Note

Use with any M-GRA Calibration Curve.

Daily Quality Control Standard
With Internal Standard

M-GRA-QC/IS-5ML — **1 x 5 mL**
M-GRA-QC/IS-5ML-PAK *SAVE* — **5 x 5 mL**
16 comps.

Wt. Ratio		Compound	Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1	13 comp. Core Mix	100

Includes **M-GRA-IS** (3 comp. Internal Standards mix) combined with the above 13 comp. Core Mix in a 5 to 100 weight ratio.

ASTM/EPA Sensitivity Test Solution
M-GRA-ST — **1 x 1 mL**
M-GRA-ST-PAK *SAVE* — **5 x 1 mL**
100 µg/mL in Isooctane

1,4-Diethylbenzene

3 Comp. Deuterated Internal Std. Mix
M-GRA-IS-5ML — **1 x 5 mL**
M-GRA-IS-5ML-PAK *SAVE* — **5 x 5 mL**
3 comps.

Mix Ratio		Mix Ratio	
Benzene-d_6	2 mL	Naphthalene-d_8	1 gm
Ethylbenzene-d_{10}	2 mL		

ASTM D5769 continued on Next Pages

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Calibration Curve with 4 Component Deuterated Internal Standard Added

Aromatics Calibration Standards Kit

With Internal Standard

M-GRA-CAL-R/IS-R-SET — **set of 5 x 1 mL**

Core Calibr. Mix 24 comps.	Target	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene		3.13	1.78	0.95	0.490	0.2490
Toluene		19.65	11.11	5.90	3.058	1.5547
Ethylbenzene		5.12	2.92	1.55	0.805	0.4090
m-Xylene		6.27	3.50	1.86	0.962	0.4891
p-Xylene		6.33	3.50	1.86	0.962	0.4891
o-Xylene		6.51	3.56	1.89	0.980	0.4981
Isopropylbenzene		3.06	1.74	0.93	0.480	0.2439
n-Propylbenzene		3.04	1.74	0.93	0.480	0.2440
3-Ethyltoluene		3.08	1.75	0.93	0.481	0.2446
4-Ethyltoluene		3.05	1.74	0.93	0.479	0.2437
1,3,5-Trimethylbenzene		3.07	1.75	0.93	0.481	0.2448
2-Ethyltoluene		3.14	1.78	0.95	0.490	0.2492
1,2,4-Trimethylbenzene		5.18	2.95	1.57	0.812	0.4130
1,2,3-Trimethylbenzene		3.19	1.81	0.96	0.498	0.2530
Indan		3.46	1.95	1.04	0.536	0.2726
1,4-Diethylbenzene		3.04	1.74	0.93	0.480	0.2439
n-Butylbenzene		3.05	1.74	0.92	0.479	0.2434
1,2-Diethylbenzene		3.22	1.78	0.95	0.490	0.2489
1,2,4,5-Tetramethylbenzene		2.10	1.20	0.64	0.329	0.1674
1,2,3,5-Tetramethylbenzene		2.09	1.20	0.64	0.330	0.1679
Naphthalene		2.35	1.34	0.71	0.369	0.1877
Pentamethylbenzene		2.16	1.23	0.66	0.340	0.1727
1-Methylnaphthalene		2.32	1.34	0.71	0.369	0.1877
2-Methylnaphthalene		2.41	1.37	0.73	0.378	0.1922
Isooctane		-----	43.47	69.96	84.441	92.0905

Internal Standard

(M-GRA-IS-R)	Mix Ratio					
Benzene-d_6	(2 mL)	16.57	16.57	16.57	16.57	16.57
Ethylbenzene-d_{10}	(2 mL)	16.76	16.76	16.76	16.76	16.76
Naphthalene-d_8	(1 gm)	8.78	8.78	8.78	8.78	8.78
Toluene-d_8	(7 mL)	57.88	57.88	57.88	57.88	57.88

Optional Sixth Standard

With Internal Standard

M-GRA-ADD/IS-R — **1 x 1 mL**

Core Calibr. Mix 24 comps.	Optional Std. 6 Target Wt. %
Benzene	2.48
Toluene	16.29
Ethylbenzene	4.07
m-Xylene	4.87
p-Xylene	4.87
o-Xylene	4.96
Isopropylbenzene	2.43
n-Propylbenzene	2.43
3-Ethyltoluene	2.44
4-Ethyltoluene	2.43
1,3,5-Trimethylbenzene	2.44
2-Ethyltoluene	2.48
1,2,4-Trimethylbenzene	4.11
1,2,3-Trimethylbenzene	2.52
Indan	2.71
1,4-Diethylbenzene	2.43
n-Butylbenzene	2.42
1,2-Diethylbenzene	2.48
1,2,4,5-Tetramethylbenzene	4.44
1,2,3,5-Tetramethylbenzene	1.67
Naphthalene	1.87
Pentamethylbenzene	1.72
1-Methylnaphthalene	1.87
2-Methylnaphthalene	1.91
Isooctane	17.67

Internal Standard

(M-GRA-IS-R)	Mix Ratio	
Benzene-d_6	(2 mL)	16.57
Ethylbenzene-d_{10}	(2 mL)	16.76
Naphthalene-d_8	(1 mL)	8.78
Toluene-d_8	(7 mL)	57.88

Technical Note

A sixth standard has been formulated to improve the linearity at the high end of the calibration curve. This can be helpful in the quantification of gasoline containing high levels of toluene.

Technical Note

This set of calibration solutions was formulated to improve the quantification of toluene by using toluene-d_8 as an additional ISTD.

The 4 component internal standard mix (M-GRA-IS-R) is combined with the 25 component core calibration curve mixtures in a 12 to 100 weight ratio to formulate a complete calibration solution containing 29 components.

Daily Quality Control Standard

Without Internal Standard

M-GRA-QC-10ML — **1 x 10 mL**

M-GRA-QC-10ML-PAK *SAVE* — **5 x 10 mL**

13 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1		

Daily Quality Control Standard

With Internal Standard

M-GRA-QC/IS-R-5ML — **1 x 5 mL**

M-GRA-QC/IS-R-5ML-PAK *SAVE* — **5 x 5 mL**

17 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1	13 comp. Core Mix	100

Includes **M-GRA-IS-R** (4 comp. Internal Standard Mix) combined with the above 13 comp. Core Mix in a 12 to 100 weight ratio.

4 comp. Deuterated Internal Std. Mix

M-GRA-IS-R-10ML — **1 x 10 mL**

M-GRA-IS-R-10ML-PAK *SAVE* — **5 x 10 mL**

4 comps.

	Mix Ratio		Mix Ratio
Benzene-d_6	2 mL	Naphthalene-d_8	1 gm
Ethylbenzene-d_{10}	2 mL	Toluene-d_8	7 mL

ASTM/EPA Sensitivity Test Solution

M-GRA-ST — **1 x 1 mL**

M-GRA-ST-PAK *SAVE* — **5 x 1 mL**

100 µg/mL in Isooctane

1,4-Diethylbenzene

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Calibration Curve with No Internal Standard

Calibration Curve

Without Internal Standard

D-5769-CAL-5ML-SET — **set of 5 x 5 mL**
D-5769-CAL-10ML-SET — **set of 5 x 10 mL**

Core Calibr. Mix 23 Comps.	Target Wt. %	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	5.25	2.95	1.575	0.8144	0.4143	
Toluene	19.67	11.06	5.898	3.0505	1.5519	
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083	
m-Xylene	6.19	3.48	1.856	0.9598	0.4883	
p-Xylene	6.19	3.48	1.856	0.9598	0.4883	
o-Xylene	6.30	3.54	1.890	0.9776	0.4973	
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435	
n-Propylbenzene	3.09	1.74	0.926	0.4787	0.2435	
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442	
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433	
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444	
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488	
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123	
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526	
Indan	3.45	1.94	1.034	0.5350	0.2722	
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435	
n-Butylbenzene	3.08	1.73	0.923	0.4776	0.2430	
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485	
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671	
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676	
Naphthalene	2.37	1.34	0.712	0.3683	0.1874	
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874	
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919	
Isooctane	-----	43.77	70.015	84.4922	92.1105	

Optional Sixth Standard

Without Internal Standard

D-5769-ADD-5ML — **1 x 5 mL**
D-5769-ADD-10ML — **1 x 10 mL**

Core Calibration Mix 23 Comps.	Target Wt. %
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
n-Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

CD Provided

CALAMTS™
Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

Daily Quality Control Standard

Without Internal Standard

D-5769-QC-10ML — **1 x 10 mL**
D-5769-QC-10ML-PAK *SAVE* — **5 x 10 mL**
14 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

4 comp. Deuterated Internal Std. Mix

M-GRA-IS-R-10ML — **1 x 10 mL**
M-GRA-IS-R-10ML-PAK *SAVE* — **5 x 10 mL**
4 comps.

	Mix Ratio		Mix Ratio
Benzene-d_6	2 mL	Naphthalene-d_8	1 gm
Ethylbenzene-d_{10}	2 mL	Toluene-d_8	7 mL

3 comp. Deuterated Internal Std. Mix

M-GRA-IS-5ML — **1 x 5 mL**
M-GRA-IS-5ML-PAK *SAVE* — **5 x 5 mL**
3 comps.

	Mix Ratio		Mix Ratio
Benzene-d_6	2 mL	Naphthalene-d_8	1 gm
Ethylbenzene-d_{10}	2 mL		

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

With 3 Component Internal Standard

Calibration Curve

With Internal Standard

D-5769-CAL/IS-SET **5 x 1 mL**

Core Calibr. Mix 24 Comps.	Std. 1 Target Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
m-Xylene	6.19	3.48	1.856	0.9598	0.4883
p-Xylene	6.19	3.48	1.856	0.9598	0.4883
o-Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	-----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard

With Internal Standard

D-5769-ADD/IS **1 x 1 mL**

Core Calibration Mix 24 Comps.	Target Wt. %
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
n-Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

Technical Note

A sixth standard has been formulated to improve the linearity at the high end of the calibration curve. This can be especially helpful in the quantification of gasoline containing high levels of toluene.

Internal Standard

M-GRA-IS

The 3 comp. Internal Standard Mix (M-GRA-IS) is combined with the 24 component Core Calibration Curve Mixes above in a 5 to 100 weight ratio to formulate these 27 comp. calibration solutions.

	Mix ratio
Benzene-d_6	2 mL
Ethylbenzene-d_{10}	2 mL
Naphthalene-d_8	1 gm

Daily Quality Control Standard

With Internal Standard

D-5769-QC/IS-5ML **1 x 5 mL**
D-5769-QC/IS-5ML-PAK *SAVE* **5 x 5 mL**
17 comps.

	Wt. Ratio
n-Hexane	12
n-Heptane	17
n-Octane	17
n-Decane	12
n-Dodecane	5
Isooctane	12
Benzene	1

	Wt. Ratio
Toluene	9
Ethylbenzene	3
m-Xylene	3
o-Xylene	3
1,2,4-Trimethylbenzene	3
1,2,4,5-Tetramethylbenzene	2
Naphthalene	1

Includes M-GRA-IS (3 comp. mix) added in 5 to 100 weight ratio

Resolution Standard

M-GRA-RES **1 x 1 mL**
M-GRA-RES-PAK *SAVE* **5 x 1 mL**
3 comps.

	Wt. %
1,3,5-Trimethylbenzene	3.0
1-Methyl-2-ethylbenzene	3.0
Isooctane	94.0

3 comp. Deuterated Internal Std. Mix

M-GRA-IS-5ML **1 x 5 mL**
M-GRA-IS-5ML-PAK *SAVE* **5 x 5 mL**
3 comps.

	Mix Ratio
Benzene-d_6	2 mL
Ethylbenzene-d_{10}	2 mL
Naphthalene-d_8	1 gm

Sensitivity Test Solution

M-GRA-ST **1 x 1 mL**
M-GRA-ST-PAK *SAVE* **5 x 1 mL**
100 µg/mL in Isooctane

1,4-Diethyl benzene

Fragmentation Pattern Standard

M-GRA-FP **1 x 1 mL**
M-GRA-FP-PAK *SAVE* **5 x 1 mL**
3.0% w/w in Isooctane

1,2,3-Trimethylbenzene

Mass Scan Range Standard

M-GRA-MSR **1 x 1 mL**
M-GRA-MSR-PAK *SAVE* **5 x 1 mL**
3.0% w/w in Isooctane

Toluene

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

With 4 Component Internal Standard (includes Toluene-d_8)

Calibration Curve with Deuterated Toluene

With Internal Standard

D-5769-CAL/IS-R-SET **5 x 1 mL**

Core Calibr. Mix 24 Comps.	Std. 1 Target Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
m-Xylene	6.19	3.48	1.856	0.9598	0.4883
p-Xylene	6.19	3.48	1.856	0.9598	0.4883
o-Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	-----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard

With Internal Standard

D-5769-ADD/IS-R **1 x 1 mL**

Core Calibration Mix 24 Comp.	Target Wt. %
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
n-Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

Internal Standard

M-GRA-IS-R

	Mix ratio
Benzene-d_6	2 mL
Ethylbenzene-d_{10}	2 mL
Naphthalene-d_8	1 gm
Toluene-d_8	7 mL

The 4 comp. Internal Standard Mix (M-GRA-IS-R) is combined with the 24 component core calibration curve mixtures above in a 12 to 100 weight ratio to formulate these 28 component calibration solutions.

Daily Quality Control Standard

With Internal Standard

D-5769-QC/IS-R-5ML **1 x 5 mL**

D-5769-QC/IS-R-5ML-PAK ***SAVE*** **5 x 5 mL**

18 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

Includes M-GRA-IS-R (4 comp. mix) added in 12 to 100 weight ratio

Sensitivity Test Solution

M-GRA-ST **1 x 1 mL**

M-GRA-ST-PAK ***SAVE*** **5 x 1 mL**

100 µg/mL in Isooctane

1,4-Diethyl benzene

Resolution Standard

M-GRA-RES **1 x 1 mL**

M-GRA-RES-PAK ***SAVE*** **5 x 1 mL**

3 comps.

	Wt. %
1,3,5-Trimethylbenzene	3.0
1-Methyl-2-ethylbenzene	3.0
Isooctane	94.0

4 comp. Deuterated Internal Std. Mix

M-GRA-IS-R-10ML **1 x 10 mL**

M-GRA-IS-R-10ML-PAK ***SAVE*** **5 x 10 mL**

	Mix Ratio		Mix Ratio
Benzene-d_6	2 mL	Naphthalene-d_8	1 gm
Ethylbenzene-d_{10}	2 mL	Toluene-d_8	7 mL

Fragmentation Pattern Standard

M-GRA-FP **1 x 1 mL**

M-GRA-FP-PAK ***SAVE*** **5 x 1 mL**

3.0 w/w in Isooctane

1,2,3-Trimethylbenzene

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Proposed / Promulgated Method Modifications

Calibration Curve

With Chlorinated Internal Standard

D-5769-CAL/IS-R2-SET **5 x 1 mL**

Core Calibr. Mix 24 Comps.	Std. 1 Target Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
m-Xylene	6.19	3.48	1.856	0.9598	0.4883
p-Xylene	6.19	3.48	1.856	0.9598	0.4883
o-Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	-----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard

With Internal Standard

D-5769-ADD/IS-R2 **1 x 1 mL**

Core Calibration Mix 24 Components	Target Wt.%
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
n-Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

CD Provided

CALAMTS™
Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

Internal Standard

M-GRA-IS-R2

	Mix ratio
Chlorobenzene	2 mL
1,2-Dichlorobenzene	2 mL
1,2,4-Trichlorobenzene	1 mL

The 3 comp. Internal Standard Mix (M-GRA-IS-R2) is combined with the 24 Comp. Core Calibration Curve mixtures above in a 5 to 100 weight ratio to formulate these 27 Comp. calibration solutions.

Daily QC Standard

With Internal Standard

D-5769-QC/IS-R2-5ML **1 x 5 mL**
D-5769-QC/IS-R2-5ML-PAK ***SAVE*** **5 x 5 mL**
17 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

Includes M-GRA-IS-R2 added in 5 to 100 weight ratio.

Sensitivity Test Solution

M-GRA-ST **1 x 1 mL**
M-GRA-ST-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL in Isooctane

1,4-Diethyl benzene

Fragmentation Pattern Standard

M-GRA-FP **1 x 1 mL**
M-GRA-FP-PAK ***SAVE*** **5 x 1 mL**
3.0 w/w in Isooctane

1,2,3-Trimethylbenzene

3 comp. Chlorinated Internal Std. Mix

M-GRA-IS-R2-VAP **set of 25 x 1 mL**
M-GRA-IS-R2-25ML **1 x 25 mL**
3 comps.

	Mix Ratio
Chlorobenzene	2 mL
1,2-Dichlorobenzene	2 mL
1,2,4-Trichlorobenzene	1 mL

Resolution Standard

M-GRA-RES **1 x 1 mL**
M-GRA-RES-PAK ***SAVE*** **5 x 1 mL**
3 comps.

	Wt. %
1,3,5-Trimethylbenzene	3.0
1-Methyl-2-ethylbenzene	3.0
Isooctane	94

ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Special QA/QC Formulations

Daily QC Standard
Without Internal Standard

M-GRA-QC-R-10ML — **1 x 10 mL**
M-GRA-QC-R-10ML-PAK *SAVE* — **5 x 10 mL**
15 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Ethylbenzene	3
n-Heptane	17	*m*-Xylene	3
n-Octane	17	*o*-Xylene	3
n-Decane	12	1,2,4-Trimethylbenzene	3
n-Dodecane	5	1,2,4,5-Tetramethylbenzene	1
Isooctane	12	Pentamethylbenzene	1
Benzene	1	1-Methylnaphthalene	1
Toluene	9		

For use with any M-GRA Calibration Curve

Daily QC Standard
With Internal Standard M-GRA-IS

M-GRA-QC-R/IS-5ML — **1 x 5 mL**
M-GRA-QC-R/IS-5ML-PAK *SAVE* — **5 x 5 mL**
18 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Ethylbenzene	3
n-Heptane	17	*m*-Xylene	3
n-Octane	17	*o*-Xylene	3
n-Decane	12	1,2,4-Trimethylbenzene	3
n-Dodecane	5	1,2,4,5-Tetramethylbenzene	1
Isooctane	12	Pentamethylbenzene	1
Benzene	1	1-Methylnaphthalene	1
Toluene	9		

Includes M-GRA-IS combined with the above 15 comp. Core Mix in a 5 to 100 weight ratio.

3 comp. Deuterated Internal Std. Mix

M-GRA-IS-5ML — **1 x 5 mL**
M-GRA-IS-5ML-PAK *SAVE* — **5 x 5 mL**
3 comps.

	Mix Ratio
Benzene-d_6	2 mL
Ethylbenzene-d_{10}	2 mL
Naphthalene-d_8	1 gm

4 comp. Deuterated Internal Std. Mix

M-GRA-IS-R-10ML — **1 x 10 mL**
M-GRA-IS-R-10ML-PAK *SAVE* — **5 x 10 mL**
4 comps.

	Mix Ratio
Benzene-d_6	2 mL
Ethylbenzene-d_{10}	2 mL
Naphthalene-d_8	1 gm
Toluene-d_8	7 mL

Daily QC Standard
With Internal Standard M-GRA-IS-R

M-GRA-QCR/IS-R-5ML — **1 x 5 mL**
M-GRA-QCR/IS-R-5ML-PAK *SAVE* — **5 x 5 mL**
19 comps.

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Ethylbenzene	3
n-Heptane	17	*m*-Xylene	3
n-Octane	17	*o*-Xylene	3
n-Decane	12	1,2,4-Trimethylbenzene	3
n-Dodecane	5	1,2,4,5-Tetramethylbenzene	1
Isooctane	12	Pentamethylbenzene	1
Benzene	1	1-Methylnaphthalene	1
Toluene	9		

Includes M-GRA-IS-R combined with the above 15 comp. Core Mix in a 12 to 100 weight ratio.

Aromatics for Analysis by GC/MS (Daily QC Standards) Set

Original Formulations

M-GRA-K1-SET — **Set**

Set includes:	Units	Function
M-GRA-CAL/IS-SET	5 x 1 mL	5 Point Curve with 3 Internal Standards
M-GRA-QC/IS-5ML	1 x 5 mL	Daily QC with 3 Internal Standards
M-GRA-IS-5ML	1 x 5 mL	3 Component Internal Standard
M-GRA-ST	1 x 1 mL	Sensitivity Test Solution

Revision 5 F

M-GRA-K2-SET — **Set**

Set includes:	Units	Function
M-GRA-CAL/IS-SET	5 x 1 mL	5 Point Curve with 3 Internal Standards
M-GRA-ADD/IS	1 x 1 mL	6th Standard for Revison 5 F
M-GRA-QC/IS-5ML	1 x 5 mL	Daily QC with 3 Internal Standards
M-GRA-IS-5ML	1 x 5 mL	3 Component Internal Standard
M-GRA-ST	1 x 1 mL	Sensitivity Test Solution

4 Component Internal Standard Formulations

M-GRA-K4-SET — **Set**

Set includes:	Units	Function
M-GRA-CAL-R/IS-R-SET	5 x 1 mL	5 Point Curve with 4 Internal Standards
M-GRA-ADD/IS-R	1 x 1 mL	6th Standard for Revison 5 F
M-GRA-QC-R/IS-R-5ML	1 x 5 mL	Daily QC with 4 Internal Standards
M-GRA-IS-R-10ML	1 x 10 mL	4 Component Internal Standard
M-GRA-ST	1 x 1 mL	Sensitivity Test Solution

Technical Note

Used to meet the toluene-d_8 internal standard version recommended by a network of major petroleum refineries.

ASTM D5769 Additional Internal, Deuterated and Quality Control Standards

4 comp. Deuterated Internal Std. Mix

ASTM-P-0140-IS **1 x 10 mL**
ASTM-P-0140-IS-PAK *SAVE* **5 x 10 mL**
4 comps.

	Vol. %	Compound	Vol. %
Benzene-d_6	2	Naphthalene-d_8	1
Ethylbenzene-d_{10}	2	Isooctane *	balance

Performance Evaluation Standard

ASTM-P-0140-PES **1 x 1 mL**
ASTM-P-0140-PES-PAK *SAVE* **5 x 1 mL**
11 comps.

	Target Vol. %
Benzene	1
1,2-Diethylbenzene	0.005
1,3,5-Trimethylbenzene	1
1-Methyl-2-ethylbenzene	1
Styrene	0.1
Indene	0.1
Biphenyl	0.1
1,2,4,5-Tetramethylbenzene	1
1,2,3,5-Tetramethylbenzene	1
Hexadecane	1
Isooctane:Toluene (50:50) *	balance

4 comp. Deuterated Internal Std. Mix

ASTM-P-0140-IS2 **1 x 10 mL**
ASTM-P-0140-IS2-PAK *SAVE* **5 x 10 mL**
5 comps.

	Vol. %		Vol. %
Benzene-d_6	2	Toluene-d_8	7
Ethylbenzene-d_{10}	2	Isooctane *	balance
Naphthalene-d_8	1		

Composition of Daily QC Standard

ASTM-P-0140-QC **1 x 10 mL**
ASTM-P-0140-QC-PAK *SAVE* **5 x 10 mL**
9 comps.

	Target Vol. %
Benzene	1
Toluene	10
Ethylbenzene	3
1,3-Dimethylbenzene	6
1,2-Dimethylbenzene	3
1,2,4-Trimethylbenzene	3
1,2-Diethylbenzene	0.02
Naphthalene	1
Isooctane (solvent) *	balance

* The isooctane balance is the amount of material to make up a 100 mL calibration standard. Certificate will reflect actual weight of each component in the 100 mL batch including the isooctane.

ASTM D5836 Determination of Diisocyanates (1,2-PP Method)

Diisocyanate Sets

D-5836-SET **9 x 1 mL**
D-5836-01N, D-5836-02N, D-5836-03N, D-5836-04N,
D-5836-01-DER, D-5836-02-DER, D-5836-03-DER, D-5836-04-DER, D-5836-DER-5ML-VAP

Underivatized Diisocyanates

Compound	Unit	Cat. No.
2,4-Toluene diisocyanate	100 mg	D-5836-01N
2,6-Toluene diisocyanate	100 mg	D-5836-02N
Hexamethylene diisocyanate	100 mg	D-5836-03N
4,4'-Methylenebis(phenyl isocyanate)	100 mg	D-5836-04N

Diisocyanate Storage - Refrig 0-5° C

Derivatized Diisocyanates (Weight Compensated to 1000 µg/mL of each Diisocyanate)

Compound	Cat. No.	1 mL
N,N'-(4-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-21-4 **(2,4-TDIP)**	D-5836-01-DER 2840 µg/mL in DMSO	
N,N'-(2-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] **(2,6-TDIP)**	D-5836-02-DER 2840 µg/mL in DMSO	
N,N'-1,6-Hexanediylbis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-27-0 **(1,6-HDIP)**	D-5836-03-DER 2900 µg/mL in DMSO	
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-24-7 **(4,4'-MDIP)**	D-5836-04-DER 2280 µg/mL in DMSO	

Derivatizing Agents

1-(2-Pyridyl)piperazine 34803-66-2	**D-5836-DER-5ML-VAP** 2 mg/mL in CH_2Cl_2	4 x 5 mL

Individual Derivatized Diisocyanates

N,N'-(4-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-21-4 **(2,4-TDIP)**	D-5836-01A-DER 1000 µg/mL in DMSO
N,N'-(2-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] **(2,6-TDIP)**	D-5836-02A-DER 1000 µg/mL in DMSO
N,N'-1,6-Hexanediylbis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-27-0 **(1,6-HDIP)**	D-5836-03A-DER 1000 µg/mL in DMSO
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-24-7 **(4,4'-MDIP)**	D-5836-04A-DER 1000 µg/mL in DMSO

ASTM D5863 Ni, V, Fe, & Na in Crude Oils & Residual Fuels by Flame AA Spectrometry

see page 379

ASTM D5986 Oxygenates, Benzene, Toluene, C8-C12, Aromatics & Total Aromatics in Finished Gasolines by GC/FTIR

Daily QC Standard

Without Internal Standard

M-GRA-QC-10ML **1 x 10 mL**
M-GRA-QC-10ML-PAK ***SAVE*** **5 x 10 mL**

	Wt. Ratio		Wt. Ratio
n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	*m*-Xylene	3
n-Decane	12	*o*-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1	13 Comp. Core Mix	100

Technical Note

This quality control standard was formulated to meet Section 11 of ASTM D-5986 specification which stipulates “analyze the quality control reference material before every batch of samples. Bracket the samples with the reference materials”.

Cross Reference Table
ASTM IP ISO DIN JIS AFNOR
see page 265

ASTM D6160 Polychlorinated Biphenyls (PCBs in Waste Materials by GC)

Aroclor Standards

Aroclor #	35 µg/mL in Isooctane 1 mL Cat. No.	35 µg/mL in MeOH 1 mL Cat. No.	1000 µg/mL in Hexane 1 mL Cat. No.
Aroclor 1016	C-216S	C-216S-M	C-216S-H-10X
Aroclor 1221	C-221S	C-221S-M	C-221S-H-10X
Aroclor 1232	C-232S	C-232S-M	C-232S-H-10X
Aroclor 1242	C-242S	C-242S-M	C-242S-H-10X
Aroclor 1248	C-248S	C-248S-M	C-248S-H-10X
Aroclor 1254	C-254S	C-254S-M	C-254S-H-10X
Aroclor 1260	C-260S	C-260S-M	C-260S-H-10X
Aroclor 1262	C-262S	C-262S-M	C-262S-H-10X
Aroclor 1268	C-268S	C-268S-M	C-268S-H-10X

ASTM D6258 Solvent Red 164 Dye Concentration in Diesel Fuels

Stock Solvent Red 26 Standard

D-6258-CONC-5ML **1 x 5 mL**

Solvent Red 26 @ 300 µg/mL in Xylene

D-6258 Calibration Curve

D-6258-5ML-SET **6 x 5 mL**

Set includes the following Cat. No.'s

Description	Cat. No	Unit
Xylene Blank	D-6258-BL	1 x 5 mL
Solvent Red 26 Dye @ 3 µg/mL in Xylene	D-6258-01	1 x 5 mL
Solvent Red 26 Dye @ 6 µg/mL in Xylene	D-6258-02	1 x 5 mL
Solvent Red 26 Dye @ 9 µg/mL in Xylene	D-6258-03	1 x 5 mL
Solvent Red 26 Dye @ 12 µg/mL in Xylene	D-6258-04	1 x 5 mL
Solvent Red 26 Dye @ 15 µg/mL in Xylene	D-6258-05	1 x 5 mL

Technical Note

Solvent Red 26 is the azo dye standard against which the concentration of Solvent Red 164 is measured. The visible spectrum of Solvent Red 164 is virtually identical to the spectrum of Solvent Red 26.

ASTM D6293 Oxygenates & Paraffin, Olefin, Naphthene, Aromatics (O-PONA) Hydrocarbon types in Low-Olefin Spark-Ignition Engine Fuels by GC

O-PONA System Validation Mixture

ASTM-P-0080 **1 x 1 mL**

ASTM-P-0080-PAK *SAVE* **5 x 1 mL**

33 comps.

	Wt./Wt. %		Wt./Wt. %
Cyclopentane	1.5	Benzene	2.5
n-Pentane	1.5	Toluene	2.5
Cyclohexane	2.0	*trans*-Decahydronaphthelene	3.5
2,3-Dimethylbutane	2.0	*n*-Tetradecane	2.0
n-Hexane	2.0	Ethylbenzene	3.5
1-Hexene	1.5	*o*-Xylene	3.0
Methylcyclohexane	3.5	*n*-Propylbenzene	3.5
4-Methyl-1-hexene	1.5	1,2,4-Trimethylbenzene	3.0
n-Heptane	3.0	1,2,3-Trimethylbenzene	2.0
cis-1,2-Dimethylcyclohexane	4.5	1,2,4,5-Tetramethylbenzene	2.0
Isooctane	4.0	Pentamethylbenzene	2.5
n-Octane	4.0	Ethanol	5.0
1,2,4-Trimethylcyclohexane	3.5	*t*-Butanol	4.0
n-Nonane	3.0	MtBE	8.0
n-Decane	3.5	ETBE	3.0
n-Undecane	2.0	TAME	5.0
n-Dodecane	2.0		

O-PONA Olefin Mix

ASTM-P-0081 **1 x 1 mL**

ASTM-P-0081-PAK **5 x 1 mL**

At stated conc. in Hexane:Heptane (50:50)

5 comps.

	Wt./Wt. %
1-Pentene	5.0
1-Hexene	2.0
1-Heptene	2.0
1-Octene	2.0
1-Nonene	3.0

O-PONA Paraffin Mixes

ASTM-P-0082 **1 x 1 mL**

ASTM-P-0082-PAK **5 x 1 mL**

At stated conc. in Hexane:Heptane (50:50)

2 comps.

	Wt./Wt. %
n-Nonane	5.0
n-Decane	2.0

ASTM-P-0082-R1 **1 x 1 mL**

ASTM-P-0082-R1-PAK **5 x 1 mL**

At stated conc. in Hexane:Heptane (50:50)

2 comps.

	Wt./Wt. %
n-Nonane	3.0
n-Decane	3.0

ASTM D6296 Total Olefins in Spark-Ignition Engine Fuels by Multidimensional GC

System Setup & Verification Standard Set

D-6296-VER-SET — **2 x 1 mL (D-6296-VER1, D-6296-VER2)**

D-6296-VER-SET-PAK — *SAVE* **5 x (2 x 1 mL)**
Set of 5 each **(D-6296-VER1, D-6296-VER2)**

System Setup & Verification 1

D-6296-VER1 — **1 x 1 mL**
2 comps.

	Wt. %		Wt. %
MTBE	5%	Isooctane	95%

System Setup & Verification 2

D-6296-VER2 — **1 x 1 mL**
2 comps.

	Wt. %		Wt. %
ETBE	5%	Isooctane	95%

Calibration Standard with MTBE

D-6296-CAL1 — **1 x 1 mL**
D-6296-CAL1-PAK — *SAVE* **5 x 1 mL**
10 comps.

	Wt. %		Wt. %
Pentene	1.0	Decene	1.0
Hexene	1.0	Undecane	1.0
Heptene	1.0	Dodecane	1.0
Octene	1.0	Isooctane	87.0
Nonene	1.0	MTBE	5.0

Calibration Standard with ETBE

D-6296-CAL2 — **1 x 1 mL**
D-6296-CAL2-PAK — *SAVE* **5 x 1 mL**
11 comps.

	Wt. %		Wt. %
Pentene	1.0	Decane	1.0
Hexene	1.0	Undecane	1.0
Heptene	1.0	Dodecane	1.0
Octene	1.0	Isooctane	86.0
Nonene	1.0	ETBE	5.0
Decene	1.0		

Isooctane Blank Compensation Standard

D-6296-BL — **1 x 5 mL**

Isooctane (Neat)

ASTM D6304 Determination of Water in Petroleum Products Lubricating oil, and additives by Coulometric Karl Fischer Titration

see page 267

ASTM D6334 Sulfur in Gasoline by Wavelength Dispersive X-Ray Fluorescence

see pages 269-268

ASTM D6352 Boiling Range Distribution of Petroleum Distillates from 174 to 700ºC by GC

Polywax 500®

ASTM-P-0051N-2G — **2 grams**

Polywax 500

Polywax 655®

ASTM-P-0053N-2G — **2 grams**

Polywax 655

Hydrocarbon Window Defining Standard

DRH-008S-R2 — **1 x 1 mL**
DRH-008S-R2-PAK — *SAVE* **5 x 1 mL**
500 µg/mL each in Chloroform — 35 comps.

Octane	Nonadecane	Triacontane
Nonane	Phytane	*n*-Hentriacontane
Decane	Eicosane	Dotriacontane
Undecane	Heneicosane	Tritriacontane
Dodecane	Docosane	Tetratriacontane
Tridecane	Tricosane	Pentatriacontane
Tetradecane	Tetracosane	Hexatriacontane
Pentadecane	Pentacosane	Heptatriacontane
Hexadecane	Hexacosane	Octatriacontane
Heptadecane	Heptacosane	Nonatriacontane
Octadecane	Octacosane	Tetracontane
Pristane	Nonacosane	

Polywax 850®

ASTM-P-0137N-2G — **2 grams**

Polywax 850

Polywax 1000®

ASTM-P-0138N-2G — **2 grams**

Polywax 1000

Calibration Mix

DRH-002N — **100 mg**
DRH-002N-10X — **1 gm**
17 comps.

	Wt. %		Wt. %
n-Hexane	6	*n*-Octadecane	5
n-Heptane	6	*n*-Eicosane	2
n-Octane	8	*n*-Tetracosane	2
n-Nonane	8	*n*-Octacosane	1
n-Decane	12	*n*-Dotriacontane	1
n-Undecane	12	*n*-Hexatriacontane	1
n-Dodecane	12	*n*-Tetracontane	1
n-Tetradecane	12	*n*-Tetratetracontane	1
n-Hexadecane	10		

Column Test Mixture

D-2887 — **1 x 1 mL**
1% w/v in n-Octane — 2 comps.

n-Hexadecane	*n*-Octadecane

ASTM D6378 Vapor Pressure (VPx) of Petroleum Products, Hydrocarbons, & Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)

see page 279

ASTM D6379 Aromatic Hydrocarbon Types in Aviation Fuels & Petroleum Distillates - HPLC method with Refractive Index

System Resolution Standards

D-6379-SRS 1 x 1 mL
D-6379-SRS-PAK *SAVE* 5 x 1 mL
At stated conc. (mg/mL) in n-Heptane 3 comps.

Cyclohexane	10
o-Xylene	0.5
1-Methyl naphthalene	0.05

D-6379-SRS-R1 1 x 1 mL
D-6379-SRS-R1-PAK *SAVE* 5 x 1 mL
At stated conc. (mg/mL) in n-Heptane 3 comps.

Cyclohexane	10
o-Xylene	5
1-Methyl naphthalene	0.5

Calibration Curves

D-6379-SET 4 x 1 mL
D-6379-SET-PAK *SAVE* 5 x (4 x 1 mL)
At stated conc. (mg/mL) in n-Heptane

Analyte	Std. 1	Std. 2	Std. 3	Std. 4
Cyclohexane	5	2	0.5	0.1
o-Xylene	15	5	1.0	0.1
1-Methyl naphthalene	5	1.0	0.2	0.05

D-6379-10X-SET 4 x 1 mL
D-6379-10X-SET-PAK *SAVE* 5 x (4 x 1 mL)
At stated conc. (mg/mL) in n-Heptane

Analyte	Std. 1	Std. 2	Std. 3	Std. 4
Cyclohexane	50	20	5	1
o-Xylene	150	50	10	1
1-Methyl naphthalene	50	10	2	0.5

ASTM D6417 Estimation of Engine Oil Volatility by Capillary GC

see page 298

ASTM D6428 Sulfur by Combustion and Electrochemical Detection

D-6428-R1-100ML-SET 7 x 100 mL
D-6428-R1-SET 7 x 1 mL
In Isooctane

Description	D-6428-R1-100ML-SET 7 x 100 mL	D-6428-R1-SET 7 x 1 mL
Sulfur Blank	D-6428-BL-100ML	D-6428-BL
Sulfur @ 0.1 µg/g	D-6428-0.1X-100ML	D-6428-0.1X
Sulfur @ 0.5 µg/g	D-6428-0.5X-100ML	D-6428-0.5X
Sulfur @ 1.0 µg/g	D-6428-1X-100ML	D-6428-1X
Sulfur @ 2.5 µg/g	D-6428-2.5X-100ML	D-6428-2.5X
Sulfur @ 5.0 µg/g	D-6428-5X-100ML	D-6428-5X
Sulfur @ 10 µg/g	D-6428-10X-100ML	D-6428-10X

D-6428-R2-100ML-SET 6 x 100 mL
D-6428-R2-SET 6 x 1 mL
In Isooctane

Description	D-6428-R2-100ML-SET 6 x 100 mL	D-6428-R2-SET 6 x 1 mL
Sulfur Blank	D-6428-BL-100ML	D-6428-BL
Sulfur @ 10 µg/g	D-6428-10X-100ML	D-6428-10X
Sulfur @ 25 µg/g	D-6428-25X-100ML	D-6428-25X
Sulfur @ 50 µg/g	D-6428-50X-100ML	D-6428-50X
Sulfur @ 75 µg/g	D-6428-75X-100ML	D-6428-75X
Sulfur @ 100 µg/g	D-6428-100X-100ML	D-6428-100X

Technical Note

Sulfur introduced using di-n-butyl sulfide

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

ASTM D6443 Ca, Cl, Cu, Mg, P, S, Zn in Unused Lubricating Oils & Additives by Wave-length Dispersive X-ray Fluorescence & Spectrometry

see pages 381-382

ASTM D6445 Sulfur in Gasoline by ED - XRF

see pages 268-269

ASTM D6481 P, S, Ca and Zn in Lube Oils by ED-XRF

see pages 380-382

ASTM D6550 Olefin Content of Gasolines by SFC

Stock Olefin Calibration Standard

D-6550-CONC 1 x 1 mL
D-6550-CONC-5ML 1 x 5 mL
At stated Conc. by Wt. % 15 comps.

	Wt. %		Wt. %		Wt. %
1-Nonene	2.5	2-Methyl-1,3-butadiene	5	2-Methyl-2-pentene	10
Cyclohexene	5	4-Methyl-1-pentene	5	1-Heptene	10
1-Hexene	5	1,5-Hexadiene	3	2-Methyl-1-octene	2.5
1-Octene	5	3-Methyl-1,3-pentadiene	2	2-Methyl-1-heptene	5
1-Decene	5	2-Methyl-1-butene	25	5-Methyl-1-hexene	10

ASTM D6584 Free and Total Glycerin in Biodiesel by GC

Compound	Conc.		Matrix	Cat. No.	Unit
Glycerin	0.5	mg/mL	Pyridine	BF-D-6584-01 ❄	/ 2 mL
Monoolein	5	mg/mL	Pyridine	BF-D-6584-02 ❄	/ 2 mL
1,3-Diolein	5	mg/mL	Pyridine	BF-D-6584-03 ❄	/ 2 mL
Triolein	5	mg/mL	Pyridine	BF-D-6584-04 ❄	/ 2 mL
(S)-(-)-1,2,4-Butanetriol	1	mg/mL	Pyridine	BF-D-6584-05-IS ❄	/ 5 mL
Tricaprin	8	mg/mL	Pyridine	BF-D-6584-06 ❄	/ 5 mL
MSTFA	5	mL	Neat	BF-D-6584-07N ❄	/ 5 mL
Set of 7 above compounds				**BF-D-6584-SET** ❄	**7 units**
Mix of above compounds, on right (MSTFA separate)					
Biofuel 20	0.5	mg/mL	CH_2Cl_2	BF-FU-030-D	/ 2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-030-D-40X	/ 2 mL
Biofuel 100 Consumer grade	0.5	mg/mL	CH_2Cl_2	BF-FU-029-D	/ 2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-029-40X	/ 2 mL
Biofuel 100	0.5	mg/mL	CH_2Cl_2	BF-FU-032-D	/ 2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-032-D-40X	/ 2 mL

ASTM D6584 Mixture

BF-D-6584-MIX ❄ **1 x 5 mL**
At stated conc. in Pyridine 6 comps.

Glycerol	0.5 mg/mL
Monoolein	5 mg/mL
1,3-Diolein	5 mg/mL
Trioctadecenoin (Olein)	5 mg/mL
(S)-(-)-1,2,4-Butanetriol	1 mg/mL
Tricaprin	8 mg/mL

Note: MSTFA (BF-D-6584-07N) can be ordered separately.

EN 14105 Free and Total Glycerin in Biodiesel by GC NEW

EN 14105 Biofuel Glyceride Solution I

EN-14105-01 ❄ **1 x 1 mL**
At stated conc. (µg/mL) in Pyridine 6 comps.

(S)-(-)-1,2,4-Butanetriol	80
Monoolein	250
Diolein	50
Triolein	50
Glycerol	5
Tricaprin	800

EN 14105 Biofuel Glyceride Solution II

EN-14105-02 ❄ **1 x 1 mL**
At stated conc. (µg/mL) in Pyridine 6 comps.

(S)-(-)-1,2,4-Butanetriol	80 µg/mL
Monoolein	600 µg/mL
Diolein	200 µg/mL
Triolein	150 µg/mL
Glycerol	20 µg/mL
Tricaprin	800 µg/mL

EN 14105 Biofuel Glyceride Solution III

EN-14105-03 ❄ **1 x 1 mL**
At stated conc. (µg/mL) in Pyridine 6 comps.

S)-(-)-1,2,4-Butanetriol	80 µg/mL
Monoolein	950 µg/mL
Diolein	350 µg/mL
Triolein	300 µg/mL
Glycerol	35 µg/mL
Tricaprin	800 µg/mL

EN 14105 Biofuel Glyceride Solution IV

EN-14105-04 ❄ **1 x 1 mL**
At stated conc. (µg/mL) in Pyridine 6 comps.

(S)-(-)-1,2,4-Butanetriol	80 µg/mL
Monoolein	1250 µg/mL
Diolein	500 µg/mL
Triolein	400 µg/mL
Glycerol	50 µg/mL
Tricaprin	800 µg/mL

ASTM D6591-11 (IP 391) Aromatic Hydrocarbon Types in Middle Distillates - HPLC method with Refractive Index Detection

System Performance Standard

ASTM-P-0135 **1 x 5 mL**
ASTM-P-0135-PAK ***SAVE*** **5 x 5 mL**
At stated conc. (mg/mL) in n-Heptane 4 comps.

Cyclohexane	10
o-Xylene	5.0
Dibenzothiophene	0.5
9-Methylanthracene	0.5

IP 391-95 Calibration Curve

ASTM-P-0136-SET **4 x 1 mL**
At stated conc.(mg/mL) in n-Heptane

Analyte	Std. 1	Std. 2	Std. 3	Std. 4
Cyclohexane	50	20	5	1
o-Xylene	40	10	2.5	0.5
1-Methyl naphthalene	40	10	2.5	0.2
Phenanthrene	4	2	0.5	0.1

❄ ColdPAK required to maintain integrity of product.

ASTM D6751 & ASTM D5453 Sulfur as Di-n-butyl sulfide in Biodiesel

Sulfur in Biodiesel 5%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B5-BL	
5	0.0005	BF-5453-B5-5X-SET	2 x 100 mL
10	0.001	BF-5453-B5-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B5-15X-SET	2 x 100 mL
30	0.003	BF-5453-B5-30X	
50	0.005	BF-5453-B5-50X	
75	0.0075	BF-5453-B5-75X	
100	0.01	BF-5453-B5-100X	
200	0.02	BF-5453-B5-200X	
500	0.05	BF-5453-B5-500X	

Sulfur in Biodiesel 20%

0	0	BF-5453-B20-BL	
5	0.0005	BF-5453-B20-5X-SET	2 x 100 mL
10	0.001	BF-5453-B20-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B20-15X-SET	2 x 100 mL
30	0.003	BF-5453-B20-30X	
50	0.005	BF-5453-B20-50X	
75	0.0075	BF-5453-B20-75X	
100	0.01	BF-5453-B20-100X	
200	0.02	BF-5453-B20-200X	
500	0.05	BF-5453-B20-500X	

Technical Note

All products are refinery grade stock, unless specifically marked consumer grade.

Sulfur in Biodiesel 100%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B100-BL	
5	0.0005	BF-5453-B100-5X-SET	2 x 100 mL
10	0.001	BF-5453-B100-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B100-15X-SET	2 x 100 mL
30	0.003	BF-5453-B100-30X	
50	0.005	BF-5453-B100-50X	
75	0.0075	BF-5453-B100-75X	
100	0.01	BF-5453-B100-100X	
200	0.02	BF-5453-B100-200X	
500	0.05	BF-5453-B100-500X	

Technical Note

The 5, 10 and 15 ppm sulfurs are supplied as a set including a blank. We suggest using the blank for analysis to compensate for matrix interferences, such as low levels of native sulfur.

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

Note: 10,000 ppm = 1% Wt.

Physical Standards

Compound	Conc.		Matrix	Cat. No.	Unit
ASTM D2500					
Cloud Point	-16	˚C *	B5	BF-D-2500-B5	200 mL
	-14	˚C *	B20	BF-D-2500-B20	200 mL
	-1	˚C *	B100	BF-D-2500-B100	200 mL
ASTM D93 / EN-ISO 3679					
Flash Point	60	˚C *		BF-D-93-60C	200 mL
	65	˚C *		BF-D-93-65C	200 mL
	140	˚C *		BF-D-93-140C	200 mL
ASTM D4951 / EN 14107					
Phosphorus Content	0.001	% Wt.	B100	BF-D-4951-B100	100 g
ASTM D6304 / EN ISO 12937					
(KF) Water Content	60	µg/g		BF-KF-0.6X-5ML-VAP	10 x 5 mL
	100	µg/g		BF-KF-1X-5ML-VAP	10 x 5 mL
	1000	µg/g		BF-KF-10X-5ML-VAP	10 x 5 mL
	5000	µg/g		BF-KF-50X-5ML-VAP	10 x 5 mL
ASTM D6751 / UOP 391 / EN 14108 / EN 14109					
Sodium / Potassium	100	ppm	B100	BF-UOP-391-B100	100 g
EN 14538					
Calcium / Magnesium	100	ppm	B100	BF-14538-B100	100 g

* These are nomial values and the actual value will be recorded on the certificate.

UOP Standards

UOP (Universal Oil Products) methods were developed to facilitate the refining industry in analyzing refinery feeds, products and process streams for compostion, purity and physical and chemical properties. In additional to the products listed below, AccuStandard can custom formulate products to fit your exact needs. Please contact our Technical Service Department for additional information.

UOP Method 543 Standard

Non-Aromatic Hydrocarbons in High-Purity Aromatics by GC.

UOP-M-543-PAK **5 x 1 mL**

At stated Wt./Wt.% 2 comps.

	Wt./Wt.%
n-Dodecane	70
Toluene	30

UOP Method 551 Standard

Hexanes and Lower-Boiling Hydrocarbons in Olefin-Free Gasolines by GC. May also be used for UOP Method 690 - Octanes and Lower Boiling Hydrocarbons in Olefin-Free Gasolines by GC.

UOP-M-551-PAK **5 x 1 mL**

Equal Mass % 7 comps.

n-Hexane	o-Xylene
Benzene	m-Xylene
Toluene	p-Xylene
Ethylbenzene	

UOP Method 660 Standard

UOP-M-660-PAK **5 x 1 mL**

1% in Water

UOP-M-660-10X-PAK **5 x 1 mL**

10% in Water

UOP-M-660-0.1X-PAK **5 x 1 mL**

1000 ppm in Water

Tetramethylene sulfone

UOP Method 720 Standard

Impurities in High Purity p-Xylene by GC.

UOP-M-720-PAK **5 x 1 mL**

At stated Mass % 5 comps.

	Mass %
o-Xylene	0.1
m-Xylene	0.1
Ethylbenzene	0.1
n-Undecane	1.0
p-Xylene	98.7

UOP Method 744 Standard

Aromatics in Hydrocarbons by GC.

UOP-M-744-PAK **5 x 1 mL**

At stated Wt./Wt.% 8 comps.

	Wt./Wt.%
n-Heptane	25
Benzene	15
Toluene	20
m-Xylene	6.7
o-Xylene	6.6
p-Xylene	6.7
o-Ethyltoluene	10
1,2,3,4-Tetramethylbenzene	10

UOP Method 831 Standard

UOP-M-831-PAK **5 x 1 mL**

10 µg/g each in Sulfolane 5 comps.

Benzene	Isopropylbenzene
Toluene	n-Nonane
Ethylbenzene	

UOP Method 868 Standard

Trace Saturates in High Purity Aromatics by GC.

UOP-M-868-PAK **5 x 1 mL**

Stated conc. in Toluene 10 comps.

	µg/g
n-Butylcyclohexane	500
n-Propylcyclohexane	400
n-Decane	500
n-Nonane	500
n-Octane	300
n-Hexane	100
Ethylcyclohexane	300
Cyclohexane	100
n-Heptane	200
Methylcyclohexane	200

UOP Method 931 Standard

Trace Impurities in Mixed Xylenes by GC.

UOP-M-931-PAK **5 x 1 mL**

At stated Wt./Wt.% 5 comps.

	Wt./Wt.%
Benzene	2.0
Toluene	2.0
o-Ethyltoluene	2.0
n-Undecane	2.0
n-Heptane	92.0

Thousands of Standards, just a click away

AccuStandard.com

Skinner List for Refinery Waste

Semi-Volatiles

Base/Neutral Extractables

M-005B		**1 x 1 mL**
M-005B-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in CH_2Cl_2		
M-005B-10X		**1 x 1 mL**
M-005B-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2		27 comps.

- Anthracene
- Benzo[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[a]pyrene
- bis(2-Ethylhexyl)phthalate
- Butyl benzyl phthalate
- Chrysene
- Dibenz[a,h]acridine
- Dibenz[a,h]anthracene
- *o*-Dichlorobenzene
- *m*-Dichlorobenzene
- *p*-Dichlorobenzene
- Diethyl phthalate
- 7,12-Dimethylbenz[a]anthracene
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- Indene
- Fluoranthene
- 6-Methylchrysene
- 1-Methylnaphthalene
- Naphthalene
- Phenanthrene
- Pyrene
- Pyridine
- Quinoline

Acid Extractables

M-005A		**1 x 1 mL**
M-005A-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in CH_2Cl_2		
M-005A-10X		**1 x 1 mL**
M-005A-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2		8 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 4-Nitrophenol
- Phenol
- Thiophenol

Volatiles

M-005V		**1 x 1 mL**
M-005V-PAK	***SAVE***	**5 x 1 mL**
0.2 mg/mL each in MeOH		
M-005V-10X		**1 x 1 mL**
M-005V-10X-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in MeOH		14 comps.

- Benzene
- Carbon disulfide
- Chlorobenzene
- Chloroform
- 1,2-Dichloroethane
- 1,4-Dioxane
- Ethyl benzene
- Ethylene dibromide
- Methyl ethyl ketone
- Styrene
- Toluene
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Resolution Check for Fire Debris Analysis

ASTM E1387 Resolution Check Mix

ASTM-E1387		**1 x 1 mL**
ASTM-E1387-PAK	***SAVE***	**5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2		13 comps.

- Decane
- Dodecane
- Eicosane
- 2-Ethyltoluene
- 3-Ethyltoluene
- Hexadecane
- Hexane
- Octadecane
- Octane
- Tetradecane
- Toluene
- 1,2,4-Trimethylbenzene
- *p*-Xylene

ASTM E1618 Test Mix for Fire Debris Analysis

ASTM-E1618		**1 x 1 mL**
ASTM-E1618-PAK	***SAVE***	**5 x 1 mL**
0.05% v/v (0.50 µL/mL) each in CH_2Cl_2		13 comps.

- *n*-Decane
- *n*-Dodecane
- *n*-Eicosane
- *o*-Ethyltoluene
- *m*-Ethyltoluene
- *n*-Hexadecane
- *n*-Hexane
- *n*-Octadecane
- *n*-Octane
- *n*-Tetradecane
- Toluene
- 1,2,4-Trimethylbenzene
- *p*-Xylene

BioFuel Standards

ASTM, EN and other test methods have been developed to monitor the properties (physical and chemical), constituent distribution, impurities and suitability of use.

The source materials that are used to produce these fuels vary from plant oils, ethyl alcohol (usually from corn) and even waste products.

Biodiesel refineries have opened all over the world.

- The Minister for the Environment and Heritage of Australia signed the Fuel Standard (Biodiesel) which sets out the physical and chemical parameters with the associated test methods to determine compliance.
- In Germany the sale of biodiesel in gas stations is over 2 million cubic meters.
- In the USA, some state legislatures have mandated 2% biodiesel content in all diesels sold in those states.

ASTM D6584 / EN 14105 Free and Total Glycerin in Biodiesel by GC

Compound	Qty. /	Conc.	Matrix	Cat. No.	Unit
Glycerin	0.5	mg/mL	Pyridine	BF-D-6584-01 ❄	2 mL
Monoolein	5	mg/mL	Pyridine	BF-D-6584-02 ❄	2 mL
1,3-Diolein	5	mg/mL	Pyridine	BF-D-6584-03 ❄	2 mL
Triolein	5	mg/mL	Pyridine	BF-D-6584-04 ❄	2 mL
(S)-(-)-1,2,4-Butanetriol	1	mg/mL	Pyridine	BF-D-6584-05-IS ❄	5 mL
Tricaprin	8	mg/mL	Pyridine	BF-D-6584-06 ❄	5 mL
MSTFA	5	mL	Neat	BF-D-6584-07N ❄	5 mL
Set of 7 above compounds				**BF-D-6584-SET ❄**	**7 units**
Mix of above compounds, on right (MSTFA separate)					
Biofuel 20	0.5	mg/mL	CH_2Cl_2	BF-FU-030-D	2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-030-D-40X	2 mL
Biofuel 100 Consumer grade	0.5	mg/mL	CH_2Cl_2	BF-FU-029-D	2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-029-40X	2 mL
Biofuel 100	0.5	mg/mL	CH_2Cl_2	BF-FU-032-D	2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-032-D-40X	2 mL

ASTM D6584 Mixture

BF-D-6584-MIX **1 x 5 mL**

At stated conc. in Pyridine 6 comps.

Glycerol	0.5 mg/mL
Monoolein	5 mg/mL
1,3-Diolein	5 mg/mL
Trioctadecenoin (Olein)	5 mg/mL
(S)-(-)-1,2,4-Butanetriol	1 mg/mL
Tricaprin	8 mg/mL

Note: MSTFA (BF-D-6584-07N) can be ordered separately.

EN 14105 BioFuel Glyceride Solutions NEW

Solution I

EN-14105-01 ❄ **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	250
Diolein	50
Triolein	50
Glycerol	5
Tricaprin	8

Solution II

EN-14105-02 ❄ **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	600
Diolein	200
Triolein	150
Glycerol	20
Tricaprin	800

Solution III

EN-14105-03 ❄ **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	950
Diolein	350
Triolein	300
Glycerol	35
Tricaprin	800

Solution IV

EN-14105-04 ❄ **1 mL**

At stated (µg/mL) conc. in Pyridine 6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	1250
Diolein	500
Triolein	400
Glycerol	50
Tricaprin	800

EN 14103 Fatty Acid Methyl Esters (FAMEs)

The methyl esters in the mixture are those derived from typical glycerides present in biomass sources.

Soy & Corn

BF-SOY-ME ❄ **100 mg**

16:0 Palmitate	6% Wt.
18:0 Stearate	3% Wt.
20:0 Arachidate	3% Wt.
18:1 Oleate	35% Wt.
18:2 Linoleate	50% Wt.
18:3 Linolenate	3% Wt.

Rapeseed Oil

BF-RAP-ME ❄ **100 mg**

14:0 Myristate	1% Wt.
16:0 Palmitate	4% Wt.
18:0 Stearate	3% Wt.
20:0 Arachidate	3% Wt.
22:0 Behenate	3% Wt.
24:0 Lignocerate	3% Wt.
18:1 Oleate	60% Wt.
22:1 Erucate	5% Wt.
18:2 Linoleate	12% Wt.
18:3 Linolenate	5% Wt.
20:1 Eicosenoate	1% Wt.

Palm Kernel

BF-PALM-ME ❄ **100 mg**

8:0 Caprylate	7% Wt.
10:0 Caprate	5% Wt.
12:0 Laurate	48% Wt.
14:0 Myristate	15% Wt.
16:0 Palmitate	7% Wt.
18:0 Stearate	3% Wt.
18:1 Oleate	12% Wt.
18:2 Linoleate	3% Wt.

Beef Tallow & Palm Oil

BF-BT-ME ❄ **100 mg**

14:0 Myristate	2% Wt.
16:0 Palmitate	30% Wt.
16:1 Palmitoleate	3% Wt.
18:0 Stearate	14% Wt.
18:1 Oleate	41% Wt.
18:2 Linoleate	7% Wt.
18:3 Linolenate	3% Wt.

Percent Methanol Calibration Standard Set (EN 14110)

BF-MEOH-SET **5 x 1 mL**

BF-MEOH-1X (100 µg/g)
BF-MEOH-5X (500 µg/g)
BF-MEOH-10X (1000 µg/g)
BF-MEOH-25X (2500 µg/g)
BF-MEOH-50X (5000 µg/g)

Methanol in Water

Technical Note

All products are refinery grade stock, unless specifically marked consumer grade.

Technical Note

Individual mixes packaged under Nitrogen for stability.

❄ ColdPAK required to maintain integrity of product.

Fatty Acid Ethyl Esters (FAEEs)

Ethyl Esters in Soy & Corn

BF-SOY-EE	100 mg
16:0 Ethyl palmitate	6% Wt.
18:0 Ethyl stearate	3% Wt.
20:0 Ethyl arachidate	3% Wt.
18:1 Ethyl oleate	35% Wt.
18:2 Ethyl linoleate	50% Wt.
18:3 Ethyl linolenate	3% Wt.

Ethyl Esters in Rapeseed Oil

BF-RAP-EE	100 mg
14:0 Ethyl myristate	1% Wt.
16:0 Ethyl palmitate	4% Wt.
18:0 Ethyl stearate	3% Wt.
20:0 Ethyl arachidate	3% Wt.
22:0 Ethyl behenate	3% Wt.
24:0 Ethyl lignocerate	3% Wt.
18:1 Ethyl oleate	60% Wt.
22:1 Ethyl erucate	5% Wt.
18:2 Ethyl linoleate	12% Wt.
18:3 Ethyl linolenate	5% Wt.
20:1 Ethyl eicosenoate	1% Wt.

Ethyl Esters in Palm Kernel Oil

BF-PALM-EE	100 mg
8:0 Ethyl caprylate	7% Wt.
10:0 Ethyl caprate	5% Wt.
12:0 Ethyl laurate	48% Wt.
14:0 Ethyl myristate	15% Wt.
16:0 Ethyl palmitate	7% Wt.
18:0 Ethyl stearate	3% Wt.
18:1 Ethyl oleate	12% Wt.
18:2 Ethyl linoleate	3% Wt.

Ethyl Esters in Beef Tallow

BF-BT-EE	100 mg
14:0 Ethyl myristate	2% Wt.
16:0 Ethyl palmitate	30% Wt.
16:1 Ethyl palmitoleate	3% Wt.
18:0 Ethyl stearate	14% Wt.
18:1 Ethyl oleate	41% Wt.
18:2 Ethyl linoleate	7% Wt.
18:3 Ethyl linolenate	3% Wt.

	Neat (100 mg)	Solution (10 mg/mL in Hexane)	
Compound	Cat. No.	Cat. No.	1 mL
Ethyl palmitate (16:0)	FAEE-006N	FAEE-006S	
Ethyl stearate (18:0)	FAEE-007N	FAEE-007S	
Ethyl arachidate (20:0)	FAEE-008N	FAEE-008S	
Ethyl oleate (18:1)	FAEE-014N	FAEE-014S	
Ethyl linoleate (18:2)	FAEE-012N	FAEE-012S	
Ethyl linolenate (18:3)	FAEE-016N	FAEE-016S	
Ethyl myristate (14:0)	FAEE-005N	FAEE-005S	
Ethyl behenate (22:0)	FAEE-009N	FAEE-009S	
Ethyl lignocerate (24:0)	FAEE-010N	FAEE-010S	
Ethyl erucate (22:1)	FAEE-011N	FAEE-011S	
Ethyl caprylate (8:0)	FAEE-002N	FAEE-002S	
Ethyl caprate (10:0)	FAEE-003N	FAEE-003S	
Ethyl laurate (12:0)	FAEE-004N	FAEE-004S	
Ethyl palmitoleate (16:1)	FAEE-001N	FAEE-001S	
Ethyl nervonate (24:1)	FAEE-013N	FAEE-013S	
Ethyl heptadecanoate (17:0)	FAEE-015N	FAEE-015S	
Ethyl linolenate (gamma) (18:3)	FAEE-020N	FAEE-020S	

ASTM D6751 & ASTM D5453 Sulfur as Di-n-butyl sulfide in Biodiesel

Sulfur in Biodiesel 5%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B5-BL	
5	0.0005	BF-5453-B5-5X-SET	2 x 100 mL
10	0.001	BF-5453-B5-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B5-15X-SET	2 x 100 mL
30	0.003	BF-5453-B5-30X	
50	0.005	BF-5453-B5-50X	
75	0.0075	BF-5453-B5-75X	
100	0.01	BF-5453-B5-100X	
200	0.02	BF-5453-B5-200X	
500	0.05	BF-5453-B5-500X	

Sulfur in Biodiesel 20%

0	0	BF-5453-B20-BL	
5	0.0005	BF-5453-B20-5X-SET	2 x 100 mL
10	0.001	BF-5453-B20-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B20-15X-SET	2 x 100 mL
30	0.003	BF-5453-B20-30X	
50	0.005	BF-5453-B20-50X	
75	0.0075	BF-5453-B20-75X	
100	0.01	BF-5453-B20-100X	
200	0.02	BF-5453-B20-200X	
500	0.05	BF-5453-B20-500X	

Sulfur in Biodiesel 100%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B100-BL	
5	0.0005	BF-5453-B100-5X-SET	2 x 100 mL
10	0.001	BF-5453-B100-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B100-15X-SET	2 x 100 mL
30	0.003	BF-5453-B100-30X	
50	0.005	BF-5453-B100-50X	
75	0.0075	BF-5453-B100-75X	
100	0.01	BF-5453-B100-100X	
200	0.02	BF-5453-B100-200X	
500	0.05	BF-5453-B100-500X	

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for correction and should be purchased with the standard.

Note: 10,000 ppm = 1% Wt.

BioFuel Standards

Physical Standards

Compound	Conc.		Matrix	Cat. No.	Unit
ASTM D2500					
Cloud Point	-16	˚C *	B5	BF-D-2500-B5	200 mL
	-14	˚C *	B20	BF-D-2500-B20	200 mL
	-1	˚C *	B100	BF-D-2500-B100	200 mL
ASTM D93 / EN-ISO 3679					
Flash Point	60	˚C *		BF-D-93-60C	200 mL
	65	˚C *		BF-D-93-65C	200 mL
	140	˚C *		BF-D-93-140C	200 mL
ASTM D4951 / EN 14107					
Phosphorus Content	0.001	% Wt.	B100	BF-D-4951-B100	100 g
ASTM D6304 / EN ISO 12937					
(KF) Water Content	60	µg/g		BF-KF-0.6X-5ML-VAP	10 x 5 mL
	100	µg/g		BF-KF-1X-5ML-VAP	10 x 5 mL
	1000	µg/g		BF-KF-10X-5ML-VAP	10 x 5 mL
	5000	µg/g		BF-KF-50X-5ML-VAP	10 x 5 mL
ASTM D6751 / UOP 391 / EN 14108 / EN 14109					
Sodium / Potassium	100	ppm	B100	BF-UOP-391-B100	100 g
EN 14538					
Calcium / Magnesium	100	ppm	B100	BF-14538-B100	100 g

* These are nomial values and the actual value will be recorded on the certificate.

EN 14214 Wear Metals

Each is 100 grams at 500 µg/g concentration.

Compound	Matrix	Cat. No.	100 grams
Aluminum	B100	BF-WM-B100-01-0.5X	
Calcium	B100	BF-WM-B100-09-0.5X	
Chromium	B100	BF-WM-B100-13-0.5X	
Copper	B100	BF-WM-B100-15-0.5X	
Iron	B100	BF-WM-B100-27-0.5X	
Lead	B100	BF-WM-B100-29-0.5X	
Magnesium	B100	BF-WM-B100-32-0.5X	
Phosphorus	B100	BF-WM-B100-41-0.5X	
Potassium	B100	BF-WM-B100-43-0.5X	
Sodium	B100	BF-WM-B100-54-0.5X	
Zinc	B100	BF-WM-B100-70-0.5X	

Biofuel Metals Mix

Multi-Element Biofuel Standard

BF-WM-B100-MIX **100 g**
200 µg/g each in B100 5 comps.

Ca (Calcium)
K (Potassium)
Mg (Magnesium)
Na (Sodium)
P (Phosphorus)

Biofuel Blank

B100

BF-WM-B100-BL-1 **100 g**
BF-WM-B100-BL-5 **500 g**

Technical Note

All products are refinery grade stock, unless specifically marked consumer grade.

EN 15721 Ethanol Impurities NEW

Ethanol Impurities Solution A

EN-15721-A **1 mL**
1% w/w each in Ethanol 10 comps.

Methanol
Acetaldehyde
3-Methyl-1-butanol
2-Methyl-1-butanol
2-Methyl-1-propanol
2-Butanol
1-Butanol
1-Propanol
Ethyl acetate
Acetal

Internal Standard Solution A

EN-15721-A-IS **1 mL**
1 % w/w in Ethanol

3-Propanol

EN 15721 Solution A Set

EN-15721-A-SET **2 x 1 mL**
EN-15721-A and **EN-15721-A-IS**

TPH, Fuel and Hydrocarbons

Petroleum is a broadly defined class of liquid hydrocarbon mixtures that are used in a large variety of products for many different uses. In general, they are oil-based products that can be obtained by distillation and are normally used outside the refining industry. Petroleum products include aviation gasoline, motor gasoline, jet fuels, kerosene, gas/diesel oil, heavy fuel oil, naphtha, and lubricants among others.

Most analytical methods for petroleum products focus on the level of benzene, toluene, ethyl benzene and xylene (BTEX), the total petroleum hydrocarbon number (TPH) and the finger print of the petroleum product.

Individual Fuel and Hydrocarbons

Compound	Conc.	Matrix	Cat. No.	1 mL
5-alpha Androstane 438-22-2	1 mg/mL	CH_2Cl_2	GRH-IS	
	10 mg/mL	CH_2Cl_2	GRH-IS-10X	
Aviation (gas) (grade 100-LL)	0.5 mg/mL	MeOH	GA-004	
	20 mg/mL	MeOH	GA-004-40X	
	20 mg/mL	CH_2Cl_2	GA-004-D-40X	
Biodiesel 20	0.5 mg/mL	CH_2Cl_2	FU-030-D	
	20 mg/mL	CH_2Cl_2	FU-030-D-40X	
Biodiesel 100	0.5 mg/mL	CH_2Cl_2	FU-029-D	
	20 mg/mL	CH_2Cl_2	FU-029-D-40X	
Biodiesel 100 (refinery grade)	0.5 mg/mL	CH_2Cl_2	FU-032-D	
	20 mg/mL	CH_2Cl_2	FU-032-D-40X	
p-Bromofluorobenzene 460-00-4	2.5 mg/mL	Acetone	GARH-SS	
1-Chloro-4-fluorobenzene 352-33-0	2 mg/mL	MeOH	AK-101.0-IS-10X	
1-Chlorooctadecane 3386-33-2	1 mg/mL	Hexane	DRH-007-SS	
1-Chloro-4-fluorobenzene 352-33-0	1 mg/mL	CH_2Cl_2	GARH-IS	
2,5-Dibromotoluene 615-59-8	50 µg/mL	MeOH	GRH-004-SS	
	500 µg/mL	MeOH	GRH-004-SS-10X	
	5 mg/mL	MeOH	GRH-004-SS-100X	
Diesel	0.5 mg/mL	MeOH	FU-009	
	5 mg/mL	CH_2Cl_2	FU-009-D-10X	
	20 mg/mL	MeOH	FU-009-40X	
	20 mg/mL	CH_2Cl_2	FU-009-D-40X	
#1 Diesel - Low Sulfur	0.5 mg/mL	MeOH	FU-013	
	20 mg/mL	MeOH	FU-013-40X	
	20 mg/mL	CH_2Cl_2	FU-013-D-40X	
#2 Diesel 68334-30-5	50 mg/mL	Acetone	AK-102-LCS-R1-10X	
#2 Diesel (Extra Low Sulfur) 68476-43-6	0.5 mg/mL	MeOH	FU-017	
	5 mg/mL	CH_2Cl_2	FU-017-D-10X	
	5 mg/mL	Acetone	AK-102.0-LCS	
	50 mg/mL	Acetone	AK-102.0-LCS-10X	
	20 mg/mL	MeOH	FU-017-40X	
	20 mg/mL	CH_2Cl_2	FU-017-D-40X	
#2 Diesel (Low Sulfur) 25% Weathered	5 mg/mL	CH_2Cl_2	FD2-W25-10X	
#2 Diesel (Low Sulfur) 50% Weathered	5 mg/mL	CH_2Cl_2	FD2-W50-10X	
#2 Diesel (Low Sulfur) 75% Weathered	5 mg/mL	CH_2Cl_2	FD2-W75-10X	
#2 Diesel 25% Weathered	5 mg/mL	CH_2Cl_2	FD2-W25-R1-10X	
#2 Diesel 50% Weathered	5 mg/mL	CH_2Cl_2	FD2-W50-R1-10X	
#2 Diesel 75% Weathered	5 mg/mL	CH_2Cl_2	FD2-W75-R1-10X	
Docosane 629-97-0	50 % w/w	Toluene	D-5186-91-PM	
n-Dodecane 112-40-3	5 mg/mL	MeOH	AS-E0238	
	1.5 % w/w	Isooctane	M-GRA-SCS-AS	
#1 Fuel oil 70892-10-3	0.5 mg/mL	MeOH	FU-001	
	20 mg/mL	MeOH	FU-001-40X	
	20 mg/mL	CH_2Cl_2	FU-001-D-40X	
#2 Fuel oil 68476-30-2	0.5 mg/mL	MeOH	FU-002	
	20 mg/mL	MeOH	FU-002-40X	
	20 mg/mL	CH_2Cl_2	FU-002-D-40X	
#3 Fuel oil	0.5 mg/mL	Hexane	FU-003	
	20 mg/mL	Hexane	FU-003-40X	
	20 mg/mL	CH_2Cl_2	FU-003-D-40X	
#4 Fuel oil 68476-31-3	0.5 mg/mL	Hexane	FU-004	
	20 mg/mL	Hexane	FU-004-40X	
	20 mg/mL	CH_2Cl_2	FU-004-D-40X	
#6 Fuel Oil 68553-00-4	0.5 mg/mL	Hexane	FU-008	
	20 mg/mL	Hexane	FU-008-40X	
	20 mg/mL	CH_2Cl_2	FU-008-D-40X	
Gasoline Regular, unleaded	0.5 mg/mL	MeOH	GA-001	
	5 mg/mL	MeOH	GA-001-10X	
	20 mg/mL	MeOH	GA-001-40X	
	20 mg/mL	CH_2Cl_2	GA-001-D-40X	
Gasoline Premium	0.5 mg/mL	MeOH	GA-003	
	20 mg/mL	MeOH	GA-003-40X	
	20 mg/mL	CH_2Cl_2	GA-003-D-40X	
Hydraulic Fluid 64742-54-7	0.5 mg/mL	Hexane	FU-020-H	
	20 mg/mL	Hexane	FU-020-H-40X	
	20 mg/mL	CH_2Cl_2	FU-020-D-40X	
Jet Reference Fuel Type I	0.5 mg/mL	MeOH	FU-011	
	20 mg/mL	MeOH	FU-011-40X	
	20 mg/mL	CH_2Cl_2	FU-011-D-40X	
JP-4 Jet Fuel (weathered)	0.5 mg/mL	MeOH	FU-010	
	20 mg/mL	MeOH	FU-010-40X	
	20 mg/mL	CH_2Cl_2	FU-010-D-40X	
JP-5 Fuel	0.5 mg/mL	MeOH	FU-012	
	20 mg/mL	MeOH	FU-012-40X	
	20 mg/mL	CH_2Cl_2	FU-012-D-40X	
JP-7 Fuel	0.5 mg/mL	MeOH	FU-014	
	20 mg/mL	MeOH	FU-014-40X	
	20 mg/mL	CH_2Cl_2	FU-014-D-40X	
JP-8 Fuel	0.5 mg/mL	MeOH	FU-015	
	20 mg/mL	MeOH	FU-015-40X	
	20 mg/mL	CH_2Cl_2	FU-015-D-40X	
JP-TS Aviation Fuel 64742-47-8	0.5 mg/mL	MeOH	FU-016	
	20 mg/mL	MeOH	FU-016-40X	
	20 mg/mL	CH_2Cl_2	FU-016-D-40X	
JP-10 Aviation Fuel 2825-82-3	0.5 mg/mL	MeOH	FU-022	
	20 mg/mL	MeOH	FU-022-40X	
	20 mg/mL	CH_2Cl_2	FU-022-D-40X	
Kerosene 25% Weathered	5 mg/mL	CH_2Cl_2	FK-W25-10X	
Kerosene 50% Weathered	5 mg/mL	CH_2Cl_2	FK-W50-10X	
Kerosene 75% Weathered	5 mg/mL	CH_2Cl_2	FK-W75-10X	
Kerosene 8008-20-6	0.5 mg/mL	MeOH	FU-005	
	20 mg/mL	MeOH	FU-005-40X	
	5 mg/mL	CH_2Cl_2	FU-005-D-10X	
	20 mg/mL	CH_2Cl_2	FU-005-D-40X	
Lacquer Thinner	1 gram	Neat	HS-001N	
	0.5 mg/mL	MeOH	HS-001S	
	20 mg/mL	MeOH	HS-001S-40X	
	20 mg/mL	CH_2Cl_2	HS-001S-D-40X	
Mineral Spirits 8030-30-6	1 gram	Neat	HS-002N	
	0.5 mg/mL	MeOH	HS-002S	
	20 mg/mL	MeOH	HS-002S-40X	
	20 mg/mL	CH_2Cl_2	HS-002S-D-40X	
Naphtha 64742-89-8	1 gram	Neat	HS-003N	
	0.5 mg/mL	MeOH	HS-003S	
	20 mg/mL	MeOH	HS-003S-40X	
	20 mg/mL	CH_2Cl_2	HS-003S-D-40X	
Nonatriacontane 7194-86-7	750 µg/mL	Chloroform	DRH-FL-SS-R1	
	1 mg/mL	CS_2	DRH-FL-SS	
	3 mg/mL	CS_2	DRH-FL-SS-3X	
n-Pentadecane 629-62-9	5 mg/mL	MeOH	AS-E0241	
RFA Gasoline (oxygenate-free)	0.5 mg/mL	MeOH	GA-005	
	20 mg/mL	MeOH	GA-005-40X	
	20 mg/mL	CH_2Cl_2	GA-005-D-40X	
Regular Leaded Gasoline	0.5 mg/mL	MeOH	GA-002	
	20 mg/mL	MeOH	GA-002-40X	
	20 mg/mL	CH_2Cl_2	GA-002-D-40X	

Individual Fuels and Hydrocarbons continued on next page

TPH, Fuel and Hydrocarbons

Individual Fuel and Hydrocarbons

Compound	Conc.	Matrix	Cat. No. 1 mL
SAE 5W30 Motor oil	0.5 mg/mL	Hexane	FU-025-H
	20 mg/mL	Hexane	FU-025-H-40X
	20 mg/mL	CH_2Cl_2	FU-025-D-40X
SAE 10W30 Motor oil	0.5 mg/mL	Hexane	FU-026-H
	20 mg/mL	Hexane	FU-026-H-40X
	20 mg/mL	CH_2Cl_2	FU-026-D-40X
SAE 10W40 Motor oil	0.5 mg/mL	Hexane	FU-027-H
	20 mg/mL	Hexane	FU-027-H-40X
	20 mg/mL	CH_2Cl_2	FU-027-D-40X
SAE 20W50 Motor oil	0.5 mg/mL	Hexane	FU-028-H
	20 mg/mL	Hexane	FU-028-H-40X
	20 mg/mL	CH_2Cl_2	FU-028-D-40X
SAE 30W Motor oil	0.5 mg/mL	Hexane	FU-018-H
	20 mg/mL	Hexane	FU-018-H-40X
	20 mg/mL	CH_2Cl_2	FU-018-D-40X
SAE 40W Motor oil	0.5 mg/mL	Hexane	FU-019-H
	5 mg/mL	Acetone	AK-103.0-LCS
	20 mg/mL	Hexane	FU-019-H-40X
	20 mg/mL	CH_2Cl_2	FU-019-D-40X
	25 mg/mL	Acetone:CH_2Cl_2	AK-103.0-LCS-5X
SAE 50W Motor oil	20 mg/mL	CH_2Cl_2	FU-021-D-40X
Stoddard solvent 8052-41-3	1 gram	Neat	HS-005N
	0.5 mg/mL	MeOH	HS-005S
	5 mg/mL	MeOH	HS-005S-10X
	20 mg/mL	MeOH	HS-005S-40X
	20 mg/mL	CH_2Cl_2	HS-005S-D-40X

Compound	Conc.	Matrix	Cat. No. 1 mL
o-Terphenyl 84-15-1	200 µg/mL	Acetone	AK-102.0-SS
	1 mg/mL	CH_2Cl_2	DRH-006-SS
	2 mg/mL	Acetone	AK-102.0-SS-10X
	2 mg/mL	Acetone	GRH-SS
n-Tetradecane 629-59-4	5 mg/mL	MeOH	AS-E0240
Tetracosane (5 mL) 646-31-1	500 µg/mL	CS_2	D-5480-C40-5ML
	500 µg/mL	Chloroform	D-5480-C40-R1-5ML
n-Tridecane 629-50-5	5 mg/mL	MeOH	AS-E0239
1,2,3-Trimethylbenzene 526-73-8	1 mg/mL	CH_2Cl_2	V-028S-D-10X
n-Triacontane-d_{62} 93952-07-9	500 µg/mL	Acetone	AK-103.0-SS
	5 mg/mL	Acetone:THF	AK-103.0-SS-10X
	5 mg/mL	THF	DRH-SS
Turbine (Jet) fuel	0.5 mg/mL	MeOH	FU-006
	20 mg/mL	MeOH	FU-006-40X
	20 mg/mL	CH_2Cl_2	FU-006-D-40X
Turpentine 8006-64-2	1 gram	Neat	HS-004N
	0.5 mg/mL	MeOH	HS-004S
	20 mg/mL	MeOH	HS-004S-40X
	20 mg/mL	CH_2Cl_2	HS-004S-D-40X
Unleaded Gasoline 25% Weathered	5 mg/mL	MeOH	GA-W25-10X
Unleaded Gasoline 50% Weathered	5 mg/mL	MeOH	GA-W50-10X
Unleaded Gasoline 75% Weathered	5 mg/mL	MeOH	GA-W75-10X

Complete Set of Total Petroleum Hydrocarbon (TPH) Pattern Recognition Standards

AccuStandard has assembled the following sets to identify specific petroleum product types found during LUFT/LUST investigations. The sets can be purchased using one convenient Cat. No. or as individuals. **Other concentrations are listed on the next page.**

TPH-R2-SET **33 x 1 mL** (includes **TPH-001-R2-SET**, **TPH-002-R1-SET**, **TPH-003-SET**, **TPH-004-SET**)

Motor Fuels & Lubricating Oils Set

TPH-001-R2-SET **12 x 1 mL**

	mg/mL	Solv.	Cat. No.
Gasoline, regular unleaded	20	MeOH	GA-001-40X
Gasoline, regular leaded	20	MeOH	GA-002-40X
Gasoline, premium	20	MeOH	GA-003-40X
RFA Gasoline (oxygenate free)	20	MeOH	GA-005-40X
#2 Diesel (conventional)	20	CH_2Cl_2	FU-009-D-40X
#1 Diesel (low sulfur)	20	CH_2Cl_2	FU-013-D-40X
#2 Diesel (extra low sulfur)	20	CH_2Cl_2	FU-017-D-40X
SAE 30W Motor oil	20	CH_2Cl_2	FU-018-D-40X
SAE 40W Motor oil	20	CH_2Cl_2	FU-019-D-40X
SAE 50W Motor oil	20	CH_2Cl_2	FU-021-D-40X
Biodiesel 20	20	CH_2Cl_2	FU-030-D-40X
Biodiesel 100 (consumer grade)	20	CH_2Cl_2	FU-029-D-40X

Heating Fuel Oils Set

TPH-002-R1-SET **6 x 1 mL**

	mg/mL	Solv.	Cat. No.
#1 Fuel oil	20	CH_2Cl_2	FU-001-D-40X
#2 Fuel oil	20	CH_2Cl_2	FU-002-D-40X
#3 Fuel oil	20	CH_2Cl_2	FU-003-D-40X
#4 Fuel oil	20	CH_2Cl_2	FU-004-D-40X
#6 Fuel oil	20	CH_2Cl_2	FU-008-D-40X
Kerosene	20	CH_2Cl_2	FU-005-D-40X

Aviation Fuels & Oils Set

TPH-003-SET **10 x 1 mL**

	mg/mL	Solv.	Cat. No.
Aviation gasoline Grade 100 LL	20	CH_2Cl_2	GA-004-D-40X
JP-4 Fuel (weathered)	20	CH_2Cl_2	FU-010-D-40X
JP-5 Fuel	20	CH_2Cl_2	FU-012-D-40X
JP-7 Fuel	20	CH_2Cl_2	FU-014-D-40X
JP-8 Fuel	20	CH_2Cl_2	FU-015-D-40X
JP-10 Fuel (Cruise Missile)	20	CH_2Cl_2	FU-022-D-40X
JP-TS	20	CH_2Cl_2	FU-016-D-40X
Jet Fuel (type 1)	20	CH_2Cl_2	FU-011-D-40X
Turbine (Jet A) Fuel	20	CH_2Cl_2	FU-006-D-40X
Hydraulic oil	20	CH_2Cl_2	FU-020-D-40X

Household & Industrial Solvent Set

TPH-004-SET **5 x 1 mL**

	mg/mL	Solv.	Cat. No.
Lacquer thinner	20	CH_2Cl_2	HS-001S-D-40X
Mineral Spirits	20	CH_2Cl_2	HS-002S-D-40X
Naphtha	20	CH_2Cl_2	HS-003S-D-40X
Turpentine	20	CH_2Cl_2	HS-004S-D-40X
Stoddard solvent	20	CH_2Cl_2	HS-005S-D-40X

Motor Oil Standards

	mg/mL	Solv.	Cat. No.
SAE 5W30 Motor oil	0.5	Hexane	FU-025-H
	20.0	Hexane	FU-025-H-40X
	20.0	CH_2Cl_2	FU-025-D-40X
SAE 10W30 Motor oil	0.5	Hexane	FU-026-H
	20.0	Hexane	FU-026-H-40X
	20.0	CH_2Cl_2	FU-026-D-40X
SAE 10W40 Motor oil	0.5	Hexane	FU-027-H
	20.0	Hexane	FU-027-H-40X
	20.0	CH_2Cl_2	FU-027-D-40X

	mg/mL	Solv.	Cat. No.
SAE 20W50 Motor oil	0.5	Hexane	FU-028-H
	20.0	Hexane	FU-028-H-40X
	20.0	CH_2Cl_2	FU-028-D-40X
Composite Standard	20.0	CH_2Cl_2	MO-COMP-D-40X

TPH, Fuel and Hydrocarbons

AccuStandard designed the weathered fuel line to mimic the weathering, evaporation, and migration process. Use of these standards can help in the identification of the fuel type if it has been present in the ground for some time, in a sandy type soil with possible evaporation loss, or has migrated from the plume point of origin.

Weathered LUFT/LUST Fuel Sets

Weathered Gasoline Set

WGA-SET	Each in 5.0 mg/mL in MeOH	Cat. No.	4 x 1 mL
Gasoline, regular unleaded		GA-001-10X	1 mL
Gasoline, regular unleaded (25% Weathered)		GA-W25-10X	1 mL
Gasoline, regular unleaded (50% Weathered)		GA-W50-10X	1 mL
Gasoline, regular unleaded (75% Weathered)		GA-W75-10X	1 mL

Weathered Kerosene Set

WFK-SET	Each in 5.0 mg/mL in CH_2Cl_2		4 x 1 mL
Kerosene		FU-005-D-10X	1 mL
Kerosene (25% Weathered)		FK-W25-10X	1 mL
Kerosene (50% Weathered)		FK-W50-10X	1 mL
Kerosene (75% Weathered)		FK-W75-10X	1 mL

Weathered #2 Diesel (extra Low Sulfur Content) Set

WFD2-SET	Each in 5.0 mg/mL in CH_2Cl_2		4 x 1 mL
#2 Diesel (extra Low Sulfur)		FU-017-D-10X	1 mL
#2 Diesel (extra Low Sulfur) (25% Weathered)		FD2-W25-10X	1 mL
#2 Diesel (extra Low Sulfur) (50% Weathered)		FD2-W50-10X	1 mL
#2 Diesel (extra Low Sulfur) (75% Weathered)		FD2-W75-10X	1 mL

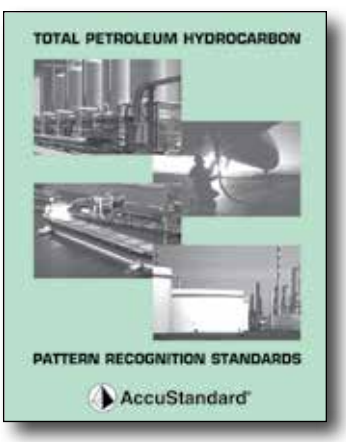
Weathered #2 Diesel (Conventional) Set

WFD2-R1-SET	Each in 5.0 mg/mL in CH_2Cl_2		4 x 1 mL
#2 Diesel (Conventional)		FU-009-D-10X	1 mL
#2 Diesel (Conventional) (25% Weathered)		FD2-W25-R1-10X	1 mL
#2 Diesel (Conventional) (50% Weathered)		FD2-W50-R1-10X	1 mL
#2 Diesel (Conventional) (75% Weathered)		FD2-W75-R1-10X	1 mL

Technical Note

Petroleum Products contain many different chemicals, plus synthetic product additives. Typically, these petroleum products are subdivided into two groups based on their volatility: [a] gasoline related products (more volatile) and [b] fuel related products (less volatile such as kerosene, aviation fuels, diesel fuels and heating oils).

Most analytical methods for petroleum products focus on several items: the level of BTEX, the total petroleum hydrocarbon number (TPH), and the fingerprint of the petroleum product. Depending on the volatility of the petroleum product spilled, the nature of the contaminated soil, and the age of the spill, analysis becomes even more difficult. Weathering, evaporation, and the migration of the lighter volatiles at the contamination site can affect the fingerprint identification portion of the fuel products analysis.



Total Petroleum Hydrocarbon Pattern Recognition Standards

This book contains chromatography for the various petroleum products typically found during LUFT/LUST site investigations. The chromatography shows each fuel pattern in a 25 minute analytical run for early eluting petroleum products like gasoline to late eluting products like motor oil. In addition, an n-alkane standard (DRH-008S) analyzed under identical conditions has been overlaid on each petroleum product chromatogram. Use of the book will assist the chemist's identification of the fuel for pattern recognition.

The n-alkane standard (DRH-008S) overlay provides n-alkane reference points between the standard and the unknown sample. These beginning and ending n-alkane reference points can be used to establish gross hydrocarbon concentrations. By comparing the specific n-alkane range of the closest identified petroleum standard to that of the unknown sample, a reproducible gross hydrocarbon number can be achieved.

To Order,

BOOK-TPH-001

TPH, Fuel and Hydrocarbons
Brownfield Regulation & ISO/DIS 9337

Petroleum Brownfield Regulation

Brownfield Regulation that has been approved by the Canadian Ministry of the Environment as of October 1, 2004.

Light Petroleum Fraction

CCME-LPF-SET **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 8 comps.

	CCME-LPF-0.05X	CCME-LPF-0.1X	CCME-LPF-0.2X	CCME-LPF-0.5X	CCME-LPF
n-Decane	12.5	25	50	125	250
n-Hexane	12.5	25	50	125	250
Toluene	12.5	25	50	125	250
Benzene	12.5	25	50	125	250
o-Xylene	12.5	25	50	125	250
m-Xylene	6.25	12.5	25	62.5	125
p-Xylene	6.25	12.5	25	62.5	125
Ethylbenzene	12.5	25	50	125	250

Medium & Heavy Petroleum Fraction

CCME-MHPF-SET **3 x 1 mL**
At stated conc. (µg/mL) in n-Hexane 3 comps.

	CCME-MHPF-0.1X	CCME-MHPF-0.5X	CCME-MHPF
n-Decane	40	200	400
n-Hexadecane	40	200	400
n-Tetratriacontane	40	200	400

Performance Check Standard

CCME-QC **1 x 1 mL**
CCME-QC-PAK ***SAVE*** **5 x 1 mL**
At 40 µg/mL each in n-Hexane:Cyclohexane 2 comps.

n-Pentacontane
n-Tetracontane

Spike Standard

CCME-SPIKE **1 x 1 mL**
At 2500 µg/mL each in n-Hexane 2 comps.

SAE 30W Motor Oil - Non-Detergent Formula
#2 Diesel - 50% Weathered

Hydrocarbon Standard

D-5442-R1 **1 x 1 mL**
100 µg/mL each in Cyclohexane 18 comps.

n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane
n-Tetratetracontane
n-Pentacontane

Canadian Atlantic RBCA EPH Mix

CCME-EPH **1 x 1 mL**
1000 µg/mL each in Hexane:CH_2Cl_2 85:15 11 comps.

Acenapthene
Anthracene
Benzo[a]pyrene
Chrysene
n-Decane
n-Dodecane
n-Dotriacontane
n-Heneicosane
n-Hexadecane
n-Octaconsane
Naphthalene

Surrogate Standard

CCME-EPH/SS **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 2 comps.

n-Dotriacontane
Isobutylbenzene

Canadian Atlantic RBCA VPH Mix

CCME-VPH **1 x 1 mL**
1000 µg/mL each in MeOH 12 comps.

Benzene
n-Decane
Ethylbenzene
n-Heptane
n-Hexane
1-Methyl-3-ethylbenzene
n-Octane
Toluene
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
o-Xylene
p-Xylene

Surrogate Standard

CCME-VPH/SS **1 x 1 mL**
1000 µg/mL in MeOH

Isobutylbenzene

ISO/DIS 9377 Hydrocarbon Oil Index

Diesel #2/Mineral Oil Standard

ENISO9377-2-1 **1 x 1 mL**
10000 µg/mL total hydrocarbons in Hexane 2 comps.

#2 Diesel (5000 µg/mL)
Mineral Oil (5000 µg/mL)

Quality Control Standard Mix

ISO/DIS9377-4-1 **1 x 1 mL**
1000 µg/mL total hydrocarbons in Acetone 2 comps.

#2 Diesel (500 µg/mL)
Mineral Oil (500 µg/mL)

Extraction Solvent Stock Soln.

ENISO9377-2-3 **1 x 5 mL**
At stated conc. in Hexane 2 comps.

n-Decane (20 µl/L)
n-Tetracontane (20 mg/L)

Stearyl Stearate Test Solution

ISO/DIS9377-4-2 **1 x 10 mL**
2000 µg/mL in Cyclohexane

Stearyl stearate

Florisil Cartridge QC Std. Mix

ENISO9377-2-4 **1 x 10 mL**
2000 µg/mL total hydrocarbons in Hexane 2 comps.

#2 Diesel (1000 µg/mL)
Mineral Oil (1000 µg/mL)

System Performance Standard of n-alkanes

ENISO9377-2-2 **1 x 1 mL**
50 µg/mL each in Hexane 16 comps.

n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane

ISO/DIS 9377-4 Standard Mixture Stock Solution

TPH-006-10X **1 x 1 mL**
TPH-006-10X-PAK ***SAVE*** **5 x 1 mL**
5000 µg/mL each in Cyclohexane 2 comps.

#2 Diesel
Mineral oil

LUFT/LUST (UST) Standards
Multi-State

There are approximately 571,000 underground storage tanks nationwide that store petroleum or hazardous substances that can harm the environment and human health if their contents are released. Until the mid-1980s, most tanks were made of bare steel. Over time, these tanks would corrode and their contents would leak into the environment. Leaking could also occur due to faulty installation or inadequate maintenance procedures. The greatest potential hazard from a leaking underground storage tank is contaminated groundwater, the source of drinking water for nearly half of all Americans. Other health and environmental risks, including the potential for fire and explosion, also exist.

From 1988 through March of 2008 there have been 478,457 confirmed releases reported, 453,065 cleanups have been initiated, and 371,880 cleanups have been completed.

The standards listed in this section are designed to meet federal and state monitoring and testing regulations for underground storage tanks.

LUFT/LUST (UST) Standards

Leaking
Underground
Fuel
Tank

Leaking
Underground
Storage
Tank

Multi-State Hydrocarbon Window Defining **Arizona** Diesel Range **California** Gasoline **Connecticut** Extractable TPH **Mississippi** DRO **New Jersey** **Pennsylvania** Storage Tank Monitoring Standards **Tennessee** DRO **Wisconsin** Gasoline Range Hydrocarbons	**311-313**
Alaska GRO, DRO Hydrocarbons, RRO, DRO Hydrocarbons (Fuel) DRO Hydrocarbons (Standards)	**314-315**
Florida FTRPH	**316**
Massachusetts EPH, VPH	**317-318**
Texas Method 1005 (PST)	**319**
Washington VPH, EPH	**320-321**
Gasoline Range Hydrocarbons (GRH)	**322**
Diesel Range Hydrocarbons (DRH)	**323**
Oil, Grease & TPH (Method 1664, 413.2/418.1 and 8440) Weathered Fuel Sets	**324**

Additional LUFT/LUST

GRH
DRH, Oil, Grease & TPH (Method 1664, 413.2/418.1 & 8440)
Automotive Engine Exhaust, Refinery Waste (Method 1004, ASTM E1387, E1618, Skinner List)

Multi-State Method Hydrocarbon Window Defining

DRH-008S-R2		**1 x 1 mL**
DRH-008S-R2-PAK	***SAVE***	**5 x 1 mL**
500 µg/mL each in Chloroform		35 comps.

Octane	Heptadecane	Tetracosane	Tritriacontane
Nonane	Pristane	Pentacosane	Tetratriacontane
Decane	Octadecane	Hexacosane	Pentatriacontane
Undecane	Phytane	Heptacosane	Hexatriacontane
Dodecane	Nonadecane	Octacosane	Heptatriacontane
Tridecane	Eicosane	Nonacosane	Octatriacontane
Tetradecane	Heneicosane	Triacontane	Nonatriacontane
Pentadecane	Docosane	*n*-Hentriacontane	Tetracontane
Hexadecane	Tricosane	Dotriacontane	

Technical Note

We offer a hydrocarbon window defining standard with the C_8 to C_{40} odd and even alkanes. Use of this one standard should meet the numerous state-to-state variations for hydrocarbon validation and reporting. As an added benefit, AccuStandard has included Pristane and Phytane in the formulation. Again, use of this one standard can meet numerous LUFT/LUST programs requiring that the C_{17} (Pristane) and C_{18} (Phytane) ratio be used to estimate subsurface degradation of fuel oil spills.

Arizona Method 8015 Determination of Diesel Range and Oil Range Organic (DRO & ORO) Hydrocarbons

Diesel & Oil Range Standard

DRO/ORO-AZ-8015 — **1 x 1 mL**
DRO/ORO-AZ-8015-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 12 comps.

- *n*-Decane
- *n*-Dodecane
- *n*-Docosane
- *n*-Dotriacontane
- *n*-Eicosane
- *n*-Hexacosane
- *n*-Hexadecane
- *n*-Octacosane
- *n*-Octadecane
- *n*-Tetracosane
- *n*-Tetradecane
- *n*-Triacontane

Surrogate Standards

DRO-AK-102-SS-10X — **1 x 1 mL**
DRO-AK-102-SS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL in Acetone

- *o*-Terphenyl

Retention Time Verification Standard

DRO/ORO-AZ-8015-RTV — **1 x 1 mL**
DRO/ORO-AZ-8015-RTV-PAK — *SAVE* — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 3 comps.

- *n*-Decane
- *n*-Docosane
- *n*-Dotriacontane

Stock Calibration Standard

DRO/ORO-AZ-8015-SCS — **1 x 1 mL**
DRO/ORO-AZ-8015-SCS-PAK — *SAVE* — **1 x 1 mL**
10,000 µg/mL each in CH_2Cl_2 — 2 comps.

- #2 Diesel
- 10W 30 Motor Oil

California Method (including LA County)

California - Gasoline Range Hydrocarbons

S-603A-10X — **1 x 1 mL**
S-603A-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 7 comps.

- Benzene
- Ethylbenzene
- Methyl t-butyl ether
- Toluene
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

LA County Well Investigation & Monitoring Program

Purgeable Aromatics - Gasoline ID

M-602-GAS-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 11 comps.

- Benzene
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Toluene
- *o*-Xylene
- *p*-Xylene
- *m*-Xylene
- MtBE

Oxygenate Gasoline Additive Standard

OGAD-001 — **1 x 1 mL**
OGAD-001-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in MeOH — 5 comps.

- MtBE (2000 µg/mL)
- ETBE (2000 µg/mL)
- Isopropyl ether (2000 µg/mL)
- TAME (2000 µg/mL)
- t-Butanol (10000 µg/mL)

Ethanol

M-8015B/5031-11 — **1 x 1 mL**
10 mg/mL in Water

Methanol

M-8015B/5031-17 — **1 x 1 mL**
10 mg/mL in Water

Method 1004 Carbonyl Compounds as DNPH Derivatives by HPLC

M-1004 — **1 x 1 mL**
At stated conc. in AcCN — 13 comps.
M-1004-10X — **1 x 1 mL**
At 10 times the stated conc. in AcCN — 13 comps.

Carbonyl Compound		DNPH Derivative
Acetaldehyde	(3.0 µg/mL)	(15.3 µg/mL)
Acetone	(3.0 µg/mL)	(12.3 µg/mL)
Acrolein	(3.0 µg/mL)	(12.7 µg/mL)
Benzaldehyde	(3.0 µg/mL)	(8.1 µg/mL)
2-Butanone *(MEK)*	(3.0 µg/mL)	(10.5 µg/mL)
n-Butyraldehyde	(3.0 µg/mL)	(10.5 µg/mL)
Crotonaldehyde	(3.0 µg/mL)	(10.7 µg/mL)
Formaldehyde	(3.0 µg/mL)	(21.0 µg/mL)
Hexanal	(3.0 µg/mL)	(8.4 µg/mL)
Methacrolein	(3.0 µg/mL)	(10.7 µg/mL)
Propionaldehyde	(3.0 µg/mL)	(12.3 µg/mL)
m-Tolualdehyde	(3.0 µg/mL)	(7.5 µg/mL)
Valeraldehyde	(3.0 µg/mL)	(9.3 µg/mL)

CAR-DNPH — **1 x 1 mL**
At stated conc. in AcCN as DNPH derivatives — 7 comps.

- Acetaldehyde (1000 µg/mL)
- Acetone (500 µg/mL)
- Acrolein (500 µg/mL)
- Benzaldehyde (500 µg/mL)
- Butyraldehyde (500 µg/mL)
- Formaldehyde (1500 µg/mL)
- Propionaldehyde (500µg/mL)

Reference Gas Oil Sample

RGS-001 — **1 x 1 mL**

Hydrocarbon Mixture *(boiling point range 250-850°F)*

Technical Note

Alcohol Oxidation Products in Automotive Engine Exhaust by HPLC of DNPH Derivatives The California Air Resources Board, in conjunction with some of the larger automobile manufacturers, has developed an HPLC method in which the 2,4-Dinitrophenylhydrazine derivatives of the by-products are quantitated.

LUFT/LUST Standards

Connecticut / Mississippi / New Jersey / Tennessee / Pennsylvania / Wisconsin Methods

Connecticut Method Extractable Total Petroleum Hydrocarbons

CT ETPH Alkane Standard

DRH-009S **1 x 1 mL**
DRH-009S-PAK *SAVE* **5 x 1 mL**
1000 µg/mL in CH_2Cl_2 15 comps.

n-Nonane
n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
n-Hexatriacontane

Internal Standard

GRH-IS **1 x 1 mL**
GRH-IS-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

5-alpha Androstane

Surrogate Standard

GRH-SS **1 x 1 mL**
GRH-SS-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL in Acetone

o-Terphenyl *(OTP)*

Mississippi Method

DRO Defining Mix

DRO-AK-102-NAS-10X **1 x 1 mL**
DRO-AK-102-NAS-10X-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 16 comps.

n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Nonadecane
n-Eicosane
n-Heneicosane
n-Docosane
n-Tricosane
n-Tetracosane
n-Pentacosane

New Jersey Method

DEP (NJ) Aliphatic Hydrocarbon Standard

DRH-NJ-001S **1 x 1 mL**
1.0 mg/mL each in Hexane 20 comps.

n-Nonane
n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Heneicosane
n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane
Naphthalene
2-Methylnaphthalene

DEP (NJ) Aromatic Hydrocarbon Standard

DRH-NJ-002S **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 18 comps.

Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenz(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
2-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene
1,2,3-Trimethylbenzene

Pennsylvania Method Storage Tank Site Closure & Monitoring Petroleum Standards

PA Extractable PAH Standard

DRH-PA-001 **1 x 1 mL**
DRH-PA-001-PAK *SAVE* **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 5 comps.

Benz[a]anthracene
Benzo[a]pyrene
Fluorene
Naphthalene
Phenanthrene

PA Volatile Petroleum Standard

GRH-PA-001 **1 x 1 mL**
GRH-PA-001-PAK *SAVE* **5 x 1 mL**
At stated conc. in MeOH 9 comps.

Benzene	(1000 µg/mL)	*o*-Xylene	(1000 µg/mL)
Ethylbenzene	(1000 µg/mL)	*m*-Xylene	(1000 µg/mL)
MtBE	(2000 µg/mL)	*p*-Xylene	(1000 µg/mL)
Naphthalene	(1000 µg/mL)	Isopropylbenzene	(1000 µg/mL)
Toluene	(1000 µg/mL)		

Tennessee Method

DRO Defining Mix

DRO-AK-102-NAS-10X **1 x 1 mL**
DRO-AK-102-NAS-10X-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 16 comps.

n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Nonadecane
n-Eicosane
n-Heneicosane
n-Docosane
n-Tricosane
n-Tetracosane
n-Pentacosane

Wisconsin Method

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S **1 x 1 mL**
GRH-003S-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in MeOH 10 comps.

Benzene
Ethylbenzene
MtBE
Naphthalene
Toluene
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
o-Xylene
m-Xylene
p-Xylene

LUFT/LUST Standards
Alaska GRO/DRO Methods

Alaska Method 101 Determination of Gasoline Range Organic (GRO) Hydrocarbons

Normal Alkane Standard - GRO Defining Mix

GRO-AK-101-NAS-10X — **1 x 1 mL**
GRO-AK-101-NAS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

n-Hexane, *n*-Heptane, *n*-Octane, *n*-Nonane, *n*-Decane

Laboratory Control Standard

GRO-AK-101-LCS — **1 x 1 mL**
GRO-AK-101-LCS-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in MeOH

Gasoline, regular unleaded

Internal Standard

GRO-AK-101-IS-10X — **1 x 1 mL**
GRO-AK-101-IS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL in MeOH

1-Chloro-4-fluorobenzene

Surrogate Control Standard

GRO-AK-101-SS — **1 x 1 mL**
GRO-AK-101-SS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL each in MeOH
GRO-AK-101-SS-10X — **1 x 1 mL**
GRO-AK-101-SS-10X-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in MeOH
GRO-AK-101-SS-100X — **1 x 1 mL**
GRO-AK-101-SS-100X-PAK — *SAVE* — **5 x 1 mL**
5,000 µg/mL each in MeOH — 2 comps.

p-Bromofluorobenzene, a,a,a-Trifluorotoluene

Alaska Method Determination of Aromatic & Aliphatic Hydrocarbons in GRO

AK101AA Aromatics Mix

GRO-AK-101AA-ARO — **1 x 1 mL**
GRO-AK-101AA-ARO-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in MeOH — 14 comps.

Benzene, Toluene, Ethylbenzene, *m*-Xylene, *p*-Xylene, *o*-Xylene, 1,2,3-Trimethylbenzene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Isopropylbenzene, *m*-Ethyltoluene, *p*-Ethyltoluene, *o*-Ethyltoluene, *n*-Propylbenzene

Certified BTEX in Gasoline (Single Source)

GA-001-20X-BTEX — **1 x 1 mL**
10.0 mg/mL in MeOH

Gasoline, regular unleaded

Technical Note

Laboratory Control Standard
The gasoline laboratory control standard was taken from an ASTM selected fuel set and a source independent of what is being used in the Gasoline Composite Mix.
Simultaneous BTEX / Gasoline QA/QC
Our QC Department has certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard and GRO-AK-101-GCS-BTEX). This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

We have added a multi source certified BTEX in gasoline composite mix (GRO-AK-101-GCS-BTEX). The BTEX values for this multi-source calibration standard have been determined through in-house analysis against a BTEX multi-level calibration curve listed on the certificate.

Certified BTEX in Gasoline Composite (Multi Source)

GRO-AK-101-GCS-BTEX — **1 x 1 mL**
5 mg/mL total in MeOH — 3 comps.

	Wt. Vol.
Gasoline, premium	1.66 mg/mL
Gasoline, regular leaded	1.67 mg/mL
Gasoline, regular unleaded	1.67 mg/mL

Gasoline Calibration Composite Mix

GRO-AK-101-GCS — **1 x 1 mL**
GRO-AK-101-GCS-PAK — *SAVE* — **5 x 1 mL**
Total 5.0 mg/mL in MeOH — 3 comps.

	Wt. Vol.
Gasoline, premium	1.66 mg/mL
Gasoline, regular leaded	1.67 mg/mL
Gasoline, regular unleaded	1.67 mg/mL

Gasoline Calibration Mix Version

GRO-AK-101-GSC-R1 — **1 x 1 mL**
GRO-AK-101-GSC-R1-PAK — *SAVE* — **5 x 1 mL**
Equal parts by weight of each

Gasoline, regular unleaded, Gasoline, premium unleaded, Gasoline, plus unleaded

Technical Note

Laboratory Control Standards are prepared from an independent source.

Alaska Method 102 Determination of Diesel Range Organic (DRO) Hydrocarbons

Diesel Calibration Composite Mixture (low sulfur)

DRO-AK-102-DCS — **1 x 1 mL**
DRO-AK-102-DCS-PAK — *SAVE* — **5 x 1 mL**
Total 5.0 mg/mL in CH_2Cl_2
DRO-AK-102-DCS-10X — **1 x 1 mL**
DRO-AK-102-DCS-10X-PAK — *SAVE* — **5 x 1 mL**
Total 50.0 mg/mL in CH_2Cl_2 — 3 comps.

	DRO-AK-102-DCS	DRO-AK-102-DCS-10X
Diesel Fuel (Arctic)	1.66 mg/mL	16.6 mg/mL
#1 Diesel (Low Sulfur)	1.67 mg/mL	16.6 mg/mL
#2 Diesel (extra Low Sulfur)	1.67 mg/mL	16.6 mg/mL

Stock Concentrate Diesel Calibration Composite Mix

DRO-AK-102-DCS-10X-R1 — **1 x 1 mL**
DRO-AK-102-DCS-10X-R1-PAK — *SAVE* — **5 x 1 mL**
Total 50.0 mg/mL in CH_2Cl_2 — 3 comps.

	Wt. Vol.		Wt. Vol.
Diesel Fuel (Arctic)	16.6 mg/mL	#2 Diesel (Conventional)	16.7 mg/mL
#1 Diesel (Low Sulfur)	16.7 mg/mL		

Alaska Method 102 DRO Hydrocarbons continued on next page

Technical Note

AccuStandard formulated the Diesel Calibration Composite Mix and Laboratory Control Standard using two independent sources of #2 Diesel as required by the Alaskan method. Unfortunately, the chromatographic patterns for the #2 diesel sources (conventional & extra low sulfur) are different. We have obtained independent sources of each type of #2 diesel to assure similar chromatographic patterns and recommend that when a customer is analyzing the Diesel Calibration Composite and Laboratory Control standard that the client orders DRO-AK-102-DCS and DRO-AK-102-LCS products together to obtain similar chromatographic patterns for #2 diesel extra low sulfur patterns and DRO-AK-102-DCS-10X-R1 and DRO-AK-102-LCS-10X-R1 products to obtain similar chromatographic patterns for #2 Diesel conventional patterns. Laboratories performing the Alaskan DRO analysis will find the #2 Diesel conventional chromatographic pattern more closely resembles typical Diesel samples drawn from environmental sites.

Laboratory Control Standard (low sulfur)

DRO-AK-102-LCS — **1 x 1 mL**
DRO-AK-102-LCS-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in Acetone
DRO-AK-102-LCS-10X — **1 x 1 mL**
DRO-AK-102-LCS-10X-PAK — *SAVE* — **5 x 1 mL**
50.0 mg/mL in Acetone

#2 Diesel (extra Low Sulfur)

Alaska Method 102 Determination of Diesel Range Organic (DRO) Hydrocarbons (Continued)

Laboratory Control Standard

DRO-AK-102-LCS-10X-R1 — **1 x 1 mL**
DRO-AK-102-LCS-10X-R1-PAK — *SAVE* — **5 x 1 mL**
50.0 mg/mL in Acetone

#2 Diesel (Conventional)

Normal Alkane Standard - DRO Defining Mix

DRO-AK-102-NAS-10X — **1 x 1 mL**
DRO-AK-102-NAS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 16 comps.

n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Nonadecane
n-Eicosane
n-Heneicosane
n-Docosane
n-Tricosane
n-Tetracosane
n-Pentacosane

Surrogate Standards

DRO-AK-102-SS — **1 x 1 mL**
DRO-AK-102-SS-PAK — *SAVE* — **5 x 1 mL**
200 µg/mL in Acetone
DRO-AK-102-SS-10X — **1 x 1 mL**
DRO-AK-102-SS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL in Acetone

o-Terphenyl

Internal Standard

DRO-AK-102-IS — **1 x 1 mL**
DRO-AK-102-IS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

5-alpha Androstane

Alaska Method 102/103AA Determination of Aromatic & Aliphatic Hydrocarbons in Diesel Range Organic (DRO)

Diesel Range Standard

DRO-AK-102AA — **1 x 1 mL**
DRO-AK-102AA-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 10 comps.

n-Undecane
n-Pentadecane
n-Heptadecane
n-Octadecane
n-Tetracosane
Naphthalene
Acenaphthene
Fluorene
Pyrene
Anthracene

Surrogate Standard

DRO-AK-102/103AA-SS — **1 x 1 mL**
DRO-AK-102/103AA-SS-PAK — *SAVE* — **5 x 1 mL**
1000 *µg/mL each in CH_2Cl_2* — 3 comps.

Squalane
o-Terphenyl
5,6,7,8-Tetrahydro-1-naphthol

Retention Time Marker Standard

DRO-AK-102/103AA-RT — **1 x 1 mL**
DRO-AK-102/103AA-RT-PAK — *SAVE* — **5 x 1 mL**
50 *µg/mL each in CH_2Cl_2* — 3 comps.

n-Decane
n-Pentacosane
n-Hexatriacontane

Alaska Method 103 Determination of Residual Range Organic (RRO) Hydrocarbons

Residual Composite Mixtures

RRO-AK-103-RCS — **1 x 1 mL**
RRO-AK-103-RCS-PAK — *SAVE* — **5 x 1 mL**
Total 5.0 mg/mL in CH_2Cl_2 — 3 comps.

SAE 30W Motor oil (1.66 mg)
SAE 40W Motor oil (1.67 mg)
SAE 50W Motor Oil (1.67 mg)

RRO-AK-103-RCS-10X — **1 x 1 mL**
RRO-AK-103-RCS-10X-PAK — *SAVE* — **5 x 1 mL**
Total 50.0 mg/mL in CH_2Cl_2 — 3 comps.

SAE 30W Motor oil (16.6 mg)
SAE 40W Motor oil (16.7 mg)
SAE 50W Motor Oil (16.7 mg)

Laboratory Control Standard

RRO-AK-103-LCS — **1 x 1 mL**
RRO-AK-103-LCS-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in Acetone
RRO-AK-103-LCS-5X — **1 x 1 mL**
RRO-AK-103-LCS-5X-PAK — *SAVE* — **5 x 1 mL**
25.0 mg/mL in Acetone: CH_2Cl_2 (1:1)

SAE 40W Motor oil

Surrogate Control Standard

RRO-AK-103-SS — **1 x 1 mL**
RRO-AK-103-SS-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL in Acetone:THF (9:1)
RRO-AK-103-SS2 — **1 x 1 mL**
RRO-AK-103-SS2-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in THF:Acetone (3:1)

n-Triacontane-d_{62}

Alaska Method 103AA Determination of Aromatic & Aliphatic Hydrocarbons in Residual Range Organic

Residual Standard

RRO-AK-103AA — **1 x 1 mL**
RRO-AK-103AA-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 9 comps.

n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
Benzo[b]fluoranthene
Benzo[a]pyrene
Benzo[g,h,i]perylene
Dibenz[a,h]anthracene

Surrogate Standard

DRO-AK-102/103AA-SS — **1 x 1 mL**
DRO-AK-102/103AA-SS-PAK — *SAVE* — **5 x 1 mL**
1000 *µg/mL each in CH_2Cl_2* — 3 comps.

Squalane
o-Terphenyl
5,6,7,8-Tetrahydro-1-naphthol

Retention Time Marker Standard

DRO-AK-102/103AA-RT — **1 x 1 mL**
DRO-AK-102/103AA-RT-PAK — *SAVE* — **5 x 1 mL**
50 *µg/mL each in CH_2Cl_2* — 3 comps.

n-Decane
n-Pentacosane
n-Hexatriacontane

Florida Method Total Recoverable Petroleum Hydrocarbon (FTRPH) Standard & Surrogates

Calibration/Window Defining Hydrocarbon Standard

DRH-004S-R1-5X — **1 x 1 mL**
DRH-004S-R1-5X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Chloroform — 17 comps.

Octane	C_8	Eicosane	C_{20}	Dotriacontane	C_{32}
Decane	C_{10}	Docosane	C_{22}	Tetratriacontane	C_{34}
Dodecane	C_{12}	Tetracosane	C_{24}	Hexatricontane	C_{36}
Tetradecane	C_{14}	Hexacosane	C_{26}	Octatriacontane	C_{38}
Hexadecane	C_{16}	Octacosane	C_{28}	Tetracontane	C_{40}
Octadecane	C_{18}	Triacontane	C_{30}		

FTRPH Calibration / Window Defining Standard

DRH-FTRPH — **1 x 1 mL**
DRH-FTRPH-PAK — *SAVE* — **5 x 1 mL**
500 µg/mL each in Hexane — 17 comps.
DRH-FTRPH-0.1X — **1 x 1 mL**
50 µg/mL each in Hexane — 17 comps.

n-Octane	*n*-Eicosane	*n*-Dotriacontane
n-Decane	*n*-Docosane	*n*-Tetratriacontane
n-Dodecane	*n*-Tetracosane	*n*-Hexatriacontane
n-Tetradecane	*n*-Hexacosane	*n*-Octatriacontane
n-Hexadecane	*n*-Octacosane	*n*-Tetracontane
n-Octadecane	*n*-Triacontane	

Technical Note

FTRPH Calibration/Window Defining Standard was formulated at a lower concentration to insure solubility of the analytes & eliminate the odor caused by the introduction of Carbon disulfide as a cosolvent.

Internal Standard

GRH-IS — **1 x 1 mL**
GRH-IS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

5-alpha Androstane

Surrogate Standards

DRH-SS — **1 x 1 mL**
DRH-SS-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in THF

n-Triacontane-d_{62}

GRH-SS — **1 x 1 mL**
GRH-SS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL in Acetone

o-Terphenyl *(OTP)*

FTRPH Surrogate Standard

DRH-FL-SS-3X — **1 x 1 mL**
DRH-FL-SS-3X-PAK — *SAVE* — **5 x 1 mL**
3.0 mg/mL in Carbon disulfide
DRH-FL-SS — **1 x 1 mL**
DRH-FL-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Carbon disulfide

Nonatriacontane

FTRPH Combined Surrogate Standard

DRH/GRH-FL-SS — **1 x 1 mL**
DRH/GRH-FL-SS-PAK — *SAVE* — **5 x 1 mL**
5.0 mg/mL in Carbon disulfide — 2 comps.

Nonatriacontane — *o*-Terphenyl *(OTP)*

Technical Note

FTRPH Surrogate Standard was formulated at a higher concentration for combined DRH & GRH analysis. This standard has proven useful for those laboratories performing gasoline & diesel analysis simultaneously.

DRH/GRH-FL-SS-R2 — **1 x 1 mL**
DRH/GRH-FL-SS-R2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. in Carbon disulfide — 2 comps.

Nonatriacontane (6000 µg/mL) — *o*-Terphenyl *(OTP)* (1500 µg/mL)

Carbon disulfide can not ship by air. When possible alternate solvents can be used. Please contact our Technical Service Department for other options.

Massachusetts Method Determination of Extractable Petroleum Hydrocarbons (EPH)

Aromatic Hydrocarbons Calibration Set

DRH-006-CAL-SET — **5 x 1 mL**

At stated conc. in CH_2Cl_2 — 18 comps.

Components (units in µg/mL)	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
Acenaphthene	5	20	50	100	200
Acenaphthylene	5	20	50	100	200
Anthracene	5	20	50	100	200
Benz[a]anthracene	5	20	50	100	200
Benzo[a]pyrene	5	20	50	100	200
Benzo[b]fluoranthene	5	20	50	100	200
Benzo[g,h,i]perylene	5	20	50	100	200
Benzo[k]fluoranthene	5	20	50	100	200
Chrysene	5	20	50	100	200
Dibenz[a,h]anthracene	5	20	50	100	200
Fluoranthene	5	20	50	100	200
Fluorene	5	20	50	100	200
Indeno[1,2,3-cd]pyrene	5	20	50	100	200
2-Methylnaphthalene	5	20	50	100	200
Naphthalene	5	20	50	100	200
Phenanthrene	5	20	50	100	200
Pyrene	5	20	50	100	200
o-Terphenyl (Surrogate)	5	20	50	100	200

Aliphatic Hydrocarbons Calibration Set

DRH-007-CAL-R1-SET — **5 x 1 mL**

At stated conc. in CH_2Cl_2 : n-Hexane (1:1) — 15 comps.

Components (units in µg/mL)	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
n-Nonane	5	20	50	100	200
n-Decane	5	20	50	100	200
n-Dodecane	5	20	50	100	200
n-Tetradecane	5	20	50	100	200
n-Hexadecane	5	20	50	100	200
n-Octadecane	5	20	50	100	200
n-Nonadecane	5	20	50	100	200
n-Eicosane	5	20	50	100	200
n-Docosane	5	20	50	100	200
n-Tetracosane	5	20	50	100	200
n-Hexacosane	5	20	50	100	200
n-Octacosane	5	20	50	100	200
n-Triacontane	5	20	50	100	200
n-Hexatriacontane	5	20	50	100	200
1-Chlorooctadecane (Surrogate)	5	20	50	100	200

Combined Aromatic/Aliphatic Matrix Spike Standard

DRH-MS-ASL — **1 x 1 mL**

DRH-MS-ASL-PAK — *SAVE* — **5 x 1 mL**

25 µg/mL each in Hexane — 31 comps.

Acenaphthene	*n*-Docosane	Naphthalene
Acenaphthylene	*n*-Dodecane	*n*-Nonadecane
Anthracene	*n*-Eicosane	*n*-Nonane
Benz[a]anthracene	Fluoranthene	*n*-Octacosane
Benzo[a]pyrene	Fluorene	*n*-Octadecane
Benzo[b]fluoranthene	*n*-Hexacosane	Phenanthrene
Benzo[g,h,i]perylene	*n*-Hexadecane	Pyrene
Benzo[k]fluoranthene	*n*-Hexatriacontane	*n*-Tetracosane
Chrysene	Indeno[1,2,3-cd]pyrene	*n*-Tetradecane
n-Decane	2-Methylnaphthalene	*n*-Triacontane
Dibenz[a,h]anthracene		

DEP (MA) - Fractionation Surrogate Spike

DRH-MA-FSS-10ML	40 µg/mL in Hexane		**1 x 10 mL**
DRH-MA-FSS-50X	2.0 mg/mL in Hexane		**1 x 1 mL**
DRH-MA-FSS-50X-PAK	2.0 mg/mL in Hexane	*SAVE*	**5 x 1 mL**
			2 comps.

2-Fluorobiphenyl — 2-Bromonaphthalene

Aromatic Surrogate

DRH-006-SS — **1 x 1 mL**

DRH-006-SS-PAK — *SAVE* — **5 x 1 mL**

1.0 mg/mL in CH_2Cl_2

o-Terphenyl

DEP (MA) - Aromatic Hydrocarbons

DRH-006S — **1 x 1 mL**

DRH-006S-PAK — *SAVE* — **5 x 1 mL**

1.0 mg/mL each in CH_2Cl_2 — 17 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benz[a]anthracene	Indeno[1,2,3-cd]pyrene
Benzo[a]pyrene	2-Methylnaphthalene
Benzo[b]fluoranthene	Naphthalene
Benzo[g,h,i]perylene	Phenanthrene
Benzo[k]fluoranthene	Pyrene
Chrysene	

Technical Note

Two high concentration EPH stocks for laboratories that prepare in-house working level solutions are available. In addition, Ready-to-Use working level aromatic and aliphatic calibration sets are also available. Larger volumes of daily calibration solutions can be purchased by contacting our Technical Service Department.

DEP (MA) - Aliphatic Hydrocarbons

DRH-007S — **1 x 1 mL**

DRH-007S-PAK — *SAVE* — **5 x 1 mL**

1.0 mg/mL each in CH_2Cl_2 : Hexane (1:1) — 14 comps.

n-Nonane	*n*-Octadecane	*n*-Hexacosane
n-Decane	*n*-Nonadecane	*n*-Octacosane
n-Dodecane	*n*-Eicosane	*n*-Triacontane
n-Tetradecane	*n*-Docosane	*n*-Hexatriacontane
n-Hexadecane	*n*-Tetracosane	

Aliphatic Surrogate

DRH-007-SS — **1 x 1 mL**

DRH-007-SS-PAK — *SAVE* — **5 x 1 mL**

1.0 mg/mL in Hexane

1-Chlorooctadecane

EPH Surrogate Spike

DRH-MA-SS	20 µg/mL each in Acetone	**1 x 1 mL**
DRH-MA-SS-10X	200 µg/mL each in Acetone	**1 x 1 mL**
DRH-MA-SS-100X	2,000 µg/mL each in Acetone	**1 x 1 mL**
DRH-MA-SS-100X-PAK	2,000 µg/mL each in Acetone	**5 x 1 mL**
		2 comps.

1-Chlorooctadecane — *o*-Terphenyl

EPH Matrix Spike

DRH-MA-MS	25 µg/mL in Acetone		**1 x 1 mL**
DRH-MA-MS-PAK	25 µg/mL in Acetone	*SAVE*	**5 x 1 mL**
DRH-MA-MS-10X	250 µg/mL in Acetone		**1 x 1 mL**
DRH-MA-MS-10X-PAK	250 µg/mL in Acetone	*SAVE*	**5 x 1 mL**
DRH-MA-MS-40X	1,000 µg/mL in Acetone		**1 x 1 mL**
DRH-MA-MS-40X-PAK	1,000 µg/mL in Acetone	*SAVE*	**5 x 1 mL**
			10 comps.

Acenaphthene	*n*-Nonadecane
Anthracene	*n*-Nonane
Chrysene	*n*-Octacosane
n-Eicosane	Pyrene
Naphthalene	*n*-Tetradecane

Internal Standard

GRH-IS	1,000 µg/mL in CH_2Cl_2		**1 x 1 mL**
GRH-IS-PAK	1,000 µg/mL in CH_2Cl_2	*SAVE*	**5 x 1 mL**
GRH-IS-10X	10.0 mg/mL in CH_2Cl_2		**1 x 1 mL**

5-alpha Androstane

Massachusetts Method Determination of Volatile Petroleum Hydrocarbons (VPH)

Stock Concentrate

Volatile Petroleum Hydrocarbon Mix

GRH-004S-10X **1 x 1 mL**
GRH-004S-10X-PAK *SAVE* **5 x 1 mL**
At stated conc. (mg/mL) in MeOH 13 comps.

Benzene	(5.0)	*n*-Pentane	(10.0)
Ethylbenzene	(5.0)	Toluene	(15.0)
Isooctane	(15.0)	1,2,4-Trimethylbenzene	(10.0)
2-Methylpentane	(15.0)	*o*-Xylene	(10.0)
MtBE	(15.0)	*m*-Xylene	(10.0)
Naphthalene	(10.0)	*p*-Xylene	(10.0)
n-Nonane	(10.0)		

DEP (MA)-VPH Surrogate Standard

GRH-004-SS **1 x 1 mL**
GRH-004-SS-PAK *SAVE* **5 x 1 mL**
50 µg/mL in MeOH
GRH-004-SS-10X **1 x 1 mL**
GRH-004-SS-10X-PAK *SAVE* **5 x 1 mL**
500 µg/mL in MeOH
GRH-004-SS-100X **1 x 1 mL**
GRH-004-SS-100X-PAK *SAVE* **5 x 1 mL**
5,000 µg/mL in MeOH

2,5-Dibromotoluene

MA VPH Matrix Spike Mix with Surrogate

GRH-004-MS/SS **1 x 1 mL**
50 µg/mL each in MeOH 14 comps.

Benzene	Naphthalene
n-Butylcyclohexane	n-Nonane
n-Decane	n-Pentane
2,5-dibromotoluene	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
2-Methylpentane	Isooctane
MtBE	m-Xylene

VPH Matrix Spike

GRH-004-MS **1 x 1 mL**
GRH-004-MS-PAK *SAVE* **5 x 1 mL**
50 µg/mL each in MeOH
GRH-004-MS-10X **1 x 1 mL**
GRH-004-MS-10X-PAK *SAVE* **5 x 1 mL**
500 µg/mL each in MeOH
GRH-004-MS-100X **1 x 1 mL**
GRH-004-MS-100X-PAK *SAVE* **5 x 1 mL**
5,000 µg/mL each in MeOH 8 comps.

Benzene	Toluene
Ethylbenzene	*o*-Xylene
MtBE	*m*-Xylene
Naphthalene	*p*-Xylene

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX **1 x 1 mL**
10.0 mg/mL in MeOH

Gasoline - Regular, unleaded

Technical Note

Calibration Curve
Analytical chemists can develop the VPH Calibration Curve using one primary dilution standard that includes the surrogate.
Simultaneous BTEX / Gasoline QA/QC
Our QC Dept. has certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard (GA-001-20X-BTEX). This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

Volatile Petroleum Hydrocarbons without Surrogate

GRH-004S-R1-10X **1 x 1 mL**
At stated conc. (mg/mL) in MeOH 15 comps.

Benzene	(5.0)	Toluene	(15.0)
Ethylbenzene	(5.0)	1,2,4-Trimethylbenzene	(10.0)
Isooctane	(15.0)	*o*-Xylene	(10.0)
2-Methylpentane	(15.0)	*m*-Xylene	(10.0)
MtBE	(15.0)	*p*-Xylene	(10.0)
Naphthalene	(10.0)	*n*-Butylcyclohexane	(10.0)
n-Nonane	(10.0)	*n*-Decane	(10.0)
n-Pentane	(10.0)		

GRH-004S-R2 **1 x 1 mL**
10 mg/mL each in MeOH 15 comps.

Benzene	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
Isooctane	*o*-Xylene
2-Methylpentane	*m*-Xylene
MtBE	*p*-Xylene
Naphthalene	*n*-Butylcyclohexane
n-Nonane	*n*-Decane
n-Pentane	

Volatile Petroleum Hydrocarbons with Surrogate

GRH-004S/SS **1 x 1 mL**
GRH-004S/SS-PAK *SAVE* **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 14 comps.

Benzene	(500)	*n*-Nonane	(1,000)
2,5-Dibromotoluene (Surrogate)	(1,000)	*n*-Pentane	(1,000)
Ethylbenzene	(500)	Toluene	(1,500)
Isooctane	(1,500)	1,2,4-Trimethylbenzene	(1,000)
2-Methylpentane	(1,500)	*o*-Xylene	(1,000)
MtBE	(1,500)	*m*-Xylene	(1,000)
Naphthalene	(1,000)	*p*-Xylene	(1,000)

GRH-004S/SS-R1 **1 x 1 mL**
At stated conc. (µg/mL) in MeOH 16 comps.

Benzene	(500)	*n*-Pentane	(1,000)
2,5-Dibromotoluene (Surrogate)	(1,000)	Toluene	(1,500)
Ethylbenzene	(500)	1,2,4-Trimethylbenzene	(1,000)
Isooctane	(1,500)	*o*-Xylene	(1,000)
2-Methylpentane	(1,500)	*m*-Xylene	(1,000)
MtBE	(1,500)	*p*-Xylene	(1,000)
Naphthalene	(1,000)	n-Butylcyclohexane	(1,000)
n-Nonane	(1,000)	n-Decane	(1,000)

GRH-004S/SS-R2 **1 x 1 mL**
10.0 mg/mL each in MeOH 16 comps.

Benzene	*n*-Pentane
2,5-Dibromotoluene (Surrogate)	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
Isooctane	*o*-Xylene
2-Methylpentane	*m*-Xylene
MtBE	*p*-Xylene
Naphthalene	n-Butylcyclohexane
n-Nonane	n-Decane

Texas Method 1005 & 1006 Petroleum Storage Tanks (PST)

Stock Hydrocarbon Calibration Standard

DRH-TX-001-10X — **1 x 1 mL**
DRH-TX-001-10X-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in n-Pentane — 12 comps.

n-Hexane	*n*-Tetradecane	*n*-Docosane
n-Octane	*n*-Hexadecane	*n*-Tetracosane
n-Decane	*n*-Octadecane	*n*-Hexacosane
n-Dodecane	*n*-Eicosane	*n*-Octacosane

Gasoline & Diesel Calibration Curve Set

DRH-TX-002-D-SET — **8 x 1 mL**
Each at stated conc. in CH_2Cl_2 — 2 comps.

Regular Unleaded Gasoline — #2 Diesel Fuel

Each set contains 8 concentrations:

5 µg/mL	**50 µg/mL**	**200 µg/mL**	**1000 µg/mL**
20 µg/mL	**100 µg/mL**	**500 µg/mL**	**5000 µg/mL**

Gasoline/Diesel Continuing Calibration Standard

DRH-TX-002-D-0.4X-10ML — **1 x 10 mL**
200 µg/mL each in CH_2Cl_2 — 2 comps.

Regular Unleaded Gasoline — #2 Diesel Fuel

Gasoline/Diesel Calibration/Matrix Spike Standard

DRH-TX-002-10X — **1 x 1 mL**
DRH-TX-002-10X-PAK — ***SAVE*** — **5 x 1 mL**
5000 µg/mL each in MeOH — 2 comps.

Regular Unleaded Gasoline — #2 Diesel Fuel

Stock Gasoline/Diesel Calibration Standard

DRH-TX-002-D-40X — **1 x 1 mL**
DRH-TX-002-D-40X-PAK — ***SAVE*** — **5 x 1 mL**
20,000 µg/mL each in CH_2Cl_2 — 2 comps.

Regular Unleaded Gasoline — #2 Diesel Fuel

Technical Note

TCEQ Methods 1005 and 1006
Texas Commission on Environmental Quality (TCEQ) has developed these methods in response to notifications of leaking petroleum storage tanks that have contaminated ground water. These methods govern the testing of Total Petroleum Hydrocarbon (TPH) concentrations.

Gasoline & Diesel Calibration Curve Set

DRH-TX-003-SET — **8 x 1 mL**
Each at stated conc. in Pentane — 2 comps.

Regular Unleaded Gasoline — #2 Diesel Fuel

Each set contains 8 concentrations:

20 µg/mL	**250 µg/mL**	**750 µg/mL**	**5000 µg/mL**
100 µg/mL	**500 µg/mL**	**1000 µg/mL**	**10,000 µg/mL**

Gasoline and Diesel Standard

DRH-TX-003-20X — **1 x 5 mL**
DRH-TX-003-20X-PAK — ***SAVE*** — **5 x 5 mL**
10,000 µg/mL each in Pentane — 2 comps.

Regular Unleaded Gasoline — #2 Diesel Fuel

Surrogate Standard

DRH-TX-003-SS1 — **1 x 5 mL**
DRH-TX-003-SS1-PAK — ***SAVE*** — **5 x 5 mL**
10 mg/mL each in Pentane — 2 comps.

1-Chlorooctadecane — 1-Chlorooctane

Carbon Number Distribution Maker

DRH-TX-003-CNM — **1 x 1 mL**
DRH-TX-003-CNM-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in Pentane — 9 comps.

n-Decane	*n*-Heptane	*n*-Octacosane
n-Dodecane	*n*-Hexadecane	*n*-Octane
n-Heneicosane	*n*-Hexane	*n*-Pentatriacontane

Aromatic Fractionation Check Standard

DRH-TX-003-FCS — **1 x 10 mL**
DRH-TX-003-FCS-PAK — ***SAVE*** — **5 x 10 mL**
20 µg/mL each in Pentane — 24 comps.

Acenaphthene	Benzo[e]pyrene	Naphthalene
Acenaphthylene	Benzo[g,h,i]perylene	Phenanthrene
Anthracene	Chrysene	Pyrene
Benzene	Dibenz[a,h]anthracene	Toluene
Benz[a]anthracene	Ethylbenzene	1,2,3-Trimethylbenzene
Benzo[b]fluoranthene	Fluoranthene	*m*-Xylene
Benzo[k]fluoranthene	Fluorene	*p*-Xylene
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	*o*-Xylene

Washington Method Determination of Volatile Petroleum Hydrocarbons (VPH)

VPH Standard

VPH-WA **1 x 1 mL**
VPH-WA-PAK ***SAVE*** **5 x 1 mL**
200 µg/mL each in MeOH 15 comps.

Benzene	*p*-Xylene	*n*-Decane
Ethylbenzene	MtBE	*n*-Dodecane
Toluene	*n*-Pentane	1-Methylnaphthalene
o-Xylene	*n*-Hexane	Naphthalene
m-Xylene	*n*-Octane	1,2,3-Trimethylbenzene

VPH Primary Dilution Standard with Surrogate

VPH-WA-SS-10X **1 x 1 mL**
VPH-WA-SS-10X-PAK ***SAVE*** **5 x 1 mL**
2,000 µg/mL each in MeOH 16 comps.

Benzene	MtBE	*n*-Dodecane
Ethylbenzene	*n*-Pentane	1-Methylnaphthalene
Toluene	*n*-Hexane	Naphthalene
o-Xylene	*n*-Octane	1,2,3-Trimethylbenzene
m-Xylene	*n*-Decane	2,5-Dibromotoluene (surrogate)
p-Xylene		

Stock Concentrate VPH Standards

VPH-WA-10X **1 x 1 mL**
VPH-WA-10X-PAK ***SAVE*** **5 x 1 mL**
2,000 µg/mL each in MeOH 15 comps.
VPH-WA-100X **1 x 1 mL**
VPH-WA-100X-PAK ***SAVE*** **5 x 1 mL**
20.0 mg/mL each in MeOH 15 comps.

Benzene	*p*-Xylene	*n*-Decane
Ethylbenzene	MtBE	*n*-Dodecane
Toluene	*n*-Pentane	1-Methylnaphthalene
o-Xylene	*n*-Hexane	Naphthalene
m-Xylene	*n*-Octane	1,2,3-Trimethylbenzene

Certified BTEX in Unleaded Gasoline (Single Source)

GA-001-20X-BTEX **1 x 1 mL**
10.0 mg/mL in MeOH

Regular Unleaded Gasoline

Certified BTEX in Gasoline Composite (Multi Source)

GRO-AK-101-GCS-BTEX **1 x 1 mL**
5 mg/mL in MeOH 3 comps.

	Wt. Vol.
Gasoline (Premium)	1.66 mg/mL
Gasoline (Regular Leaded)	1.67 mg/mL
Gasoline (Regular Unleaded)	1.67 mg/mL

VPH Matrix Spike

VPH-WA-MS **1 x 1 mL**
VPH-WA-MS-PAK ***SAVE*** **5 x 1 mL**
Varied conc. in MeOH 11 comps.

Benzene	(60 µg/mL)	Toluene	(60 µg/mL)
Ethylbenzene	(60 µg/mL)	1,2,3-Trimethylbenzene	(60 µg/mL)
MtBE	(180 µg/mL)	*m*-Xylene	(60 µg/mL)
Naphthalene	(360 µg/mL)	*p*-Xylene	(60 µg/mL)
n-Nonane	(200 µg/mL)	*o*-Xylene	(60 µg/mL)
n-Pentane	(600 µg/mL)		

VPH Surrogate Standard

GRH-004-SS **1 x 1 mL**
GRH-004-SS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL in MeOH
GRH-004-SS-10X **1 x 1 mL**
GRH-004-SS-10X-PAK ***SAVE*** **5 x 1 mL**
500 µg/mL in MeOH
GRH-004-SS-100X **1 x 1 mL**
GRH-004-SS-100X-PAK ***SAVE*** **5 x 1 mL**
5,000 µg/mL in MeOH

2,5-Dibromotoluene

VPH Retention Time Marker

VPH-WA-RT **1 x 1 mL**
VPH-WA-RT-PAK ***SAVE*** **5 x 1 mL**
2,000 µg/mL each in MeOH 6 comps.

n-Pentane	*n*-Octane	*n*-Dodecane
n-Hexane	*n*-Decane	*n*-Tridecane

1,2,3-Trimethylbenzene Standard

V-028S-D-10X **1 x 1 mL**
V-028S-D-10X-PAK ***SAVE*** **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

1,2,3-Trimethylbenzene

Technical Note

Simultaneous BTEX / Gasoline QA/QC
We have certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard GA-001-20X-BTEX and GRO-AK-101-GCS-BTEX. This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

We have added a multi source certified BTEX in gasoline composite mix GRO-AK-101-GCS-BTEX. The BTEX values for this multi-source calibration standard have been determined through in-house analysis against a BTEX multi-level calibration curve listed on the certificate.

Washington Method Determination of Extractable Petroleum Hydrocarbons (EPH)

EPH Aromatic/PAH Standard

EPH-WA-10X — **1 x 1 mL**
EPH-WA-10X-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 18 comps.

Acenaphthene	Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene
Acenaphthylene	Benzo[k]fluoranthene	2-Methylnaphthalene
Anthracene	Chrysene	Naphthalene
Benz[a]anthracene	Dibenz[a,h]anthracene	Phenanthrene
Benzo[a]pyrene	Fluoranthene	Pyrene
Benzo[b]fluoranthene	Fluorene	1,2,3-Trimethylbenzene

Internal Standard

GRH-IS — **1 x 1 mL**
GRH-IS-PAK — *SAVE* — **5 x 1 mL**
1000 µg/mL in CH_2Cl_2
GRH-IS-10X — **1 x 1 mL**
10.0 mg/mL in CH_2Cl_2

5-alpha Androstane

EPH Surrogate Spike

DRH-MA-SS — **1 x 1 mL**
20 µg/mL each in Acetone — 2 comps.
DRH-MA-SS-10X — **1 x 1 mL**
200 µg/mL each in Acetone — 2 comps.
DRH-MA-SS-100X — **1 x 1 mL**
DRH-MA-SS-100X-PAK — *SAVE* — **5 x 1 mL**
2,000 µg/mL each in Acetone — 2 comps.

1-Chlorooctadecane — *o*-Terphenyl

EPH Matrix Spike

EPH-WA-MS2-20ML — **1 x 20 mL**
EPH-WA-MS2-20ML-PAK — *SAVE* — **5 x 20 mL**
25 µg/mL each in Acetone — 10 comps.

Acenaphthene	*n*-Decane	*n*-Heneicosane
Anthracene	*n*-Dodecane	Naphthalene
Benzo[g,h,i]perylene	*n*-Hexadecane	Pyrene
Benzo[a]pyrene		

EPH Aliphatic Check Mix

EPH-WA-ALI — **1 x 1 mL**
EPH-WA-ALI-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 5 comps.

n-Octane	*n*-Dodecane	*n*-Heneicosane
n-Decane	*n*-Hexadecane	

EPH Aromatic Check Mix

EPH-WA-ARO — **1 x 1 mL**
EPH-WA-ARO-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 5 comps.

Acenaphthene	Naphthalene	1,2,3-Trimethylbenzene
Benzo[g,h,i]perylene	Pyrene	

Revised EPH Aliphatic Check Mix

EPH-WA-ALI-R1 — **1 x 1 mL**
EPH-WA-ALI-R1-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 6 comps.

n-Octane	*n*-Dodecane	*n*-Heneicosane
n-Decane	*n*-Hexadecane	*n*-Tetratriacontane

EPH Fractionation Check Standard

EPH-WA-FCS — **1 x 1 mL**
EPH-WA-FCS-PAK — *SAVE* — **5 x 1 mL**
25 µg/mL each in Hexane — 24 comps.

Acenaphthene	Chrysene	Pyrene
Acenaphthylene	Dibenz[a,h]anthracene	*n*-Decane
Anthracene	Fluoranthene	*n*-Dodecane
Benz[a]anthracene	Fluorene	*n*-Tetradecane
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	*n*-Hexadecane
Benzo[b]fluoranthene	2-Methylnaphthalene	*n*-Octadecane
Benzo[g,h,i]perylene	Naphthalene	*n*-Eicosane
Benzo[k]fluoranthene	Phenanthrene	*n*-Heneicosane

Revised EPH Fractionation Check Standard

EPH-WA-FCS-R1 — **1 x 1 mL**
EPH-WA-FCS-R1-PAK — *SAVE* — **5 x 1 mL**
25 µg/mL each in Hexane — 23 comps

Acenaphthene	Chrysene	Pyrene
Acenaphthylene	Dibenz[a,h]anthracene	*n*-Octane
Anthracene	Fluoranthene	*n*-Decane
Benz[a]anthracene	Fluorene	*n*-Dodecane
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	*n*-Hexadecane
Benzo[b]fluoranthene	2-Methylnaphthalene	*n*-Heneicosane
Benzo[g,h,i]perylene	Naphthalene	*n*-Tetratriacontane
Benzo[k]fluoranthene	Phenanthrene	

1,2,3-Trimethylbenzene Standard

V-028S-D-10X — **1 x 1 mL**
V-028S-D-10X-PAK — *SAVE* — **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

1,2,3-Trimethylbenzene

Revised EPH Aromatic Check Mix

EPH-WA-ARO-R1 — **1 x 1 mL**
EPH-WA-ARO-R1-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 6 comps.

Acenaphthene	Naphthalene	1,2,3-Trimethylbenzene
Benzo[g,h,i]perylene	Pyrene	Toluene

Aliphatic Surrogate

DRH-007-SS — **1 x 1 mL**
DRH-007-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Hexane

1-Chlorooctadecane

Aromatic Surrogate

DRH-006-SS — **1 x 1 mL**
DRH-006-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

o-Terphenyl

Gasoline Range Hydrocarbon Analysis

EPA Method - Gasoline Range Hydrocarbons

Gasoline Standard

GRH-002S **1 x 1 mL**
GRH-002S-10X **1 x 1 mL**
At stated conc. in MeOH 10 comps.

	GRH-002S	GRH-002-10X
2-Methylpentane	(1.5 mg/mL)	(15 mg/mL)
2,2,4-Trimethylpentane	(1.5 mg/mL)	(15 mg/mL)
Heptane	(0.5 mg/mL)	(5 mg/mL)
Benzene	(0.5 mg/mL)	(5 mg/mL)
Toluene	(1.5 mg/mL)	(15 mg/mL)
Ethylbenzene	(0.5 mg/mL)	(5 mg/mL)
m-Xylene	(1.0 mg/mL)	(10 mg/mL)
p-Xylene	(1.0 mg/mL)	(10 mg/mL)
o-Xylene	(1.0 mg/mL)	(10 mg/mL)
1,2,4-Trimethylbenzene	(1.0 mg/mL)	(10 mg/mL)

Internal Standard

GARH-IS **1 x 1 mL**
1.0 mg/mL in CH_2Cl_2

Chloro-4-fluorobenzene

Surrogate Standard

GARH-SS **1 x 1 mL**
2.5 mg/mL in Acetone

4-Bromofluorobenzene

Gasoline Additives

GAD-001 **1 x 1 mL**
GAD-001-PAK *SAVE* **5 x 1 mL**
0.2 mg/mL each in MeOH 4 comps.

Dibromomethane	1,2-Dichloroethane
1,2-Dibromoethane	Methyl t-butyl ethera

Technical Note

Simultaneous BTEX / Gasoline QA/QC
We have certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard (GA-001-20X-BTEX). This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX **1 x 1 mL**
10.0 mg/mL in MeOH

Regular unleaded gasoline

Hexadecane Extraction Volatiles

CLP-BTEX **1 x 1 mL**
CLP-BTEX-PAK *SAVE* **5 x 1 mL**
0.2 mg/mL each in MeOH 6 comps.
CLP-BTEX-10X **1 x 1 mL**
CLP-BTEX-10X-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in MeOH 6 comps.

Benzene	*o*-Xylene
Ethyl benzene	*m*-Xylene
Toluene	*p*-Xylene

California - Gasoline Range Hydrocarbons

S-603A-10X **1 x 1 mL**
S-603A-10X-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in MeOH 7 comps.

Benzene	*o*-Xylene
Ethylbenzene	*m*-Xylene
Methyl t-butyl ether	*p*-Xylene
Toluene	

Los Angeles County Well Investigation and Monitoring Program

Purgeable Aromatics - Gasoline ID

M-602-GAS-10X **1 x 1 mL**
2.0 mg/mL each in MeOH 11 comps.

Benzene	Toluene
Chlorobenzene	*o*-Xylene
1,2-Dichlorobenzene	*p*-Xylene
1,3-Dichlorobenzene	*m*-Xylene
1,4-Dichlorobenzene	MtBE
Ethylbenzene	

Oxygenate Gasoline Additive Standard

OGAD-001 **1 x 1 mL**
OGAD-001-PAK *SAVE* **5 x 1 mL**
At stated conc. in MeOH 5 comps.

MtBE	(2000 µg/mL)	TAME	(2000 µg/mL)
ETBE	(2000 µg/mL)	t-Butanol	(10000 µg/mL)
Isopropyl ether	(2000 µg/mL)		

Ethanol

M-8015B/5031-11 **1 x 1 mL**
10 mg/mL in Water

Methanol

M-8015B/5031-17 **1 x 1 mL**
10 mg/mL in Water

Pennsylvania DER - Gasoline Range Hydrocarbons

GRH-001S **1 x 1 mL**
GRH-001S-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL each in MeOH 10 comps.

Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	2,2,4-Trimethylpentane
Heptane	*o*-Xylene
2-Methyl pentane	*m*-Xylene
Toluene	*p*-Xylene

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S **1 x 1 mL**
GRH-003S-PAK *SAVE* **5 x 1 mL**
2.0 mg/mL each in MeOH 10 comps.

Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	1,3,5-Trimethylbenzene
MtBE	*o*-Xylene
Naphthalene	*m*-Xylene
Toluene	*p*-Xylene

LUFT/LUST Standards
Diesel Range Hydrocarbons (DRH)

Diesel Range Hydrocarbon Analysis

EPA Method - Diesel Range Hydrocarbons

DRH-001S — **1 x 1 mL**
0.2 mg/mL each in CH_2Cl_2 : Hexane (1:1) — 10 comps.
DRH-001S-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 : Hexane (1:1) — 10 comps.

n-Decane	C_{10}	*n*-Hexadecane	C_{16}	*n*-Docosane	C_{22}	*n*-Hexacosane	C_{26}
n-Dodecane	C_{12}	*n*-Octadecane	C_{18}	*n*-Tetracosane	C_{24}	*n*-Octacosane	C_{28}
n-Tetradecane	C_{14}	*n*-Eicosane	C_{20}				

Surrogate Standard

GRH-SS — **1 x 1 mL**
GRH-SS-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL in Acetone

o-Terphenyl *(OTP)*

Internal Standard

GRH-IS — **1 x 1 mL**
GRH-IS-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

5-alpha Androstane

Calibration/Window Defining Hydrocarbon Standard

DRH-004S-R1-5X — **1 x 1 mL**
DRH-004S-R1-5X-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in Chloroform — 17 comps.

Octane	C_8	Octadecane	C_{18}	Hexacosane	C_{26}	Tetratriacontane	C_{34}
Decane	C_{10}	Eicosane	C_{20}	Octacosane	C_{28}	Hexatriacontane	C_{36}
Dodecane	C_{12}	Docosane	C_{22}	Triacontane	C_{30}	Octatriacontane	C_{38}
Tetradecane	C_{14}	Tetracosane	C_{24}	Dotriacontane	C_{32}	Tetracontane	C_{40}
Hexadecane	C_{16}						

Surrogate Standard

DRH-SS — **1 x 1 mL**
DRH-SS-PAK — ***SAVE*** — **5 x 1 mL**
5.0 mg/mL in THF

n-Triacontane-d_{62}

D-2887 Calibration Solution

Calibration Solution

DRH-002S — **1 x 1 mL**
At stated conc. in CS_2 — 17 comps.

Hexane	(600 µg/mL)	Dodecane	(1,200 µg/mL)	Octacosane	(100 µg/mL)
Heptane	(600 µg/mL)	Tetradecane	(1,200 µg/mL)	Dotriacontane	(100 µg/mL)
Octane	(800 µg/mL)	Hexadecane	(1,000 µg/mL)	Hexatriacontane	(100 µg/mL)
Nonane	(800 µg/mL)	Octadecane	(500 µg/mL)	Tetracontane	(100 µg/mL)
Decane	(1,200 µg/mL)	Eicosane	(200 µg/mL)	Tetratetracontane	(100 µg/mL)
Undecane	(1,200 µg/mL)	Tetracosane	(200 µg/mL)		

Column Test Mixture

ASTM-D2887 — **1 x 1 mL**
1% v/v in n-Octane — 2 comps.

n-Hexadecane — *n*-Octadecane

Wisconsin Diesel Range Hydrocarbons

DRH-003S — **1 x 1 mL**
0.2 mg/mL each in Hexane — 11 comps.

n-Decane	C_{10}	*n*-Tetradecane	C_{14}	*n*-Octadecane	C_{18}
n-Undecane	C_{11}	*n*-Pentadecane	C_{15}	*n*-Nonadecane	C_{19}
n-Dodecane	C_{12}	*n*-Hexadecane	C_{16}	*n*-Eicosane	C_{20}
n-Tridecane	C_{13}	*n*-Heptadecane	C_{17}		

Complete Hydrocarbon Analysis

Multi-State Hydrocarbon Window Defining Standard

DRH-008S-R2 — **1 x 1 mL**
DRH-008S-R2-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in Chloroform — 35 comps.

Octane	Heptadecane	Tetracosane	Tritriacontane
Nonane	Pristane	Pentacosane	Tetratriacontane
Decane	Octadecane	Hexacosane	Pentatriacontane
Undecane	Phytane	Heptacosane	Hexatriacontane
Dodecane	Nonadecane	Octacosane	Heptatriacontane
Tridecane	Eicosane	Nonacosane	Octatriacontane
Tetradecane	Heneicosane	Triacontane	Nonatriacontane
Pentadecane	Docosane	*n*-Hentriacontane	Tetracontane
Hexadecane	Tricosane	Dotriacontane	

Technical Note

We offer a hydrocarbon window defining standard with the C_8 to C_{40} odd and even Alkanes. Use of this one standard should meet the numerous state to state variations for hydrocarbon validation and reporting. As an added benefit pristane and phytane are included in the formulation. This one standard can meet numerous LUFT/LUST programs requiring that the C_{17}/ pristane and C_{18}/ phytane ratio be used to estimate subsurface degradation of fuel oil spills.

A fuel oil degradation mixture containing just the four required analytes to determine the C_{17}/pristane and C_{18}/ phytane ratio (DRH-005S-10X) is also available.

Fuel Oil Degradation/Retention Time Mixture for Quantification of C_{17}/Pristane and C_{18}/Phytane Ratios

DRH-005S-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 : CS_2 (1:1) — 4 comps.

Heptadecane	Phytane *(2,6,10,14-Tetramethylhexadecane)*
Octadecane	Pristane *(2,6,10,14-Tetramethylpentadecane)*

FTRPH Calibration/Window Defining Standard

DRH-FTRPH — **1 x 1 mL**
DRH-FTRPH-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in Hexane — 17 comps.

n-Octane	*n*-Octadecane	*n*-Hexacosane	*n*-Tetratriacontane
n-Decane	*n*-Eicosane	*n*-Octacosane	*n*-Hexatriacontane
n-Dodecane	*n*-Docosane	*n*-Triacontane	*n*-Octatriacontane
n-Tetradecane	*n*-Tetracosane	*n*-Dotriacontane	*n*-Tetracontane
n-Hexadecane			

Hydrocarbon Window Defining Standard

DRH-FTRPH2 — **1 x 1 mL**
DRH-FTRPH2-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in Hexane — 18 comps.

n-Nonane	Pristane	*n*-Pentacosane	*n*-Tritriacontane
n-Undecane	Phytane	*n*-Heptacosane	*n*-Pentatriacontane
n-Tridecane	*n*-Nonadecane	*n*-Nonacosane	*n*-Heptatriacontane
n-Pentadecane	*n*-Heneicosane	*n*-Hentriacontane	*n*-Nonatriacontane
n-Heptadecane	*n*-Tricosane		

Hydrocarbon Window Defining Standard Set

DRH-FTRPH-SET — **2 x 1 mL (DRH-FTRPH, DRH-FTRPH2)**
DRH-FTRPH-SET-PAK — ***SAVE*** — **5 (2 x 1 mL)**
500 µg/mL each in Hexane

Method 1664 Oil, Grease & Total Petroleum Hydrocarbon Determination

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML — **1 x 5 mL**
M-1664-5ML-PAK — ***SAVE*** — **5 x 5 mL**
4.0 mg/mL each in Acetone
M-1664-20ML — **1 x 20 mL**
M-1664-20ML-PAK — ***SAVE*** — **5 x 20 mL**
4.0 mg/mL each in Acetone — 2 comps.

Hexadecane — Stearic acid

Silica Gel Hexane Extraction Material

SGT-HEM — **1 x 1 mL**
20 µg/mL each in Acetone — 2 comps.

Stearic acid — Hexadecane

Technical Note

Precison and Recovery (PAR) Spiking Solution was developed for Method 1664. This performance based method was developed to replace previous gravimetric procedures which incorporated Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule conveniently sized for quality control of the analytical batch.

Method 413.2 & 418.1 Total Petroleum Hydrocarbon Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON — **1 x 1 mL**
% by volume — 3 comps.

Chlorobenzene (25.0) — Hexadecane (37.5)
Isooctane (37.5)

Oil, Grease and Petroleum Hydrocarbon Total Recoverable (IR Method)

M-418 — ***SAVE*** — **1 x 1 mL**
M-418-PAK — ***SAVE*** — **5 x 1 mL**
Total 4.15 mg/mL in Freon 113, (Parts by volume) — 3 comps.

Chlorobenzene (10.0) — Isooctane (15.0)
n-Hexadecane (15.0)

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440 — **1 x 1 mL**
M-8440-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. in Tetrachloroethene — 3 comps.

Chlorobenzene (0.10 w/w %) — Isooctane (0.15 w/w %)
n-Hexadecane (0.15 w/w %)

Silica Gel Cleanup Calibration Solution

M-8440-SGC — **1 x 1 mL**
M-8440-SGC-PAK — ***SAVE*** — **5 x 1 mL**
10.0 mg/mL in Tetrachloroethene

Corn Oil

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON — **1 x 1 mL**
M-8440-CON-PAK — ***SAVE*** — **5 x 1 mL**
3 comps.

Chlorobenzene (25.0 vol %) — Isooctane (37.5 vol %)
n-Hexadecane (37.5 vol %)

Leaking Underground Storage Tank Retention Time Standard

This product can be used to screen a sample to determine what type of petroleum spill that may have caused the contamination.

Retention Time Standard

DRH-010S — **1 x 1 mL**
DRH-010S-PAK — ***SAVE*** — **5 x 1 mL**
25 µg/mL each in CH_2Cl_2 — 7 comps.

n-Hexane — *n*-Tetracosane — *n*-Triacontane
n-Decane — *n*-Octacosane — *n*-Tetracontane
n-Dodecane

Technical Note

A sample showing peaks in the C_6-C_{10} range generally indicates a gasoline spill. Samples with the peaks in the C_{12}-C_{24} range are indicative of a diesel spill while samples with the higher carbon numbers above C_{24} are typically oils or lubricants. Once the initial screen is complete, more detailed work can be done to further identify the contaminant.

Inorganic Standards

Table of Contents

3 Year Minimum Shelf Life on Single Element ICP, ICP/MS and AA Standards

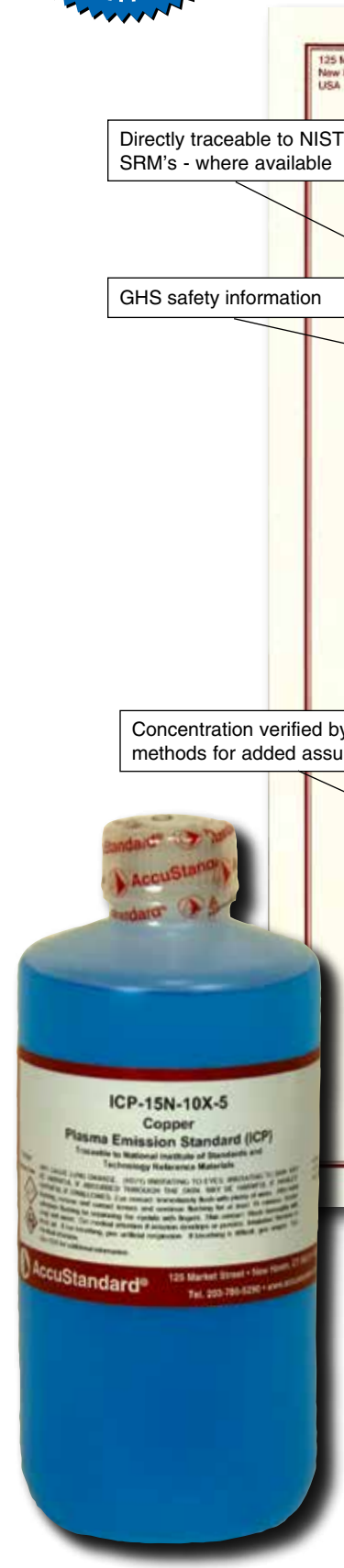
TRACEABLE AccuTrace™ Reference Standards CERTIFIED

AccuTrace™ Documentation

- ✔ Traceability to NIST SRM by Wet Chemical / Gravimetric Assay
- ✔ Traceability to NIST SRM by Instrumental Analysis
- ✔ Reference to NIST Traceability during product preparation

Certificate of Analysis

Sample: Single Element ICP



125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Catalog No: ICP-15N-10X-5
Description: Copper ICP Standard
Element: Copper (Cu)
SRM: 3114
Lot: 213085107
Matrix: 2-5% Nitric acid
Hazards: **CORROSIVE** - *Refer to SDS for safety info*

Date Certified: Oct 8, 2013
Expiration: Oct 8, 2018
Concentration: 10000 µg/mL
Density: 1.040g/mL
Sample Size: 500 mL
Storage Condition: Ambient

[X] Included on ISO/IEC 17025 Scope of Accreditation
[X] Included on ISO Guide 34 Scope of Accreditation

Danger 1

Elements in µg/mL

Ag	nd<0.02	Ce	nd<0.2	Gd	nd<0.02	Lu	nd<0.02	Pb	N/A	Sc	nd<0.02	Tl	nd<0.02
Al	nd<0.02	Co	nd<0.02	Ge	nd<0.2	Mg	nd<0.02	Pd	N/A	Se	nd<0.2	Tl	nd<0.2
As	nd<0.2	Cr	nd<0.02	Hf	nd<0.02	Mn	nd<0.02	Pr	nd<0.2	Si	N/A	Tm	nd<0.02
Au	nd<0.02	Cs	N/A	Hg	nd<0.2	Mo	nd<0.02	Pt	nd<0.2	Sm	nd<0.2	U	nd<0.2
B	nd<0.2	Cu	*	Ho	nd<0.02	Na	0.02	Rb	N/A	Sn	N/A	V	nd<0.02
Ba	nd<0.02	Dy	nd<0.02	In	nd<0.2	Nb	nd<0.2	Re	nd<0.2	Sr	nd<0.02	W	nd<0.2
Be	nd<0.02	Er	nd<0.02	Ir	nd<0.2	Nd	nd<0.02	Rh	nd<0.2	Ta	nd<0.2	Y	nd<0.02
Bi	N/A	Eu	nd<0.02	K	nd<0.2	Ni	N/A	Ru	nd<0.02	Tb	nd<0.02	Yb	nd<0.02
Ca	0.04	Fe	N/A	La	nd<0.02	Os	N/A	S	N/A	Te	nd<0.2	Zn	nd<0.02
Cd	nd<0.02	Ga	nd<0.02	Li	nd<0.02	P	N/A	Sb	nd<0.2	Th	nd<0.02	Zr	nd<0.02

This solution was assayed titrimetrically using EDTA which was standardized against NIST SRM #928 (lead nitrate.)
In order to verify the concentration(s), the final solution was checked by plasma emission spectroscopy (ICP) against material traceable to the above listed NIST SRM(s).
All trace level elemental impurities were determined via plasma emission spectroscopy on the concentrate.
All bottles are acid leached and triple rinsed with deionized water prior to use.
The gravimetric uncertainty for this product is ±0.24%. The CRM uncertainty is ±5%. See reverse side for details.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as high purity acids and ASTM Type I 18 megohm deionized water.
Balances used during preparation are calibrated regularly using NIST traceable weights.
All glassware used in preparation is Class A and calibrated regularly.
Use good laboratory procedure when diluting this product. Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Lydia Snyder
Lydia Snyder, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

Directly traceable to NIST SRM's - where available

Most Single element standards have a minumum 3 Year expiration period.

Density included for easy conversion to weight/ weight applications.

GHS safety information

Impurity Scan for 68 elements in final solution.

Concentration verified by two independent methods for added assurance.

Uncertainty reported for statistical confidence.

Highest purity starting materials & matrices used.

QC management approval

Accreditations

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.

ICP
Single Element

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis
- Packaged in specially prepared Acid leached bottles

3 Year Minimum Shelf Life on Single Element ICP Standards

Save with NoHaz Option on ICP Single Elements

- No Hazardous Shipping Fees
- Lower Shipping Costs (less weight)
- Yields More - 200 mL from 20 mL concentrate

Includes empty pre-washed, pre-labeled HDPE 250 mL bottle

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

Single Element ICP				NoHaz 20 mL Size
Element Starting Material Matrix	**Unit**	**1000 µg/mL** **Cat. No.**	**10,000 µg/mL** **Cat. No.**	**20 mL (NoHaz)** **10,000 µg/mL** **Cat. No.**
Aluminum	50 mL	--------- --	ICP-01N-10X-0.5	ICP-01N-10X-20ML
$Al(NO_3)_3 \cdot 9H_2O$	100 mL	ICP-01N-1	ICP-01N-10X-1	
2-5% Nitric acid	500 mL	ICP-01N-5	ICP-01N-10X-5	
Antimony	50 mL	--------- --	ICP-02N-10X-0.5	ICP-02N-10X-20ML
Sb Dilute HNO_3 tr	100 mL	ICP-02N-1	ICP-02N-10X-1	
Tartaric acid	500 mL	ICP-02N-5	ICP-02N-10X-5	
Arsenic	50 mL	--------- --	ICP-03N-10X-0.5	ICP-03N-10X-20ML
As	100 mL	ICP-03N-1	ICP-03N-10X-1	
2-5% Nitric acid	500 mL	ICP-03N-5	ICP-03N-10X-5	
Barium	50 mL	--------- --	ICP-04N-10X-0.5	ICP-04N-10X-20ML
$Ba(NO_3)_2$	100 mL	ICP-04N-1	ICP-04N-10X-1	
2-5% Nitric acid	500 mL	ICP-04N-5	ICP-04N-10X-5	
Beryllium	50 mL	--------- --	ICP-05N-10X-0.5	ICP-05N-10X-20ML
$BeO(C_2H_3O_2)_6$	100 mL	ICP-05N-1	ICP-05N-10X-1	
2-5% Nitric acid	500 mL	ICP-05N-5	ICP-05N-10X-5	
Bismuth	50 mL	--------- --	ICP-06N-10X-0.5	ICP-06N-10X-20ML
Bi	100 mL	ICP-06N-1	ICP-06N-10X-1	
2-10% Nitric acid	500 mL	ICP-06N-5	ICP-06N-10X-5	
Boron	50 mL	--------- --	ICP-07W-10X-0.5 ▼	ICP-07W-10X-20ML
H_3BO_3	100 mL	ICP-07W-1 ▼	ICP-07W-10X-1 ▼	
Water tr. NH_4OH	500 mL	ICP-07W-5 ▼	ICP-07W-10X-5 ▼	
Cadmium	50 mL	--------- --	ICP-08N-10X-0.5	ICP-08N-10X-20ML
Cd	100 mL	ICP-08N-1	ICP-08N-10X-1	
2-5% Nitric acid	500 mL	ICP-08N-5	ICP-08N-10X-5	
Calcium	50 mL	--------- --	ICP-09N-10X-0.5	ICP-09N-10X-20ML
$CaCO_3$	100 mL	ICP-09N-1	ICP-09N-10X-1	
2-5% Nitric acid	500 mL	ICP-09N-5	ICP-09N-10X-5	
Cerium	50 mL	--------- --	ICP-11N-10X-0.5	ICP-11N-10X-20ML
$Ce(NO_3)_3$	100 mL	ICP-11N-1	ICP-11N-10X-1	
2-5% Nitric acid	500 mL	ICP-11N-5	ICP-11N-10X-5	
Cesium	50 mL	--------- --	ICP-12N-10X-0.5	ICP-12N-10X-20ML
$CsNO_3$	100 mL	ICP-12N-1	ICP-12N-10X-1	
2-5% Nitric acid	500 mL	ICP-12N-5	ICP-12N-10X-5	
Chromium reduced to (+3) state	50 mL	--------- --	ICP-13N-10X-0.5	ICP-13N-10X-20ML
$(NH_4)_2Cr_2O_7$	100 mL	ICP-13N-1	ICP-13N-10X-1	
2-5% Nitric acid	500 mL	ICP-13N-5	ICP-13N-10X-5	
Cobalt	50 mL	--------- --	ICP-14N-10X-0.5	ICP-14N-10X-20ML
Co	100 mL	ICP-14N-1	ICP-14N-10X-1	
2-5% Nitric acid	500 mL	ICP-14N-5	ICP-14N-10X-5	
Copper	50 mL	--------- --	ICP-15N-10X-0.5	ICP-15N-10X-20ML
Cu	100 mL	ICP-15N-1	ICP-15N-10X-1	
2-5% Nitric acid	500 mL	ICP-15N-5	ICP-15N-10X-5	
Dysprosium	50 mL	--------- --	ICP-16N-10X-0.5	ICP-16N-10X-20ML
Dy_2O_3	100 mL	ICP-16N-1	ICP-16N-10X-1	
2-5% Nitric acid	500 mL	ICP-16N-5	ICP-16N-10X-5	
Erbium	50 mL	--------- --	ICP-17N-10X-0.5	ICP-17N-10X-20ML
Er_2O_3	100 mL	ICP-17N-1	ICP-17N-10X-1	
2-5% Nitric acid	500 mL	ICP-17N-5	ICP-17N-10X-5	
Europium	50 mL	--------- --	ICP-18N-10X-0.5	ICP-18N-10X-20ML
Eu_2O_3	100 mL	ICP-18N-1	ICP-18N-10X-1	
2-5% Nitric acid	500 mL	ICP-18N-5	ICP-18N-10X-5	

▼ Hazardous fee not required.

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis
- Packaged in specially prepared Acid leached bottles

3 Year Minimum Shelf Life on Single Element ICP Standards

Save with NoHaz Option on ICP Single Elements

- No Hazardous Shipping Fees
- Lower Shipping Costs (less weight)
- Yields More - 200 mL from 20 mL concentrate

Includes empty pre-washed, pre-labeled HDPE 250 mL bottle

Single Element ICP

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	NoHaz 20 mL Size 20 mL (NoHaz) 10,000 µg/mL Cat. No.
Gadolinium	50 mL	--------- --	ICP-19N-10X-0.5	ICP-19N-10X-20ML
Gd_2O_3	100 mL	ICP-19N-1	ICP-19N-10X-1	
2-5% Nitric acid	500 mL	ICP-19N-5	ICP-19N-10X-5	
Gallium	50 mL	--------- --	ICP-20N-10X-0.5	ICP-20N-10X-20ML
Ga	100 mL	ICP-20N-1	ICP-20N-10X-1	
2-5% Nitric acid	500 mL	ICP-20N-5	ICP-20N-10X-5	
Germanium	50 mL	--------- --	ICP-21W-10X-0.5 ▼	ICP-21W-10X-20ML
$(NH_4)_2GeF_6$	100 mL	ICP-21W-1 ▼	ICP-21W-10X-1 ▼	
Water tr. HF	500 mL	ICP-21W-5 ▼	ICP-21W-10X-5 ▼	
Gold	50 mL	--------- --	ICP-22H-10X-0.5	ICP-22H-10X-20ML
Au	100 mL	ICP-22H-1	ICP-22H-10X-1	
10% HCl (min.)	500 mL	ICP-22H-5	---------- --	
Hafnium	50 mL	--------- --	ICP-23N-10X-0.5	ICP-23N-10X-20ML
HfO_2	100 mL	ICP-23N-1	ICP-23N-10X-1	
2-5% Nitric acid tr. HF	500 mL	ICP-23N-5	ICP-23N-10X-5	
Holmium	50 mL	--------- --	ICP-24N-10X-0.5	ICP-24N-10X-20ML
Ho_2O_3	100 mL	ICP-24N-1	ICP-24N-10X-1	
2-5% Nitric acid	500 mL	ICP-24N-5	ICP-24N-10X-5	
Indium	50 mL	--------- --	ICP-25N-10X-0.5	ICP-25N-10X-20ML
In	100 mL	ICP-25N-1	ICP-25N-10X-1	
2-5% Nitric acid	500 mL	ICP-25N-5	ICP-25N-10X-5	
Iridium	50 mL	--------- --	ICP-26H-10X-0.5	ICP-26H-10X-20ML
$IrCl_3 \bullet 3H_20$	100 mL	ICP-26H-1	ICP-26H-10X-1	
10% HCl (min.)	500 mL	ICP-26H-5	---------- --	
Iron	50 mL	--------- --	ICP-27N-10X-0.5	ICP-27N-10X-20ML
Fe	100 mL	ICP-27N-1	ICP-27N-10X-1	
2-5% Nitric acid	500 mL	ICP-27N-5	ICP-27N-10X-5	
Lanthanum	50 mL	--------- --	ICP-28N-10X-0.5	ICP-28N-10X-20ML
La_2O_3	100 mL	ICP-28N-1	ICP-28N-10X-1	
2-5% Nitric acid	500 mL	ICP-28N-5	ICP-28N-10X-5	
Lead	50 mL	--------- --	ICP-29N-10X-0.5	ICP-29N-10X-20ML
$Pb(NO_3)_2$	100 mL	ICP-29N-1	ICP-29N-10X-1	
2-5% Nitric acid	500 mL	ICP-29N-5	ICP-29N-10X-5	
Lithium	50 mL	--------- --	ICP-30N-10X-0.5	ICP-30N-10X-20ML
Li_2CO_3	100 mL	ICP-30N-1	ICP-30N-10X-1	
2-5% Nitric acid	500 mL	ICP-30N-5	ICP-30N-10X-5	
Lutetium	50 mL	--------- --	ICP-31N-10X-0.5	ICP-31N-10X-20ML
Lu_2O_3	100 mL	ICP-31N-1	ICP-31N-10X-1	
2-5% Nitric acid	500 mL	ICP-31N-5	ICP-31N-10X-5	
Magnesium	50 mL	--------- --	ICP-32N-10X-0.5	ICP-32N-10X-20ML
MgO	100 mL	ICP-32N-1	ICP-32N-10X-1	
2-5% Nitric acid	500 mL	ICP-32N-5	ICP-32N-10X-5	
Manganese	50 mL	--------- --	ICP-33N-10X-0.5	ICP-33N-10X-20ML
$Mn(C_2H_3O_2)_2$	100 mL	ICP-33N-1	ICP-33N-10X-1	
2-5% Nitric acid	500 mL	ICP-33N-5	ICP-33N-10X-5	
Mercury	50 mL	--------- --	ICP-34N-10X-0.5	ICP-34N-10X-20ML
Hg	100 mL	ICP-34N-1	ICP-34N-10X-1	
10% Nitric acid	500 mL	ICP-34N-5	ICP-34N-10X-5	
Molybdenum	50 mL	--------- --	ICP-35W-10X-0.5 ▼	ICP-35W-10X-20ML
$(NH_4)_2MoO_4$	100 mL	ICP-35W-1 ▼	ICP-35W-10X-1 ▼	
Water tr. NH_4OH	500 mL	ICP-35W-5 ▼	ICP-35W-10X-5 ▼	

▼ Hazardous fee not required.

Single Element ICP

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	NoHaz 20 mL Size 20 mL (NoHaz) 10,000 µg/mL Cat. No.
Neodymium	50 mL	--------- --	ICP-36N-10X-0.5	ICP-36N-10X-20ML
Nd_2O_3	100 mL	ICP-36N-1	ICP-36N-10X-1	
2-5% Nitric acid	500 mL	ICP-36N-5	ICP-36N-10X-5	
Nickel	50 mL	--------- --	ICP-37N-10X-0.5	ICP-37N-10X-20ML
Ni	100 mL	ICP-37N-1	ICP-37N-10X-1	
2-5% Nitric acid	500 mL	ICP-37N-5	ICP-37N-10X-5	
Niobium	50 mL	--------- --	ICP-38W-10X-0.5 ▼	ICP-38W-10X-20ML
Nb_2O_5	100 mL	ICP-38W-1 ▼	ICP-38W-10X-1 ▼	
Water tr. HF	500 mL	ICP-38W-5 ▼	ICP-38W-10X-5 ▼	
Palladium	50 mL	--------- --	ICP-40H-10X-0.5	ICP-40H-10X-20ML
Pd	100 mL	ICP-40H-1	ICP-40H-10X-1	
10% HCl (min.)	500 mL	ICP-40H-5	---------- --	
Phosphorus	50 mL	--------- --	ICP-41W-10X-0.5 ▼	ICP-41W-10X-20ML
$NH_4H_2PO_4$	100 mL	ICP-41W-1 ▼	ICP-41W-10X-1 ▼	
Water	500 mL	ICP-41W-5 ▼	ICP-41W-10X-5 ▼	
Platinum	50 mL	--------- --	ICP-42H-10X-0.5	ICP-42H-10X-20ML
Pt	100 mL	ICP-42H-1	ICP-42H-10X-1	
10% HCl (min.)	500 mL	ICP-42H-5	---------- --	
Potassium	50 mL	--------- --	ICP-43N-10X-0.5	ICP-43N-10X-20ML
KNO_3	100 mL	ICP-43N-1	ICP-43N-10X-1	
2-5% Nitric acid	500 mL	ICP-43N-5	ICP-43N-10X-5	
Praseodymium	50 mL	--------- --	ICP-44N-10X-0.5	ICP-44N-10X-20ML
Pr_6O_{11}	100 mL	ICP-44N-1	ICP-44N-10X-1	
2-5% Nitric acid	500 mL	ICP-44N-5	ICP-44N-10X-5	
Rhenium	50 mL	--------- --	ICP-45W-10X-0.5 ▼	ICP-45W-10X-20ML
Re	100 mL	ICP-45W-1 ▼	ICP-45W-10X-1 ▼	
Water tr. Nitric acid	500 mL	ICP-45W-5 ▼	ICP-45W-10X-5 ▼	
Rhodium	50 mL	--------- --	ICP-46H-10X-0.5	ICP-46H-10X-20ML
$RhCl_3 \bullet 3H_2O$	100 mL	ICP-46H-1	ICP-46H-10X-1	
10% HCl (min.)	500 mL	ICP-46H-5	---------- --	
Rubidium	50 mL	--------- --	ICP-47N-10X-0.5	ICP-47N-10X-20ML
$RbNO_3$	100 mL	ICP-47N-1	ICP-47N-10X-1	
2-5% Nitric acid	500 mL	ICP-47N-5	ICP-47N-10X-5	
Ruthenium	50 mL	--------- --	ICP-48H-10X-0.5	ICP-48H-10X-20ML
$RuCl_3 \bullet 3H_2O$	100 mL	ICP-48H-1	ICP-48H-10X-1	
10% HCl	500 mL	ICP-48H-5	---------- --	
Samarium	50 mL	--------- --	ICP-49N-10X-0.5	ICP-49N-10X-20ML
Sm_2O_3	100 mL	ICP-49N-1	ICP-49N-10X-1	
2-5% Nitric acid	500 mL	ICP-49N-5	ICP-49N-10X-5	
Scandium	50 mL	--------- --	ICP-50N-10X-0.5	ICP-50N-10X-20ML
Sc_2O_3	100 mL	ICP-50N-1	ICP-50N-10X-1	
2-5% Nitric acid	500 mL	ICP-50N-5	ICP-50N-10X-5	
Selenium	50 mL	--------- --	ICP-51N-10X-0.5	ICP-51N-10X-20ML
Se	100 mL	ICP-51N-1	ICP-51N-10X-1	
2-5% Nitric acid	500 mL	ICP-51N-5	ICP-51N-10X-5	
Silicon	50 mL	--------- --	ICP-52W-10X-0.5 ▼	ICP-52W-10X-20ML
$(NH_4)2SiF_6$	100 mL	ICP-52W-1 ▼	ICP-52W-10X-1 ▼	
Water tr. HF	500 mL	ICP-52W-5 ▼	ICP-52W-10X-5 ▼	
Silver	50 mL	--------- --	ICP-53N-10X-0.5	ICP-53N-10X-20ML
$AgNO_3$	100 mL	ICP-53N-1	ICP-53N-10X-1	
2-5% Nitric acid	500 mL	ICP-53N-5	ICP-53N-10X-5	
Sodium	50 mL	--------- --	ICP-54N-10X-0.5	ICP-54N-10X-20ML
$NaNO_3$	100 mL	ICP-54N-1	ICP-54N-10X-1	
2-5% Nitric acid	500 mL	ICP-54N-5	ICP-54N-10X-5	
Strontium	50 mL	--------- --	ICP-55N-10X-0.5	ICP-55N-10X-20ML
$Sr(NO_3)_2$	100 mL	ICP-55N-1	ICP-55N-10X-1	
2-5% Nitric acid	500 mL	ICP-55N-5	ICP-55N-10X-5	
Sulfur	50 mL	--------- --	ICP-56W-10X-0.5 ▼	ICP-56W-10X-20ML
$(NH_4)_2SO_4$	100 mL	ICP-56W-1 ▼	ICP-56W-10X-1 ▼	
Water	500 mL	ICP-56W-5 ▼	ICP-56W-10X-5 ▼	
Tantalum	50 mL	--------- --	ICP-57W-10X-0.5 ▼	ICP-57W-10X-20ML
Ta	100 mL	ICP-57W-1 ▼	ICP-57W-10X-1 ▼	
Water tr. HF	500 mL	ICP-57W-5 ▼	ICP-57W-10X-5 ▼	

3 Year Minimum Shelf Life on Single Element ICP Standards

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

▼ Hazardous fee not required.

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis
- Packaged in specially prepared Acid leached bottles

3 Year Minimum Shelf Life on Single Element ICP Standards

Save with NoHaz Option on ICP Single Elements

- No Hazardous Shipping Fees
- Lower Shipping Costs (less weight)
- Yields More - 200 mL from 20 mL concentrate

Includes empty pre-washed, pre-labeled HDPE 250 mL bottle

Single Element ICP

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	NoHaz 20 mL Size 20 mL (NoHaz) 10,000 µg/mL Cat. No.
Tellurium	50 mL	--------- --	ICP-58H-10X-0.5	ICP-58H-10X-20ML
Te	100 mL	ICP-58H-1	ICP-58H-10X-1	
20% HCl (min.)	500 mL	ICP-58H-5	ICP-58H-10X-5	
Terbium	50 mL	--------- --	ICP-59N-10X-0.5	ICP-59N-10X-20ML
Tb_4O_7	100 mL	ICP-59N-1	ICP-59N-10X-1	
2-5% Nitric acid	500 mL	ICP-59N-5	ICP-59N-10X-5	
Thallium	50 mL	--------- --	ICP-60N-10X-0.5	ICP-60N-10X-20ML
Tl	100 mL	ICP-60N-1	ICP-60N-10X-1	
2-5% Nitric acid	500 mL	ICP-60N-5	ICP-60N-10X-5	
Thorium		--------- --	---------- --	---------- --
$Th(NO_3)4 \bullet 4H_2O$	100 mL	ICP-61N-1		
2-5% Nitric acid	500 mL	ICP-61N-5		
Thulium	50 mL	--------- --	ICP-62N-10X-0.5	ICP-62N-10X-20ML
Tm_2O_3	100 mL	ICP-62N-1	ICP-62N-10X-1	
2-5% Nitric acid	500 mL	ICP-62N-5	---------- --	
Tin	50 mL	--------- --	ICP-63N-10X-0.5	ICP-63N-10X-20ML
Sn	100 mL	ICP-63N-1	ICP-63N-10X-1	
2-5% Nitric acid tr. HF	500 mL	ICP-63N-5	ICP-63N-10X-5	
Titanium	50 mL	--------- --	ICP-64W-10X-0.5 ▼	---------- --
$(NH_4)_2TiF_6$	100 mL	ICP-64W-1 ▼	ICP-64W-10X-1 ▼	
Water tr. HF	500 mL	ICP-64W-5 ▼	ICP-64W-10X-5 ▼	
Tungsten	50 mL	--------- --	ICP-65W-10X-0.5 ▼	ICP-65W-10X-20ML
$(NH_4)_2WO_4$	100 mL	ICP-65W-1 ▼	ICP-65W-10X-1 ▼	
Water tr. NH_4OH	500 mL	ICP-65W-5 ▼	ICP-65W-10X-5 ▼	
Uranium	-----	--------- --	---------- --	---------- --
U_3O_8	100 mL	ICP-66N-1		
2-5% Nitric acid	500 mL	ICP-66N-5		
Vanadium	50 mL	--------- --	ICP-67N-10X-0.5	ICP-67N-10X-20ML
NH_4VO_3	100 mL	ICP-67N-1	ICP-67N-10X-1	
2-5% Nitric acid	500 mL	ICP-67N-5	ICP-67N-10X-5	
Ytterbium	50 mL	--------- --	ICP-68N-10X-0.5	ICP-68N-10X-20ML
Yb_2O_3	100 mL	ICP-68N-1	ICP-68N-10X-1	
2-5% Nitric acid	500 mL	ICP-68N-5	ICP-68N-10X-5	
Yttrium	50 mL	--------- --	ICP-69N-10X-0.5	ICP-69N-10X-20ML
Y_2O_3	100 mL	ICP-69N-1	ICP-69N-10X-1	
2-5% Nitric acid	500 mL	ICP-69N-5	ICP-69N-10X-5	
Zinc	50 mL	--------- --	ICP-70N-10X-0.5	ICP-70N-10X-20ML
Zn	100 mL	ICP-70N-1	ICP-70N-10X-1	
2-5% Nitric acid	500 mL	ICP-70N-5	ICP-70N-10X-5	
Zirconium	50 mL	--------- --	ICP-71N-10X-0.5	ICP-71N-10X-20ML
$ZrO(NO_3)_2$	100 mL	ICP-71N-1	ICP-71N-10X-1	
2-5% Nitric acid	500 mL	ICP-71N-5	ICP-71N-10X-5	

▼ Hazardous fee not required.

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5	**500 mL**
CLP-BLN-L-VAP	**1L (2 x 500 mL)**

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5	**500 mL**
CLP-BLH-L-VAP	**1L (2 x 500 mL)**

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5	**500 mL**
CLP-BLMA-L-VAP	**1L (2 x 500 mL)**

5% HCl + 1% HNO_3 in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 ▼	**500 mL**
CLP-BLW-L-VAP ▼	**1L (2 x 500 mL)**

18 Megohm ASTM Type I deionized Water

▼ Hazardous fee not required.

ICP/MS
Single Element

AccuStandard's ICP/MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern, each standard is formulated in specially purified 18 megohm de-ionized water and ultra pure acids.

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis

3 Year Minimum Shelf Life on Single Element ICP/MS Standards

Single Element ICP/MS

Element	Matrix	Unit	100 µg/mL Cat. No.	1,000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Al (Aluminum)	2-5% HNO_3	100 mL	ICP-MS-01N-0.01X-1	ICP-MS-01N-0.1X-1	ICP-MS-01N-1
Sb (Antimony)	2-5% HNO_3	100 mL	ICP-MS-02N-0.01X-1	ICP-MS-02N-0.1X-1	ICP-MS-02N-1
As (Arsenic)	2-5% HNO_3	100 mL	ICP-MS-03N-0.01X-1	ICP-MS-03N-0.1X-1	ICP-MS-03N-1
Ba (Barium)	2-5% HNO_3	100 mL	ICP-MS-04N-0.01X-1	ICP-MS-04N-0.1X-1	ICP-MS-04N-1
Be (Beryllium)	2-5% HNO_3	100 mL	ICP-MS-05N-0.01X-1	ICP-MS-05N-0.1X-1	ICP-MS-05N-1
Bi (Bismuth)	2-10% HNO_3	100 mL	ICP-MS-06N-0.01X-1	ICP-MS-06N-0.1X-1	ICP-MS-06N-1
B (Boron) ▼	H_2O tr. NH_4OH	100 mL	ICP-MS-07W-0.01X-1	ICP-MS-07W-0.1X-1	ICP-MS-07W-1
Cd (Cadmium)	2-5% HNO_3	100 mL	ICP-MS-08N-0.01X-1	ICP-MS-08N-0.1X-1	ICP-MS-08N-1
Ca (Calcium)	2-5% HNO_3	100 mL	ICP-MS-09N-0.01X-1	ICP-MS-09N-0.1X-1	ICP-MS-09N-1
Ce (Cerium)	2-5% HNO_3	100 mL	ICP-MS-11N-0.01X-1	ICP-MS-11N-0.1X-1	ICP-MS-11N-1
Cs (Cesium)	2-5% HNO_3	100 mL	ICP-MS-12N-0.01X-1	ICP-MS-12N-0.1X-1	ICP-MS-12N-1
Cr (Chromium)	2-5% HNO_3	100 mL	ICP-MS-13N-0.01X-1	ICP-MS-13N-0.1X-1	ICP-MS-13N-1
Co (Cobalt)	2-5% HNO_3	100 mL	ICP-MS-14N-0.01X-1	ICP-MS-14N-0.1X-1	ICP-MS-14N-1
Cu (Copper)	2-5% HNO_3	100 mL	ICP-MS-15N-0.01X-1	ICP-MS-15N-0.1X-1	ICP-MS-15N-1
Dy (Dysprosium)	2-5% HNO_3	100 mL	ICP-MS-16N-0.01X-1	ICP-MS-16N-0.1X-1	ICP-MS-16N-1
Er (Erbium)	2-5% HNO_3	100 mL	ICP-MS-17N-0.01X-1	ICP-MS-17N-0.1X-1	ICP-MS-17N-1
Eu (Europium)	2-5% HNO_3	100 mL	ICP-MS-18N-0.01X-1	ICP-MS-18N-0.1X-1	ICP-MS-18N-1
Gd (Gadolinium)	2-5% HNO_3	100 mL	ICP-MS-19N-0.01X-1	ICP-MS-19N-0.1X-1	ICP-MS-19N-1
Ga (Gallium)	2-5% HNO_3	100 mL	ICP-MS-20N-0.01X-1	ICP-MS-20N-0.1X-1	ICP-MS-20N-1
Ge (Germanium) ▼	H_2O tr. HF	100 mL	ICP-MS-21W-0.01X-1	ICP-MS-21W-0.1X-1	ICP-MS-21W-1
Au (Gold)	10% HCl	100 mL	ICP-MS-22H-0.01X-1	ICP-MS-22H-0.1X-1	ICP-MS-22H-1
Hf (Hafnium)	2-5% HNO_3 tr. HF	100 mL	ICP-MS-23N-0.01X-1	ICP-MS-23N-0.1X-1	ICP-MS-23N-1
Ho (Holmium)	2-5% HNO_3	100 mL	ICP-MS-24N-0.01X-1	ICP-MS-24N-0.1X-1	ICP-MS-24N-1
In (Indium)	2-5% HNO_3	100 mL	ICP-MS-25N-0.01X-1	ICP-MS-25N-0.1X-1	ICP-MS-25N-1
Ir (Iridium)	10% HCl	100 mL	ICP-MS-26H-0.01X-1	ICP-MS-26H-0.1X-1	ICP-MS-26H-1
Fe (Iron)	2-5% HNO_3	100 mL	ICP-MS-27N-0.01X-1	ICP-MS-27N-0.1X-1	ICP-MS-27N-1
La (Lanthanum)	2-5% HNO_3	100 mL	ICP-MS-28N-0.01X-1	ICP-MS-28N-0.1X-1	ICP-MS-28N-1
Pb (Lead)	2-5% HNO_3	100 mL	ICP-MS-29N-0.01X-1	ICP-MS-29N-0.1X-1	ICP-MS-29N-1
Li (Lithium)	2-5% HNO_3	100 mL	ICP-MS-30N-0.01X-1	ICP-MS-30N-0.1X-1	ICP-MS-30N-1
Lu (Lutetium)	2-5% HNO_3	100 mL	ICP-MS-31N-0.01X-1	ICP-MS-31N-0.1X-1	ICP-MS-31N-1
Mg (Magnesium)	2-5% HNO_3	100 mL	ICP-MS-32N-0.01X-1	ICP-MS-32N-0.1X-1	ICP-MS-32N-1
Mn (Manganese)	2-5% HNO_3	100 mL	ICP-MS-33N-0.01X-1	ICP-MS-33N-0.1X-1	ICP-MS-33N-1
Hg (Mercury)	10% HNO_3	100 mL	ICP-MS-34N-0.01X-1	ICP-MS-34N-0.1X-1	ICP-MS-34N-1
Mo (Molybdenum) ▼	H_2O tr. NH_4OH	100 mL	ICP-MS-35W-0.01X-1	ICP-MS-35W-0.1X-1	ICP-MS-35W-1
Nd (Neodymium) ▼	2-5% HNO_3	100 mL	ICP-MS-36N-0.01X-1	ICP-MS-36N-0.1X-1	ICP-MS-36N-1

▼ Hazardous fee not required.

3 Year Minimum Shelf Life on Single Element ICP/MS Standards

Single Element ICP/MS (Continued)

Element	Matrix	Unit	100 µg/mL Cat. No.	1,000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Ni (Nickel)	2-5% HNO_3	100 mL	ICP-MS-37N-0.01X-1	ICP-MS-37N-0.1X-1	ICP-MS-37N-1
Nb (Niobium)	H_2O tr. HF	100 mL	ICP-MS-38W-0.01X-1	ICP-MS-38W-0.1X-1	ICP-MS-38W-1
Pd (Palladium)	10% HCl	100 mL	ICP-MS-40H-0.01X-1	ICP-MS-40H-0.1X-1	ICP-MS-40H-1
P (Phosphorous) ▼	H_2O	100 mL	ICP-MS-41W-0.01X-1	ICP-MS-41W-0.1X-1	ICP-MS-41W-1
Pt (Platinum)	10% HCl	100 mL	ICP-MS-42H-0.01X-1	ICP-MS-42H-0.1X-1	ICP-MS-42H-1
K (Potassium)	2-5% HNO_3	100 mL	ICP-MS-43N-0.01X-1	ICP-MS-43N-0.1X-1	ICP-MS-43N-1
Pr (Praseodymium)	2-5% HNO_3	100 mL	ICP-MS-44N-0.01X-1	ICP-MS-44N-0.1X-1	ICP-MS-44N-1
Re (Rhenium) ▼	H_2O tr. HNO_3	100 mL	ICP-MS-45W-0.01X-1	ICP-MS-45W-0.1X-1	ICP-MS-45W-1
Rh (Rhodium)	10% HCl	100 mL	ICP-MS-46H-0.01X-1	ICP-MS-46H-0.1X-1	ICP-MS-46H-1
Rb (Rubidium)	2-5% HNO_3	100 mL	ICP-MS-47N-0.01X-1	ICP-MS-47N-0.1X-1	ICP-MS-47N-1
Ru (Ruthenium)	10% HCl	100 mL	ICP-MS-48H-0.01X-1	ICP-MS-48H-0.1X-1	ICP-MS-48H-1
Sm (Samarium)	2-5% HNO_3	100 mL	ICP-MS-49N-0.01X-1	ICP-MS-49N-0.1X-1	ICP-MS-49N-1
Sc (Scandium)	2-5% HNO_3	100 mL	ICP-MS-50N-0.01X-1	ICP-MS-50N-0.1X-1	ICP-MS-50N-1
Se (Selenium)	2-5% HNO_3	100 mL	ICP-MS-51N-0.01X-1	ICP-MS-51N-0.1X-1	ICP-MS-51N-1
Si (Silicon) ▼	H_2O tr. HF	100 mL	ICP-MS-52W-0.01X-1	ICP-MS-52W-0.1X-1	ICP-MS-52W-1
Ag (Silver)	2-5% HNO_3	100 mL	ICP-MS-53N-0.01X-1	ICP-MS-53N-0.1X-1	ICP-MS-53N-1
Na (Sodium)	2-5% HNO_3	100 mL	ICP-MS-54N-0.01X-1	ICP-MS-54N-0.1X-1	ICP-MS-54N-1
Sr (Strontium)	2-5% HNO_3	100 mL	ICP-MS-55N-0.01X-1	ICP-MS-55N-0.1X-1	ICP-MS-55N-1
S (Sulfur) ▼	H_2O	100 mL	ICP-MS-56W-0.01X-1	ICP-MS-56W-0.1X-1	ICP-MS-56W-1
Ta (Tantalum) ▼	H_2O tr. HF	100 mL	ICP-MS-57W-0.01X-1	ICP-MS-57W-0.1X-1	ICP-MS-57W-1
Te (Tellurium)	10% HCl (min.)	100 mL	ICP-MS-58H-0.01X-1	ICP-MS-58H-0.1X-1	ICP-MS-58H-1
Tb (Terbium)	2-5% HNO_3	100 mL	ICP-MS-59N-0.01X-1	ICP-MS-59N-0.1X-1	ICP-MS-59N-1
Tl (Thallium)	2-5% HNO_3	100 mL	ICP-MS-60N-0.01X-1	ICP-MS-60N-0.1X-1	ICP-MS-60N-1
Th (Thorium)	2-5% HNO_3	100 mL	ICP-MS-61N-0.01X-1	ICP-MS-61N-0.1X-1	---------- --
Tm (Thulium)	2-5% HNO_3	100 mL	ICP-MS-62N-0.01X-1	ICP-MS-62N-0.1X-1	ICP-MS-62N-1
Sn (Tin)	2-5% HNO_3 tr. HF	100 mL	ICP-MS-63N-0.01X-1	ICP-MS-63N-0.1X-1	ICP-MS-63N-1
Ti (Titanium) ▼	H_2O tr. HF	100 mL	ICP-MS-64W-0.01X-1	ICP-MS-64W-0.1X-1	ICP-MS-64W-1
W (Tungsten) ▼	H_2O tr. NH_4OH	100 mL	ICP-MS-65W-0.01X-1	ICP-MS-65W-0.1X-1	ICP-MS-65W-1
U (Uranium)	2-5% HNO_3	100 mL	ICP-MS-66N-0.01X-1	ICP-MS-66N-0.1X-1	---------- --
V (Vanadium)	2-5% HNO_3	100 mL	ICP-MS-67N-0.01X-1	ICP-MS-67N-0.1X-1	ICP-MS-67N-1
Yb (Ytterbium)	2-5% HNO_3	100 mL	ICP-MS-68N-0.01X-1	ICP-MS-68N-0.1X-1	ICP-MS-68N-1
Y (Yttrium)	2-5% HNO_3	100 mL	ICP-MS-69N-0.01X-1	ICP-MS-69N-0.1X-1	ICP-MS-69N-1
Zn (Zinc)	2-5% HNO_3	100 mL	ICP-MS-70N-0.01X-1	ICP-MS-70N-0.1X-1	ICP-MS-70N-1
Zr (Zirconium)	2-5% HNO_3	100 mL	ICP-MS-71N-0.01X-1	ICP-MS-71N-0.1X-1	ICP-MS-71N-1

▼ Hazardous fee not required.

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

AA
Single Element

Each standard is prepared from high purity starting materials, 18 megohm de-ionized water and high purity acids. Every standard is instrumentally assayed to verify concentration of specified element. Actual Lot Analysis is provided on the label and a Certificate of Analysis is included for ease of record keeping and availability at audits.

- Traceable to NIST Reference Materials
- Certificate of Analysis included
- 18 megohm de-ionized Water
- 36 Month Shelf Life

3 Year Minimum Shelf Life on Single Element ICP/MS Standards

Single Element AA

Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.	Element Starting Material Matrix	Unit	1000 µg/mL Cat. No.
Aluminum	100 mL	AA01N-1	**Molybdenum**	100 mL	AA35W-1 ▼
2-5% Nitric acid	500 mL	AA01N-5	Water tr. NH_4OH	500 mL	AA35W-5 ▼
Antimony	100 mL	AA02N-1	**Nickel**	100 mL	AA37N-1
2-5% HNO_3 tr.Tartaric acid	500 mL	AA02N-5	2-5% Nitric acid	500 mL	AA37N-5
Arsenic	100 mL	AA03N-1	**Phosphorus**	100 mL	AA41W-1 ▼
2-5% Nitric acid	500 mL	AA03N-5	Water	500 mL	AA41W-5 ▼
Barium	100 mL	AA04N-1	**Platinum**	100 mL	AA42H-1
2-5% Nitric acid	500 mL	AA04N-5	2% HCl (min.)	500 mL	AA42H-5
Boron	100 mL	AA07W-1 ▼	**Potassium**	100 mL	AA43N-1
Water tr. NH_4OH	500 mL	AA07W-5 ▼	2-5% Nitric acid	500 mL	AA43N-5
Cadmium	100 mL	AA08N-1	**Selenium**	100 mL	AA51N-1
2-5% Nitric acid	500 mL	AA08N-5	2-5% Nitric acid	500 mL	AA51N-5
Calcium	100 mL	AA09N-1	**Silicon**	100 mL	AA52W-1 ▼
2-5% Nitric acid	500 mL	AA09N-5	Water tr. HF	500 mL	AA52W-5 ▼
Chromium	100 mL	AA13N-1	**Silver**	100 mL	AA53N-1
2-5% Nitric acid	500 mL	AA13N-5	2-5% Nitric acid	500 mL	AA53N-5
Cobalt	100 mL	AA14N-1	**Sodium**	100 mL	AA54N-1
2-5% Nitric acid	500 mL	AA14N-5	2-5% Nitric acid	500 mL	AA54N-5
Copper	100 mL	AA15N-1	**Strontium**	100 mL	AA55N-1
2-5% Nitric acid	500 mL	AA15N-5	2-5% Nitric acid	500 mL	AA55N-5
Gold	100 mL	AA22H-1	**Sulfur**	100 mL	AA56W-1 ▼
5% HCl (min.)	500 mL	AA22H-5	Water	500 mL	AA56W-5 ▼
Iron	100 mL	AA27N-1	**Thallium**	100 mL	AA60N-1
2-5% Nitric acid	500 mL	AA27N-5	2-5% Nitric acid	500 mL	AA60N-5
Lead	100 mL	AA29N-1	**Tin**	100 mL	AA63N-1
2-5% Nitric acid	500 mL	AA29N-5	2-5% Nitric acid tr. HF	500 mL	AA63N-5
Lithium	100 mL	AA30N-1	**Titanium**	100 mL	AA64W-1 ▼
2-5% Nitric acid	500 mL	AA30N-5	Water tr. HF	500 mL	AA64W-5 ▼
Magnesium	100 mL	AA32N-1	**Vanadium**	100 mL	AA67N-1
2-5% Nitric acid	500 mL	AA32N-5	5-10% Nitric acid	500 mL	AA67N-5
Manganese	100 mL	AA33N-1	**Yttrium**	100 mL	AA69N-1
2-5% Nitric acid	500 mL	AA33N-5	2-5% Nitric acid	500 mL	AA69N-5
Mercury	100 mL	AA34N-1	**Zinc**	100 mL	AA70N-1
2-5% Nitric acid	500 mL	AA34N-5	2-5% Nitric acid	500 mL	AA70N-5

▼ Hazardous fee not required.

Matrix Modifier Solutions for Graphite Furnace AA

These Matrix Modifiers enhance sensitivity and suppress background interferences observed in trace metal analysis.

Modifier Description	Modifier Source	Unit	Cat. No.
Ammonium dihydrogen phosphate 40% in H_2O	$NH_4H_2PO_4$	50 mL	MOD-02-0.5 ▼
		100 mL	MOD-02-1 ▼
		500 mL	MOD-02-5 ▼
Ammonium nitrate 5% in H_2O	NH_4NO_3	50 mL	MOD-03-0.5 ▼
		100 mL	MOD-03-1 ▼
		500 mL	MOD-03-5 ▼
Calcium nitrate 2% Calcium in 5% in HNO_3	$Ca(NO_3)_2 \bullet 4H_2O$	50 mL	MOD-04-0.5
		100 mL	MOD-04-1
		500 mL	MOD-04-5
Lanthanum chloride 5% Lanthanum in 5% HCl	LaCl	50 mL	MOD-05-0.5
		100 mL	MOD-05-1
		500 mL	MOD-05-5
Lanthanum nitrate 5% Lanthanum in 5% HNO_3	$LaNO_3$	50 mL	MOD-06-0.5
		100 mL	MOD-06-1
		500 mL	MOD-06-5
Magnesium nitrate 2% Magnesium in 5% HNO_3	$Mg(NO_3)_2$	50 mL	MOD-07-0.5
		100 mL	MOD-07-1
		500 mL	MOD-07-5
Nickel nitrate 5% Nickel in 5% HNO_3	$Ni(NO_3)_2$	50 mL	MOD-08-0.5
		100 mL	MOD-08-1
		500 mL	MOD-08-5
Palladium nitrate 0.2% Palladium in 5% HNO_3	$Pd(NO_3)_2$	50 mL	MOD-09A-0.5
		100 mL	MOD-09A-1
		500 mL	MOD-09A-5
Palladium nitrate 0.5% Palladium in 5% HNO_3	$Pd(NO_3)_2$	50 mL	MOD-09B-0.5
		100 mL	MOD-09B-1
		500 mL	MOD-09B-5
Palladium nitrate 1.0% Palladium in 10% HNO_3	$Pd(NO_3)_2$	50 mL	MOD-09C-0.5
		100 mL	MOD-09C-1
		500 mL	MOD-09C-5

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 **500 mL**
CLP-BLN-L-VAP **1L**
(2 x 500 mL)

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5 **500 mL**
CLP-BLH-L-VAP **1L**
(2 x 500 mL)

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 **500 mL**
CLP-BLMA-L-VAP **1L**
(2 x 500 mL)

5% HCl + 1% HNO_3 in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 ▼ **500 mL**
CLP-BLW-L-VAP ▼ **1L**
(2 x 500 mL)

18 Megohm ASTM Type I deionized Water

Multi-Element Graphite Furnace AA Calibration & Spiking Standards

GFAA Instrument Calibration Standard

CLP-CAL-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	100
As (Arsenic)	50
Cd (Cadmium)	10
Pb (Lead)	50
Se (Selenium)	100
Tl (Thallium)	50

GFAA Predigestion Spike Solution

CLP-SP1-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	100
As (Arsenic)	40
Cd (Cadmium)	5
Pb (Lead)	20
Se (Selenium)	10
Tl (Thallium)	50

GFAA Initial Calibration Verification

(Meets CLP Second Source Requirements)
CLP-ICV-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	50
As (Arsenic)	25
Cd (Cadmium)	5
Pb (Lead)	25
Se (Selenium)	50
Tl (Thallium)	25

GFAA Mercury Standard

for Calibration or Spiking
CLP-HG-AA **50 mL**
100 µg/mL in 5% HNO_3

Hg (Mercury)

GFAA Postdigestion Spike Solution

(2 x CRDL except for Lead)
CLP-SP2-AA **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Sb (Antimony)	120
As (Arsenic)	20
Cd (Cadmium)	10
Pb (Lead)	20
Se (Selenium)	10
Tl (Thallium)	20

GFAA Set

CLP-AA-SET **5 x 50 mL**

CLP-CAL-AA
CLP-SPI-AA
CLP-ICV-AA
CLP-HG-AA
CLP-SP2-AA

▼ Hazardous fee not required.

Ion Chromatography

- 99.99% High Purity Starting Materials
- 18 Megohm, ASTM type I de-ionized Water
- Packaged in pre-cleaned high quality HDPE bottles.
- Each Standard is Supplied with a Certificate of Analysis, stating traceability to NIST, certified value and expiration date.
- Final Solution is filtered through a 0.2 µm filter to eliminate contaminants (such as suspended solids and microbes). This extends shelf life and protects your column.
- Ready-To-Use Mixes and Calibration Sets.
- Standards may be used for other "Classical or Wet" methods.

Anions

Water Matrix	Unit	100 µg/mL Cat. No.	200 µg/mL Cat. No.	1000 µg/mL Cat. No.
Acetate	100 mL	IC-ACET-1X-1	----------	IC-ACET-10X-1
	500 mL	IC-ACET-1X-5	----------	IC-ACET-10X-5
Br (Bromate)	100 mL	----------	----------	IC-BROM-10X-1
	500 mL	----------	----------	IC-BROM-10X-5
Br (Bromide)	100 mL	IC-BR-1X-1	IC-BR-2X-1	IC-BR-10X-1
	500 mL	IC-BR-1X-5	IC-BR-2X-5	IC-BR-10X-5
Citrate	100 mL	----------	----------	IC-CITR-10X-1
Chlorate	100 mL	IC-CHLR-1X-1	----------	IC-CHLR-10X-1
	500 mL	IC-CHLR-1X-5	----------	IC-CHLR-10X-5
Cl (Chloride)	100 mL	IC-Cl-1X-1	IC-Cl-2X-1	IC-Cl-10X-1
	500 mL	IC-Cl-1X-5	IC-Cl-2X-5	IC-Cl-10X-5
Chlorite	100 mL	IC-CHLT-1X-1	----------	IC-CHLT-10X-1
Call for availability	500 mL	IC-CHLT-1X-5	----------	IC-CHLT-10X-5
Chromate	100 mL	IC-CHRM-1X-1	----------	IC-CHRM-10X-1
	500 mL	IC-CHRM-1X-5	----------	IC-CHRM-10X-5
F (Fluoride)	100 mL	IC-F-1X-1	IC-F-2X-1	IC-F-10X-1
	500 mL	IC-F-1X-5	IC-F-2X-5	IC-F-10X-5
Formate	100 mL	IC-FORM-1X-1	----------	IC-FORM-10X-1
	500 mL	IC-FORM-1X-5	----------	IC-FORM-10X-5
Glycolate	100 mL	----------	----------	IC-GLYC-10X-1
Iodide	100 mL	----------	----------	IC-I-10X-1
Lactate	100 mL	----------	----------	IC-LACT-10X-1
Malate	100 mL	----------	----------	IC-MALA-10X-1
Maleate	100 mL	----------	----------	IC-MALE-10X-1
NO_2 (Nitrite)	100 mL	IC-NO2-1X-1	IC-NO2-2X-1	IC-NO2-10X-1
	500 mL	IC-NO2-1X-5	IC-NO2-2X-5	IC-NO2-10X-5
NO_3 (Nitrate)	100 mL	IC-NO3-1X-1	IC-NO3-2X-1	IC-NO3-10X-1
	500 mL	IC-NO3-1X-5	IC-NO3-2X-5	IC-NO3-10X-5
Oxalate	100 mL	IC-OXAL-1X-1	----------	IC-OXAL-10X-1
	500 mL	IC-OXAL-1X-5	----------	IC-OXAL-10X-5
Perchlorate	100 mL	----------	----------	IC-PER-10X-1
Phthalate	100 mL	----------	----------	IC-PHTH-10X-1
PO_4 (Phosphate)	100 mL	IC-PO4-1X-1	IC-PO4-2X-1	IC-PO4-10X-1
	500 mL	IC-PO4-1X-5	IC-PO4-2X-5	IC-PO4-10X-5
Propionate	100 mL	----------	----------	IC-PROP-10X-1
Succinate	100 mL	----------	----------	IC-SUCC-10X-1
SO_4 (Sulfate)	100 mL	IC-SO4-1X-1	IC-SO4-2X-1	IC-SO4-10X-1
	500 mL	IC-SO4-1X-5	IC-SO4-2X-5	IC-SO4-10X-5
Sulfide	20 mL	----------	----------	IC-SULF-10X-20ML
Dilute NaOH, stabilizer	5 x 20 mL	----------	----------	IC-SULF-10X-20ML-VAP
Tartrate	100 mL	----------	----------	IC-TART-10X-1

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

Anion Kits

IC-AN-1X-1-SET **7 x 100 mL**
IC-AN-1X-5-SET **7 x 500 mL**
Each at 100 µg/mL in Water
IC-AN-2X-1-SET **7 x 100 mL**
IC-AN-2X-5-SET **7 x 500 mL**
Each at 200 µg/mL in Water
IC-AN-10X-1-SET **7 x 100 mL**
IC-AN-10X-5-SET **7 x 500 mL**
Each at 1000 µg/mL in Water

Fluoride	Bromide
Chloride	Phosphate
Nitrite	Sulfate
Nitrate	

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.

Ion Chrom - Ion Singles as the Element

	Unit	100 µg/mL	1000 µg/mL
NO_2-N (Nitrite-Nitrogen)	100 mL	IC-NO2-N-1X-1	IC-NO2-N-10X-1
Water Matrix	500 mL	IC-NO2-N-1X-5	IC-NO2-N-10X-5
NO_3-N (Nitrate-Nitrogen)	100 mL	IC-NO3-N-1X-1	IC-NO3-N-10X-1
Water Matrix	500 mL	IC-NO3-N-1X-5	IC-NO3-N-10X-5
PO_4-P (Phosphate-Phosphorous)	100 mL	IC-PO4-P-1X-1	IC-PO4-P-10X-1
Water Matrix	500 mL	IC-PO4-P-1X-5	IC-PO4-P-10X-5
SO_4-S (Sulfate-Sulfur)	100 mL	IC-SO4-S-1X-1	IC-SO4-S-10X-1
Water Matrix	500 mL	IC-SO4-S-1X-5	IC-SO4-S-10X-5
NH_4-N (Ammonium-Nitrogen)	100 mL	IC-NH4-N-1X-1	IC-NH4-N-10X-1
Water Matrix	500 mL	IC-NH4-N-1X-5	IC-NH4-N-10X-5

Anion Single Kits

IC-AN-R-10X-1-SET **7 x 100 mL**
IC-AN-R-10X-5-SET **7 x 500 mL**
Each at 1000 µg/mL

- Fluoride
- Chloride
- Nitrite-Nitrogen
- Nitrate-Nitrogen
- Bromide
- Phosphate-Phosphorous
- Sulfate-Sulfur

Organic Acid Salt Standard

	Unit	100 µg/mL	1000 µg/mL
Formate	100 mL	IC-FORM-1X-1	IC-FORM-10X-1
Water Matrix	500 mL	IC-FORM-1X-5	IC-FORM-10X-5
Acetate	100 mL	IC-ACET-1X-1	IC-ACET-10X-1
Water Matrix	500 mL	IC-ACET-1X-5	IC-ACET-10X-5
Oxalate	100 mL	IC-OXAL-1X-1	IC-OXAL-10X-1
Water Matrix	500 mL	IC-OXAL-1X-5	IC-OXAL-10X-5
Chromate	100 mL	IC-CHRM-1X-1	IC-CHRM-10X-1
Water Matrix	500 mL	IC-CHRM-1X-5	IC-CHRM-10X-5

Method 314.0 Perchlorate in Drinking Water by IC

Perchlorate has become an analyte of environmental interest since being detected in a number of drinking and groundwater supplies located in Midwestern states. EPA method 314.0 was released as an approved method to achieve the required sensitivity.

Perchlorate Standard

IC-PER-10X-1 **100 mL**
1000 µg/mL in Water

Perchlorate

Conductivity Meter Calibration Standard

M-314.0-CMCS-1 **100 mL**
1410 µs/cm @ 25˚C in Water

Mixed Common Anion Stock

M-314.0-MCA-250X-1
100 mL
25 mg/mL in Water 3 comps.

Chloride
Sulfate
Carbonate

Method 314.0 Perchlorate Calibration Set

M-314.0-SET **100 mL**

IC-PER-10X-1
M-314.0-MCA-250X-1
M-314.0-CMCS-1

Ion Chrom Eluents

	50 mL	100 mL	5 x 50 mL	5 x 100 mL
0.5 M Sodium bicarbonate (100X concentrate)	IC-ELU-01-0.5	IC-ELU-01-1	IC-ELU-01-0.5-PAK	IC-ELU-01-1-PAK
0.5 M Sodium carbonate (100X concentrate)	IC-ELU-02-0.5	IC-ELU-02-1	IC-ELU-02-0.5-PAK	IC-ELU-02-1-PAK
0.18 M Sodium carbonate/ 0.17 M Sodium bicarbonate (100X concentrate)	IC-ELU-03-0.5	IC-ELU-03-1	IC-ELU-03-0.5-PAK	IC-ELU-03-1-PAK

Technical Note

Ready to dilute concentrates. Open a fresh bottle and dilute the volume (50 mL to 5 L or 100 mL to 10 L) and be assured of a fresh uncontaminated mobile phase

Anion Mixes

Anion Mix #1
IC-MAN-01-1 — **100 mL**
Water Matrix — 5 comps.

F (Fluoride)	20 µg/mL
Cl (Chloride)	30 µg/mL
NO_3 (Nitrate)	100 µg/mL
PO_4 (Phosphate)	150 µg/mL
SO_4 (Sulfate)	150 µg/mL

Anion Mix #2
IC-MAN-02-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	200 µg/mL
Br (Bromide)	400 µg/mL
NO_3 (Nitrate)	400 µg/mL
PO_4 (Phosphate)	600 µg/mL
SO_4 (Sulfate)	400 µg/mL

Anion Mix #3
IC-MAN-03-1 — **100 mL**
Water Matrix — 3 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	100 µg/mL
SO_4 (Sulfate)	100 µg/mL

Anion Mix #4
IC-MAN-04-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	100 µg/mL
Br (Bromide)	100 µg/mL
NO_3 (Nitrate)	100 µg/mL
PO_4 (Phosphate)	100 µg/mL
SO_4 (Sulfate)	100 µg/mL

Anion Mix #5
IC-MAN-05-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	10 µg/mL
Cl (Chloride)	20 µg/mL
Br (Bromide)	20 µg/mL
NO_3 (Nitrate)	20 µg/mL
PO_4 (Phosphate)	5 µg/mL
SO_4 (Sulfate)	30 µg/mL

Anion Mix #6
IC-MAN-06-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	1 µg/mL
Cl (Chloride)	5 µg/mL
Br (Bromide)	5 µg/mL
NO_3 (Nitrate)	5 µg/mL
PO_4 (Phosphate)	5 µg/mL
SO_4 (Sulfate)	10 µg/mL

Anion Mix #7
IC-MAN-07-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	1 µg/mL
Cl (Chloride)	10 µg/mL
Br (Bromide)	10 µg/mL
NO_3 (Nitrate)	10 µg/mL
PO_4 (Phosphate)	10 µg/mL
SO_4 (Sulfate)	10 µg/mL

Anion Mix #8
IC-MAN-08-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	10 µg/mL
Cl (Chloride)	20 µg/mL
Br (Bromide)	20 µg/mL
NO_3 (Nitrate)	20 µg/mL
PO_4 (Phosphate)	20 µg/mL
SO_4 (Sulfate)	20 µg/mL

Anion Mix #9
IC-MAN-09-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	20 µg/mL
Cl (Chloride)	40 µg/mL
Br (Bromide)	40 µg/mL
NO_3 (Nitrate)	40 µg/mL
PO_4 (Phosphate)	40 µg/mL
SO_4 (Sulfate)	40 µg/mL

Anion Mix #10
IC-MAN-10-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	25 µg/mL
Cl (Chloride)	50 µg/mL
Br (Bromide)	50 µg/mL
NO_3 (Nitrate)	50 µg/mL
PO_4 (Phosphate)	50 µg/mL
SO_4 (Sulfate)	50 µg/mL

Anion Mix #11
IC-MAN-11-1 — **100 mL**
Water Matrix — 5 comps.

Cl (Chloride)	1000 µg/mL
Br (Bromide)	1000 µg/mL
NO_3 (Nitrate)	1000 µg/mL
PO_4 (Phosphate)	1000 µg/mL
SO_4 (Sulfate)	1000 µg/mL

Anion Mix #12
IC-MAN-12-1 — **100 mL**
Water Matrix — 5 comps.

Cl (Chloride)	15 µg/mL
Br (Bromide)	15 µg/mL
NO_3 (Nitrate)	15 µg/mL
PO_4 (Phosphate)	15 µg/mL
SO_4 (Sulfate)	15 µg/mL

Anion Mix #13
IC-MAN-13-1 — **100 mL**
Water Matrix — 3 comps.

F (Fluoride)	25 µg/mL
Cl (Chloride)	50 µg/mL
SO_4 (Sulfate)	100 µg/mL

Anion Mix #14
IC-MAN-14-R3-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	20 µg/mL
Cl (Chloride)	30 µg/mL
Br (Bromide)	100 µg/mL
NO_3 (Nitrate)	100 µg/mL
PO_4 (Phosphate)	150 µg/mL
SO_4 (Sulfate)	150 µg/mL

Anion Mix #14 Revised
IC-MAN-14-R2-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	20 µg/mL
Cl (Chloride)	30 µg/mL
Br (Bromide)	100 µg/mL
N-NO_3 (Nitrogen-Nitrate)	100 µg/mL
P-PO_4 (Phosphorus-Phosphate)	150 µg/mL
SO_4 (Sulfate)	150 µg/mL

Anion Mix #14-R2 plus IC-NO2-N-1X is perfect for Method 300.1

Nitrite
IC-NO2-N-1X-1 — **100 mL**
NO_2 *(Nitrite)* — 100 µg/mL

Dichloroacetate Surrogate Standard
M-300.1-SS — **100 mL**
0.5 mg/mL Dichloroacetate in Water

Nitrite

IC-NO2-10X-1	**100 mL**
NO_2 *(Nitrite)*	1000 µg/mL
IC-NO2-1X-1	**100 mL**
NO_2 *(Nitrite)*	100 µg/mL
IC-NO2-0.1X-1	**100 mL**
NO_2 *(Nitrite)*	10 µg/mL

Anion Mix #15
IC-MAN-15-R2-1 — **100 mL**
Water Matrix — 3 comps.

F *(Fluoride)*	100 µg/mL
NO_3 *(Nitrate)*	100 µg/mL
PO_4 *(Phosphate)*	100 µg/mL

Anion Mix #16
IC-MAN-16-R1-1 — **100 mL**
Water Matrix — 6 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	200 µg/mL
Br (Bromide)	100 µg/mL
NO_3 (Nitrate)	20 µg/mL
PO_4 (Phosphate)	30 µg/mL
SO_4 (Sulfate)	20 µg/mL

Anion Mix #17
IC-MAN-17-R1-1 — **100 mL**
Water Matrix — 5 comps.

Cl (Chloride)	20 µg/mL
Br (Bromide)	12 µg/mL
NO_3 (Nitrate)	12 µg/mL
PO_4 (Phosphate)	12 µg/mL
SO_4 (Sulfate)	80 µg/mL

Anion Mix #18
IC-MAN-18-R1-1 — **100 mL**
Water Matrix — 5 comps.

F (Fluoride)	100 µg/mL
Cl (Chloride)	100 µg/mL
NO_3 (Nitrate)	100 µg/mL
PO_4 (Phosphate)	100 µg/mL
SO_4 (Sulfate)	100 µg/mL

Technical Note

To enhance the shelf life and long term stability of our IC products, Nitrite has been removed from mixes that contain Nitrate.

Technical Note

We offer several Nitrite concentrations that can be added just prior to analysis for maximum stability.

Ion Chrom - Cation Singles

Dilute HNO_3 Matrix	Unit	100 µg/mL Cat. No.	200 µg/mL Cat. No.	1,000 µg/mL Cat. No.
Ca (Calcium)	100 mL	IC-CA-1X-1	IC-CA-2X-1	IC-CA-10X-1
	500 mL	IC-CA-1X-5	IC-CA-2X-5	IC-CA-10X-5
NH_4 (Ammonium)	100 mL	IC-NH4-1X-1	IC-NH4-2X-1	IC-NH4-10X-1 †
	500 mL	IC-NH4-1X-5	IC-NH4-2X-5	IC-NH4-10X-5 †
Mg (Magnesium)	100 mL	IC-MG-1X-1	IC-MG-2X-1	IC-MG-10X-1
	500 mL	IC-MG-1X-5	IC-MG-2X-5	IC-MG-10X-5
K (Potassium)	100 mL	IC-K-1X-1	IC-K-2X-1	IC-K-10X-1
	500 mL	IC-K-1X-5	IC-K-2X-5	IC-K-10X-5
Na (Sodium)	100 mL	IC-NA-1X-1	IC-NA-2X-1	IC-NA-10X-1
	500 mL	IC-NA-1X-5	IC-NA-2X-5	IC-NA-10X-5
Li (Lithium)	100 mL	IC-LI-1X-1	IC-LI-2X-1	IC-LI-10X-1
	500 mL	IC-LI-1X-5	IC-LI-2X-5	IC-LI-10X-5
Ba (Barium)	100 mL	IC-BA-1X-1	IC-BA-2X-1	IC-BA-10X-1
	500 mL	IC-BA-1X-5	IC-BA-2X-5	IC-BA-10X-5
Sr (Strontium)	100 mL	IC-SR-1X-1	IC-SR-2X-1	IC-SR-10X-1
	500 mL	IC-SR-1X-5	IC-SR-2X-5	IC-SR-10X-5
Sets	**8 x 100 mL**	IC-CAT-1X-1-SET	IC-CAT-2X-1-SET	IC-CAT-10X-1-SET
Above Listed	**8 x 500 mL**	IC-CAT-1X-5-SET	IC-CAT-2X-5-SET	IC-CAT-10X-5-SET

† **1,000 µg/mL as Ammonium (NH_4) Other Nitrogen species equivalents are:**

NH_3 (Ammonia) = 944 µg/mL N (Nitrogen) = 776 µg/mL

Ion Chrom - Cation Mixes

Cation Mix #1

IC-MCA-01-1 **100 mL**
Dilute HNO_3 6 comps.

Ca (Calcium)	1000 µg/mL
NH_4 (Ammonium)	400 µg/mL
Mg (Magnesium)	200 µg/mL
K (Potassium)	200 µg/mL
Na (Sodium)	200 µg/mL
Li (Lithium)	50 µg/mL

Cation Mix #2

IC-MCA-02-1 **100 mL**
Dilute HNO_3 6 comps.

Ca (Calcium)	100 µg/mL
NH_4 (Ammonium)	100 µg/mL
Mg (Magnesium)	100 µg/mL
K (Potassium)	100 µg/mL
Na (Sodium)	100 µg/mL
Li (Lithium)	100 µg/mL

Cation Mix #3

IC-MCA-03-1 **100 mL**
Dilute HNO_3 4 comps.

Ca (Calcium)	100 µg/mL
K (Potassium)	100 µg/mL
Na (Sodium)	50 µg/mL
Li (Lithium)	10 µg/mL

Cation Mix #4

IC-MCA-04-1 **100 mL**
Dilute HNO_3 4 comps.

Ca (Calcium)	400 µg/mL
Mg (Magnesium)	200 µg/mL
Ba (Barium)	1600 µg/mL
Sr (Strontium)	600 µg/mL

Cation Mix #5

IC-MCA-05-1 **100 mL**
Dilute HNO_3 4 comps.

NH_4 (Ammonium)	3 µg/mL
K (Potassium)	6 µg/mL
Na (Sodium)	3 µg/mL
Li (Lithium)	0.5 µg/mL

Cation Mix #6

IC-MCA-06-1 **100 mL**
Dilute HNO_3 6 comps.

Ca (Calcium)	2 µg/mL
NH_4 (Ammonium)	1.5 µg/mL
Mg (Magnesium)	2 µg/mL
K (Potassium)	2.5 µg/mL
Na (Sodium)	1.5 µg/mL
Li (Lithium)	0.2 µg/mL

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.

Wet Chemicals

Our Wet Chemical Standards are prepared from the highest quality raw material according to ASTM, EPA or "Standard Methods" [1] procedures. All balances used for preparation are calibrated regularly against NIST traceable weights. Each batch of finished product is analyzed to verify concentration, against NIST standards when possible. All of our Wet Chemical standards are subjected to the same rigorous quality control procedures as our ICP and IC standards.

1 Standard Methods for the Examination of Water and Wastewater. American Public Health Association, American Water Works Association, Water Environment Federation

Inorganic Constituents

Many of these methods use classical wet chemical methods to determine the components of either potable or wastewater.

Bromide
IC-BR-10X-1 **100 mL**
1000 µg/mL Bromide in Water

Method 300.1 Ion Chrom Standard Revised
IC-MAN-14-R2-1 **100 mL**
Water Matrix 6 comps.

F (Fluoride)	20 µg/mL
Cl (Chloride)	30 µg/mL
Br (Bromide)	100 µg/mL
NO_3-N (Nitrate-Nitrogen)	100 µg/mL
PO_4-P (Phosphate-Phosphorus)	150 µg/mL
SO_4 (Sulfate)	150 µg/mL

Technical Note
This product was designed to more closely meet the EPA standard by having the concentrations for the nutrients calculated back to the element rather than the anion.

Dichloroacetate Surrogate Standard
M-300.1-SS **100 mL**
0.5 mg/mL Dichloroacetate in Water

Cyanide
WC-CN-1X-1 ▲ **100 mL**
WC-CN-1X-5 ▲ **500 mL**
100 µg/mL Cyanide in 2% NaOH

WC-CN-10X-1 ▲ **100 mL**
WC-CN-10X-5 ▲ **500 mL**
1000 µg/mL Cyanide in 2% NaOH

Chloride
IC-CL-10X-1 **100 mL**
1000 µg/mL Chloride in Water

Total Residual Chlorine
WC-TRC-10X-10ML **10 mL**
1000 µg/mL Chlorine in Water

Technical Note
This product is shipped in an amber flame sealed ampule for maximum stability.

Fluoride
IC-F-10X-1 **100 mL**
1000 µg/mL Fluoride in Water

Iodide
IC-I-10X-1 **100 mL**
1000 µg/mL Iodide in Water

pH
WC-PH-4-1 **100 mL**
WC-PH-4-5 **500 mL**
pH of 4.0 in Water

WC-PH-7-1 **100 mL**
WC-PH-7-5 **500 mL**
pH of 7.0 in Water

WC-PH-10-1 **100 mL**
WC-PH-10-5 **500 mL**
pH of 10.0 in Water

Phosphorus - Total
IC-PO4-P-10X-1 **100 mL**
1000 µg/mL Phosphorus in Water

Technical Note
Can also be used for ortho-phosphate analysis.

▲ Hazardous fee require

Technical Note
Nitrogen Species are all calculated back to Nitrogen - Not the Anion or Cation species.

Nitrogen - Ammonium
IC-NH4-N-10X-1 **100 mL**
1000 µg/mL Ammonium-Nitrogen in Water

Nitrogen - Nitrite
IC-NO2-N-10X-1 **100 mL**
1000 µg/mL Nitrite-Nitrogen in Water

Nitrogen - Nitrate
IC-NO3-N-10X-1 **100 mL**
1000 µg/mL Nitrate-Nitrogen in Water

Silica
WC-SIO2-10X-1 **100 mL**
1000 µg/mL as Silica (SiO_2) in Water tr. HF

Sulfate
IC-SO4-10X-1 **100 mL**
1000 µg/mL Sulfate (SO_4) in Water

Hexavalent Chromium
WC-HEX-10X-1 **100 mL**
1000 µg/mL in Water

Standards of Interest
Anions available in additional concentrations, see page 358 for complete product listing.

Physical & Aggregate Properties

These Standards are concerned primarily with measuring actual physical characteristics of a sample as opposed to the chemical characteristics. These analytes are measured frequently in both drinking and waste waters.

Turbidity
WC-TURB-4X-1 **100 mL**
400 NTU non-ratio Turbidity Standard

A stable solution of microspheres in an aqueous matrix. Can be diluted in turbidity free water to make a calibration curve.
Do not shake prior to use.

Alkalinity
WC-ALK-10X-1 **100 mL**
1000 µg/mL $CaCO_3$ to pH 4.5

Hardness
WC-HARD-10X-1 **100 mL**
1000 µg/mL equivalent $CaCO_3$

A combination of Ca and Mg to give an approximate concentration of 1000 µg/mL $CaCO_3$. Hardness µg/mL equivalent $CaCO_3$ = 2.497 [Ca µg/mL] + 4.118 [Mg µg/mL]

Conductivity
WC-COND-10X-1 **100 mL**
1000 µmhos in Water

Solids
WC-SOL **sample**
2 comps.

1000 ppm TSS (Total Suspended Solids) and 1000 ppm TDS (Total Disolved Solids) for a 2000 ppm TS (Total Solids).

Dilute to 100 mL. Rinse vial and cap several times to recover all solids.

Methylene Blue Activated Substance (MBAS)
WC-MBAS-R1-10X-1 **100 mL**
1000 µg/mL in Water

Aggregate Organic

Rather than determining individual organic analytes, these Standards are used to determine organic matter in broad categories, based primarily on how they react.

Biochemical Oxygen Demand (BOD)

WC-BOD-10ML **10 mL**
100 µg/mL BOD (After Dilution)

75 mg/L glucose and 75 mg / L glutamic acid provided in a flame sealed ampule. Dilute to 1L immediately before use.

Absorbable Organic Halogens (AOX)

WC-AOX-2X-1 **100 mL**
200 µg/mL Chlorine in Water

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.

Chemical Oxygen Demand (COD)

WC-COD-5X-10ML **10 mL**
500 µg/mL COD in water

Total Organic Carbon (TOC)

WC-TOC-10X-1 **100 mL**
1000 µg/mL TOC in water, tr. H_2SO_4

Total Inorganic Carbon (TIC)

WC-TIC-10X-1 **100 mL**
1000 µg/mL Total Inorganic Carbon in Water

Total Organic Halides (TOX)

WC-TOX-10X-1 **1 mL**
WC-TOX-10X-1-PAK *SAVE* **5 x 1 mL**
1000 µg/mL in MeOH

Total Organic Nitrogen (TON)

WC-TON-10X-1 **100 mL**
1000 µg/mL Total Organic Nitrogen in Water

Total Kjeldahl Nitrogen (TKN)

WC-TKN-10X-1 **100 mL**
1000 µg/mL Total Kjeldahl Nitrogen in Water

Oil and Grease

WC-OILG-10X-1 ▲ **100 mL**
1000 µg/mL Total Oil and Grease in n-Propanol

Contains 500 µg/mL vegetable oil and 500 µg/mL of petroleum oil. Shake well before use.

Phenols

WC-PHEN-10X-1 **100 mL**
1000 µg/mL Phenol in water.

▲ Hazardous fee required

TPH, Oil and Grease
EPA Methods

Method 1664 Oil, Grease & Total Petroleum Hydrocarbon (TPH)

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML		**1 x 5 mL**
M-1664-5ML-PAK	***SAVE***	**5 x 5 mL**
4.0 mg/mL each in Acetone		2 comps.
M-1664-20ML		**1 x 20 mL**
M-1664-20ML-PAK	***SAVE***	**5 x 20 mL**
4.0 mg/mL each in Acetone		2 comps.

Hexadecane Stearic acid

Technical Note

This Precison and Recovery (PAR) Spiking Solution was developed for Method 1664. This performance based method was developed to replace previous gravimetric procedures incorporating Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule conveniently sized for quality control of the analytical batch.

Method 413.2 & 418.1 Total Petroleum Hydrocarbon Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON		**1 x 1 mL**
% by volume		3 comps.

Chlorobenzene	(25.0)	Hexadecane	(37.5)
Isooctane	(37.5)		

Oil, Grease and Petroleum Hydrocarbon Total Recoverable (IR Method)

M-418		**1 x 1 mL**
M-418-PAK	***SAVE***	**5 x 1 mL**
Total 4.15 mg/mL in Freon 113, (Parts by volume)		3 comps.

Chlorobenzene	(10.0)	Isooctane	(15.0)
n-Hexadecane	(15.0)		

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440		**1 x 1 mL**
M-8440-PAK	***SAVE***	**5 x 1 mL**
At stated conc. in Tetrachloroethene		3 comps.

Chlorobenzene	(0.10 w/w %)	Isooctane	(0.15 w/w %)
n-Hexadecane	(0.15 w/w %)		

Silica Gel Cleanup Calibration Solution

M-8440-SGC		**1 x 1 mL**
M-8440-SGC-PAK	***SAVE***	**5 x 1 mL**
10.0 mg/mL in Tetrachloroethene		

Corn Oil

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON		**1 x 1 mL**
M-8440-CON-PAK	***SAVE***	**5 x 1 mL**
		3 comps.

Chlorobenzene	(25.0 vol %)	Isooctane	(37.5 vol %)
n-Hexadecane	(37.5 vol %)		

Standards of Interest

AccuStandard offers the widest selection of Petroleum standards. These TPH oil analysis standards are a sample of the hundreds in our Fuel and Hydrocarbon section.

Custom Formulations

Fast Turnaround

20-Plus Years Custom Formulation Experience

Custom Standards are a cost and time saving alternative

Certification

- Concentrations are certified gravimetrically and QC verified instrumentally.
- Traceable to NIST wherever possible.
- Each component within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis.
- Certificate of Analysis documents the certified gravimetric values.
- 18 month expiration period for most products.

Preparation

- Balances used are calibrated against NIST traceable weights.
- Solutions diluted to volume using Class A glassware.
- Highest purity raw materials and acids used.
- Packaged in pre-cleaned bottles.

Packaging Options

- Discounted pricing for bulk quantities.
- 5 x 100 mL or 1 x 500 mL minimum purchase.

Contact Inorganic Technical Service for inquiries

You Set the Standards
We make them!®

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials, Water & Acids
- Meets EPA and Customer Applications
- Concentration Verified by Wet Chemical and Instrumental Analysis
- Packaged in Specially prepared Acid Leached Bottles
- Full Documentation

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.

Multi-Element Contents

Quality Control Standards

Quality Control Standards can be used for many different applications. AccuTrace QC Standards are ideal for calibration when performing NPDES monitoring requirements and can be used for standard curve checks, inter-element correction methods, interference checks or any other unique application.

QC Standard #1

QCS-01-1 **100 mL**
QCS-01-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 23 comps.

Sb (Antimony)	Mn (Manganese)
As (Arsenic)	Mo (Molybdenum)
Be (Beryllium)	Ni (Nickel)
Cd (Cadmium)	P (Phosphorus)
Ca (Calcium)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Co (Cobalt)	Tl (Thallium)
Cu (Copper)	Sn (Tin)
Fe (Iron)	Ti (Titanium)
Pb (Lead)	V (Vanadium)
Li (Lithium)	Zn (Zinc)
Mg (Magnesium)	

QC Standard #2

QCS-02-1 **100 mL**
QCS-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 7 comps

Al (Aluminum)	100
Ba (Barium)	100
B (Boron)	100
K (Potassium)	1000
Si (Silicon) †	500
Ag (Silver)	50
Na (Sodium)	100

† 1070 µg/mL as SiO_2

QC Standard #2R

QCS-02-R1-1 **100 mL**
QCS-02-R1-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 7 comps.

Al (Aluminum)	Si (Silicon) †
Ba (Barium)	Ag (Silver)
B (Boron)	Na (Sodium)
K (Potassium)	

† 214 µg/mL as SiO_2

QC Standard #3

QCS-03-1 **100 mL**
QCS-03-5 **500 mL**
100 µg/mL each in 5% HNO_3 15 comps.

Al (Aluminum)	Pb (Lead)
Ba (Barium)	Mg (Magnesium)
Cd (Cadmium)	Mn (Manganese)
Ca (Calcium)	Ni (Nickel)
Cr (Chromium)	Na (Sodium)
Co (Cobalt)	Ti (Titanium)
Cu (Copper)	Zn (Zinc)
Fe (Iron)	

QC Standard #4

QCS-04-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 19 comps.

Al (Aluminum)	100
Ba (Barium)	5
Be (Beryllium)	1
Bi (Bismuth)	200
B (Boron)	15
Cd (Cadmium)	20
Cr (Chromium)	25
Co (Cobalt)	20
Cu (Copper)	20
Ga (Gallium)	150
In (Indium)	200
Fe (Iron)	15
Pb (Lead)	200
Mn (Manganese)	5
Ni (Nickel)	50
Ag (Silver)	50
Sr (Strontium)	1
Tl (Thallium)	40
Zn (Zinc)	20

QC Standard #5

QCS-05-1 **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

Li (Lithium)	250
K (Potassium)	10,000
Na (Sodium)	1000

QC Standard #6

QCS-06-1 **100 mL**
1000 µg/mL each in 2% HNO_3 4 comps.

Ba (Barium)	Mg (Magnesium)
Ca (Calcium)	Sr (Strontium)

Quality Control Standards Sets

QCS-1-SET			**3 x 100 mL**
QCS-01-1	QCS-02-1	QCS-03-1	
QCS-5-SET			**3 x 500 mL**
QCS-01-5	QCS-02-5	QCS-03-5	
QCS-R1-1-SET			**3 x 100 mL**
QCS-01-1	QCS-02-R1-1	QCS-03-1	
QCS-R1-5-SET			**3 x 500 mL**
QCS-01-5	QCS-02-R1-5	QCS-03-5	

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

Second Source QC Standards

These Alternative Source Standards exactly match a formulation from another source you may be already using. These formulations save you the cost of a custom formulation by providing you with true independent lots.

- **NIST Traceable**
- **Independent Lots**
- **Exact Match**

Second Source QC Standard #1

QCS-ASL-7-1 **1 x 100 mL**
QCS-ASL-7-5 **1 x 500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF 7 comps.

Al (Aluminum)	100
Ba (Barium)	100
B (Boron)	100
K (Potassium)	1000
Si (Silicon)	50
Ag (Silver)	100
Na (Sodium)	100

Second Source QC Standard #2

QCS-ASL-21-1 **1 x 100 mL**
QCS-ASL-21-5 **1 x 500 mL**
100 µg/mL each in 2-5% HNO_3 tr. HF 21 comps.

Sb (Antimony)	Mg (Magnesium)
As (Arsenic)	Mn (Manganese)
Be (Beryllium)	Mo (Molybdenum)
Cd (Cadmium)	Ni (Nickel)
Ca (Calcium)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Co (Cobalt)	Tl (Thallium)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	V (Vanadium)
Pb (Lead)	Zn (Zinc)
Li (Lithium)	

Second Source QC Standard #3

QCS-ASL-19-1 **1 x 100 mL**
QCS-ASL-19-5 **1 x 500 mL**
100 µg/mL each in 2-5% HNO_3 tr. HF 19 comps.

Sb (Antimony)	Mg (Magnesium)
As (Arsenic)	Mn (Manganese)
Be (Beryllium)	Mo (Molybdenum)
Cd (Cadmium)	Ni (Nickel)
Ca (Calcium)	Se (Selenium)
Cr (Chromium)	Tl (Thallium)
Co (Cobalt)	Ti (Titanium)
Cu (Copper)	V (Vanadium)
Fe (Iron)	Zn (Zinc)
Pb (Lead)	

Match Other Supplier's Products. Use as a True Second Source.

Instrument Check Standards

These instrument check standards are used to verify ICP instrumentation performance over specific wavelength ranges from 160 nm to 790 nm. These standards are ideal for method development, technician training and other calibration uses.

Instrument Check Standard #1

ICS-01-1 **100 mL**
ICS-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 9 comps.

Al (Aluminum)	100
Ba (Barium)	10
Be (Beryllium)	10
B (Boron)	100
Ca (Calcium)	10
Ni (Nickel)	100
P (Phosphorus)	1000
Sc (Scandium)	10
Zn (Zinc)	100

Instrument Check Standard #2

ICS-02-1 **100 mL**
ICS-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

Ba (Barium)	50
Be (Beryllium)	20
La (Lanthanum)	20
Mn (Manganese)	20
Ni (Nickel)	20
Sc (Scandium)	20
Zn (Zinc)	20

Instrument Check Standard #3

ICS-03-1 **100 mL**
ICS-03-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 11 comps.

As (Arsenic)	20
La (Lanthanum)	20
Li (Lithium)	20
Mn (Manganese)	20
Mo (Molybdenum)	20
Ni (Nickel)	20
P (Phosphorus)	100
K (Potassium)	100
Sc (Scandium)	20
Na (Sodium)	20
S (Sulfur)	100

Instrument Check Standard #4

ICS-04-1 **100 mL**
ICS-04-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 12 comps.

Al (Aluminum)	100
As (Arsenic)	100
Ba (Barium)	10
Cu (Copper)	100
Pb (Lead)	100
Mn (Manganese)	100
Ni (Nickel)	100
P (Phosphorus)	100
K (Potassium)	500
Sc (Scandium)	100
Na (Sodium)	100
Zn (Zinc)	100

Instrument Check Standard #5

ICS-05-1 **100 mL**
ICS-05-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 15 comps.

Al (Aluminum)	100
As (Arsenic)	100
Cd (Cadmium)	100
Cr (Chromium)	100
Co (Cobalt)	100
Cu (Copper)	100
Fe (Iron)	100
Pb (Lead)	100
Mg (Magnesium)	100
Mn (Manganese)	100
Ni (Nickel)	100
K (Potassium)	100
Na (Sodium)	100
Y (Yttrium)	600
Zn (Zinc)	100

Instrument Check Standard #6

ICS-06-1 **100 mL**
ICS-06-5 **500 mL**
50 µg/mL each in 2% HNO_3 9 comps.

Al (Aluminum)
As (Arsenic)
Cr (Chromium)
Co (Cobalt)
Cu (Copper)
Pb (Lead)
P (Phosphorus)
K (Potassium)
Na (Sodium)

Instrument Check Standard #7

ICS-07-1 **100 mL**
ICS-07-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

Al (Aluminum)	50
Ba (Barium)	50
Cd (Cadmium)	50
Cu (Copper)	50
Mn (Manganese)	50
K (Potassium)	500
Zn (Zinc)	50

Screening Standards

These four Qualitative Standards can be combined to scan samples quickly and easily for elements present. They should be used for element identification only. The concentration of each element is approximately 10 µg/mL. To screen for **all 68 elements** these 4 semi-quantitative standards can be blended together and used immediately.

Semi-Quantitative Standard #1

SQS-01-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 tr. HF 33 comps.

Al (Aluminum)
As (Arsenic)
Ba (Barium)
Bi (Bismuth)
Ca (Calcium)
Cd (Cadmium)
Ce (Cerium)
Dy (Dysprosium)
Er (Erbium)
Eu (Europium)
Ga (Gallium)
Gd (Gadolinium)
Ho (Holmium)
In (Indium)
La (Lanthanum)
Lu (Lutetium)
Mg (Magnesium)
Na (Sodium)
Nd (Neodymium)
P (Phosphorus)
Pb (Lead)
Pr (Praseodymium)
Sc (Scandium)
Se (Selenium)
Sm (Samarium)
Sr (Strontium)
Tb (Terbium)
Th (Thorium)
Tl (Thallium)
Tm (Thulium)
U (Uranium)
Y(Yttrium)
Yb (Ytterbium)

Semi-Quantitative Standard #2

SQS-02-R1-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 tr. HCl tr. HF 33 comps.

B (Boron)
Be (Beryllium)
Co (Cobalt)
Cr (Chromium)
Cs (Cesium)
Cu (Copper)
Fe (Iron)
Ge (Germanium)
Hf (Hafnium)
Ir (Iridium)
K (Potassium)
Li (Lithium)
Mn (Manganese)
Mo (Molybdenum)
Nb (Niobium)
Ni (Nickel)
Pd (Palladium)
Pt (Platinum)
Rb (Rubidium)
Re (Rhenium)
Rh (Rhodium)
Ru (Ruthenium)
S (Sulfur)
Sb (Antimony)
Si (Silicon)
Sn (Tin)
Ta (Tantalum)
Te (Tellurium)
Ti (Titanium)
V (Vanadium)
W (Tungsten)
Zn (Zinc)
Zr (Zirconium)

Semi-Quantitative Standard #3

SQS-03-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 2 comps.

Hg (Mercury)
Ag (Silver)

Semi-Quantitative Standard #4

SQS-04-1 **1 x 100 mL**
10 µg/mL each in 5% HNO_3

Au (Gold)

Screening Standard Set

SQS-R1-1-SET **4 x 100 mL**

SQS-01-1
SQS-02-R1-1
SQS-03-1
SQS-04-1

Technical Note

To verify screening results, use single element standards to confirm and quantify the concentration.

SDWA Standards

For use in SW-846, Method 1310 and U.S. NPDWR 40CFR Part 141. The three Drinking Water Standards are used for monitoring drinking water and/or ground and surface water.

Primary Drinking Water Metals

SDWA-01-1 **100 mL**
SDWA-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

As (Arsenic)	10
Ba (Barium)	100
Cd (Cadmium)	5
Cr (Chromium)	10
Pb (Lead)	10
Se (Selenium)	5
Ag (Silver)	10

Secondary Drinking Water Metals

SDWA-02-1 **100 mL**
SDWA-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Cu (Copper)	100
Fe (Iron)	30
Mn (Manganese)	5
Zn (Zinc)	500

Mercury Solution

SDWA-03-1 **100 mL**
SDWA-03-5 **500 mL**
10 µg/mL in 5% HNO_3

Hg (Mercury)

Drinking Water Sets

SDWA-1-SET **3 x 100 mL**
SDWA-01-1 SDWA-02-1 SDWA-03-1

SDWA-5-SET **3 x 500 mL**
SDWA-01-5 SDWA-02-5 SDWA-03-5

Standards for Analytes covered in the Safe Drinking Water Act (SDWA)

Primary Metals for Analysis by ICP

Contains all approved elements
SDWA-04-1 **100 mL**
SDWA-04-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 9 comps.

As (Arsenic)	100
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Ca (Calcium)	100
Cr (Chromium)	10
Cu (Copper)	10
Ni (Nickel)	10
Na (Sodium)	100

Primary Metals for Analysis by GFAA

Contains GFAA approved elements
SDWA-05-1 **100 mL**
SDWA-05-5 **500 mL**
10 µg/mL each in 2-5% HNO_3 9 comps.

Sb (Antimony)
As (Arsenic)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Pb (Lead)
Ni (Nickel)
Se (Selenium)
Tl (Thallium)

Primary Metals for Analysis by ICP-MS

Contains all approved elements
SDWA-06-MS-1 **100 mL**
SDWA-06-MS-5 **500 mL**
10 µg/mL each in 2% HNO_3 11 comps.

Sb (Antimony)
As (Arsenic)
Ba (Barium)
Be (Beryllium)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Pb (Lead)
Ni (Nickel)
Se (Selenium)
Tl (Thallium)

Primary Metals for Analysis by GFAA/ICP/ICP-MS

SDWA-07-1 **100 mL**
SDWA-07-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 14 comps.

Sb (Antimony)	100
As (Arsenic)	100
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Ca (Calcium)	100
Cr (Chromium)	10
Cu (Copper)	10
Pb (Lead)	10
Ni (Nickel)	10
Se (Selenium)	10
Si (Silicon) †	100
Na (Sodium)	100
Tl (Thallium)	10

† 214 µg/mL as SiO_2

Secondary Metals for Analysis by GFAA/ICP/ICP-MS

SDWA-08-1 **100 mL**
SDWA-08-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 5 comps.

Al (Aluminum)	10
Fe (Iron)	100
Mn (Manganese)	10
Ag (Silver)	10
Zn (Zinc)	10

Primary & Secondary Metals for Analysis by GFAA/ICP/ICP-MS

Contains all Primary & Secondary Metals
SDWA-09-1 **100 mL**
SDWA-09-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 19 comps.

Al (Aluminum)	10
Sb (Antimony)	100
As (Arsenic)	100
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Ca (Calcium)	100
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	100
Pb (Lead)	10
Mn (Manganese)	10
Ni (Nickel)	10
Se (Selenium)	10
Si (Silicon) †	100
Ag (Silver)	10
Na (Sodium)	100
Tl (Thallium)	10
Zn (Zinc)	10

† 214 µg/mL as SiO_2

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.

Groundwater & Wastewater Standards

Trace Metals I, II, III

Trace Metals I

WPTM-01-1 **100 mL**
WPTM-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 15 comps.

Al (Aluminum)	500
As (Arsenic)	100
Be (Beryllium)	100
Cd (Cadmium)	25
Cr (Chromium)	100
Co (Cobalt)	100
Cu (Copper)	100
Fe (Iron)	100
Pb (Lead)	100
Mn (Manganese)	100
Hg (Mercury)	5
Ni (Nickel)	100
Se (Selenium)	25
V (Vanadium)	250
Zn (Zinc)	100

Trace Metals II

WPTM-02-1 **100 mL**
WPTM-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

Sb (Antimony)	20
Ag (Silver)	10
Tl (Thallium)	20

Trace Metal Sets

WPTM-1-SET	**3 x 100 mL**
WPTM-01-1	WPTM-03-1
WPTM-02-1	
WPTM-5-SET	**3 x 500 mL**
WPTM-01-5	WPTM-03-5
WPTM-02-5	

Trace Metals III

WPTM-03-1 **100 mL**
WPTM-03-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 6 comps.

Ba (Barium)	500
Ca (Calcium)	500
Mg (Magnesium)	100
Mo (Molybdenum)	500
K (Potassium)	100
Na (Sodium)	500

Alternate Metals for Groundwater and Wastewater Analysis

Alternate Metals I

WPAM-01-1 **100 mL**
WPAM-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 11 comps.

Al (Aluminum)	20
Sb (Antimony)	5
Be (Beryllium)	5
Co (Cobalt)	10
Cu (Copper)	10
Fe (Iron)	20
Mn (Manganese)	10
Ni (Nickel)	10
Tl (Thallium)	5
V (Vanadium)	20
Zn (Zinc)	10

Alternate Metals III

WPAM-03-1 **100 mL**
WPAM-03-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Ca (Calcium)	500
Mg (Magnesium)	100
K (Potassium)	100
Na (Sodium)	500

Alternate Trace Metal Sets

WPAM-1-SET	**2 x 100 mL**
WPAM-01-1	WPAM-03-1
WPAM-5-SET	**2 x 500 mL**
WPAM-01-5	WPAM-03-5

TCLP Multi-Element Calibration Standards

For use in SW-846, Method 1311 Toxicity Characteristic Leaching Procedure

TCLP Standard #1

TCLP-01-1 **100 mL**
TCLP-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 7 comps.

As (Arsenic)	25
Ba (Barium)	500
Cd (Cadmium)	5
Cr (Chromium)	25
Pb (Lead)	25
Se (Selenium)	5
Ag (Silver)	25

TCLP Standard for ICP

TCLP-ICP-1 **100 mL**
TCLP-ICP-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Ba (Barium)	500
Cd (Cadmium)	5
Cr (Chromium)	25
Ag (Silver)	25

TCLP Standard for GFAA

TCLP-GFAA-1 **100 mL**
TCLP-GFAA-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 3 comps.

As (Arsenic)	25
Pb (Lead)	25
Se (Selenium)	5

TCLP Standard #2

For Mercury Analysis using ICP or Cold Vapor AA
TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

MISA Test Group 29 Analysis Calibration Standards

For use in MISA Test Group 29 Analysis or general use standards. Set of six standards contains 69 elements at 100 µg/mL each. Ideal for the laboratory that wants to analyze for everything.

MISA Standard 1
Rare Earth Metals

MISA-01-1 — **100 mL**
100 µg/mL each in 5% HNO_3 — 18 comps.

- Ce (Cerium)
- Dy (Dysprosium)
- Er (Erbium)
- Eu (Europium)
- Gd (Gadolinium)
- Ho (Holmium)
- La (Lanthanum)
- Lu (Lutetium)
- Nd (Neodymium)
- Pr (Praseodymium)
- Sc (Scandium)
- Sm (Samarium)
- Tb (Terbium)
- Th (Thorium)
- Tm (Thulium)
- U (Uranium)
- Yb (Ytterbium)
- Y (Yttrium)

MISA Standard 2
Precious Metals

MISA-02-1 — **100 mL**
100 µg/mL each in 10% HCl — 6 comps.

- Au (Gold)
- Ir (Iridium)
- Pd (Palladium)
- Pt (Platinum)
- Rh (Rhodium)
- Ru (Ruthenium)

MISA Standard 3
Tellurium

MISA-03-1 — **100 mL**
100 µg/mL in 10% HCl

- Te (Tellurium)

MISA Standard 4
Alkali, Alkaline Earth, Non-Transition Group

MISA-04-1 — **100 mL**
100 µg/mL each in 10% HNO_3 — 16 comps.

- Al (Aluminum)
- As (Arsenic)
- Ba (Barium)
- Be (Beryllium)
- Bi (Bismuth)
- Ca (Calcium)
- Cs (Cesium)
- Ga (Gallium)
- In (Indium)
- Li (Lithium)
- Mg (Magnesium)
- K (Potassium)
- Rb (Rubidium)
- Se (Selenium)
- Na (Sodium)
- Sr (Strontium)

MISA Calibration Set

MISA-1-SET — **6 x 100 mL**

MISA-01-1, MISA-02-1, MISA-03-1, MISA-04-1, MISA-05-1, MISA-06-1

MISA Standard 5
Fluoride Soluble Group

MISA-05-1 — **100 mL**
100 µg/mL each in 5% HNO_3 tr. HF — 15 comps.

- Sb (Antimony)
- B (Boron)
- Ge (Germanium)
- Hf (Hafnium)
- Mo (Molybdenum)
- Nb (Niobium)
- P (Phosphorus)
- Re (Rhenium)
- Si (Silicon)
- S (Sulfur)
- Ta (Tantalum)
- Sn (Tin)
- Ti (Titanium)
- W (Tungsten)
- Zr (Zirconium)

MISA Standard 6
Transition Metals

MISA-06-1 — **100 mL**
100 µg/mL each in 10% HNO_3 — 13 comps.

- Cd (Cadmium)
- Co (Cobalt)
- Cu (Copper)
- Cr (Chromium)
- Fe (Iron)
- Pb (Lead)
- Mn (Manganese)
- Hg (Mercury)
- Ni (Nickel)
- Ag (Silver)
- Tl (Thallium)
- V (Vanadium)
- Zn (Zinc)

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 — **500 mL**
CLP-BLN-L-VAP — **1L (2 x 500 mL)**

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 — **500 mL**
CLP-BLMA-L-VAP — **1L (2 x 500 mL)**

5% HCl + 1% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5 — **500 mL**
CLP-BLH-L-VAP — **1 L (2 x 500 mL)**

5% HCl in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 ▼ — **500 mL**
CLP-BLW-L-VAP ▼ — **1 L (2 x 500 mL)**

18 Megohm ASTM Type I deionized Water

▼ Hazardous fee not required.

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

Calibration Check Standards

Calibration Standard #1
CLP-CAL-01-1 **100 mL**
5000 µg/mL each in 5% HNO_3 4 comps.

Ca (Calcium)	K (Potassium)
Mg (Magnesium)	Na (Sodium)

Calibration Standard #2
CLP-CAL-02-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Cr (Chromium)	100
Mn (Manganese)	150
Ni (Nickel)	400
Ag (Silver)	100
Zn (Zinc)	200

CLP Calibration Standard Set
CLP-CAL-1-SET **7 x 100 mL**

CLP-CAL-01	CLP-CAL-04	CLP-CAL-06
CLP-CAL-02	CLP-CAL-05	CLP-CAL-07
CLP-CAL-03		

Calibration Standard #3
CLP-CAL-03-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 7 comps.

Al (Aluminum)	2000
Ba (Barium)	2000
Be (Beryllium)	50
Co (Cobalt)	500
Cu (Copper)	250
Fe (Iron)	1000
V (Vanadium)	500

Calibration Standard #4
CLP-CAL-04-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	100
Cd (Cadmium)	50
Pb (Lead)	50
Se (Selenium)	50
Tl (Thallium)	100

Calibration Standard #5
CLP-CAL-05-1 **100 mL**
600 µg/mL in 2% HNO_3

Sb (Antimony)

Calibration Standard #6
CLP-CAL-06-1 **100 mL**
100 µg/mL in 5% HNO_3

Hg (Mercury)

Calibration Standard #7
CLP-CAL-07-1 **100 mL**
500 µg/mL each in 5% HNO_3 tr. HF 3 comps.

B (Boron)	Si (Silicon)
Mo (Molybdenum)	

Verification Standards

Initial Calibration Verification

CLP-ICV-01-1 **100 mL**
CLP-ICV-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Al (Aluminum)	200
Sb (Antimony)	60
As (Arsenic)	10
Ba (Barium)	200
Be (Beryllium)	5
Cd (Cadmium)	5
Ca (Calcium)	5000
Cr (Chromium)	10
Co (Cobalt)	50
Cu (Copper)	25
Fe (Iron)	100
Pb (Lead)	5
Mg (Magnesium)	5000
Mn (Manganese)	15
Ni (Nickel)	40
K (Potassium)	5000
Se (Selenium)	5
Ag (Silver)	10
Na (Sodium)	5000
Tl (Thallium)	10
V (Vanadium)	50
Zn (Zinc)	20

Initial Calibration Verification

CLP-ICV-01-R-1 **100 mL**
CLP-ICV-01-R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Al (Aluminum)	200
Sb (Antimony)	60
As (Arsenic)	10
Ba (Barium)	200
Be (Beryllium)	5
Cd (Cadmium)	5
Ca (Calcium)	500
Cr (Chromium)	10
Co (Cobalt)	50
Cu (Copper)	25
Fe (Iron)	100
Pb (Lead)	5
Mg (Magnesium)	500
Mn (Manganese)	15
Ni (Nickel)	40
K (Potassium)	500
Se (Selenium)	5
Ag (Silver)	10
Na (Sodium)	500
Tl (Thallium)	10
V (Vanadium)	50
Zn (Zinc)	20

Continuing Calibration Verification

(Meets CLP QA Second Source Requirements)
CLP-CCV-01-1 **100 mL**
CLP-CCV-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Al (Aluminum)	1000
Ba (Barium)	1000
Be (Beryllium)	25
Ca (Calcium)	2500
Cr (Chromium)	50
Co (Cobalt)	250
Cu (Copper)	125
Fe (Iron)	500
Mg (Magnesium)	2500
Mn (Manganese)	75
Ni (Nickel)	200
K (Potassium)	2500
Ag (Silver)	50
Na (Sodium)	2500
V (Vanadium)	250
Zn (Zinc)	100

CLP-CCV-02-1 **100 mL**
CLP-CCV-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	50
Cd (Cadmium)	25
Pb (Lead)	25
Se (Selenium)	25
Tl (Thallium)	50

CLP-CCV-03-1 **100 mL**
CLP-CCV-03-5 **500 mL**
300 µg/mL in 2% HNO_3

Sb (Antimony)

Technical Note

CLP-ICV-01-R has Ca, Mg, K & Na at 1/10 the concentration of CLP-ICV-01. This improves plasma robustness and often results in superior recoveries.

Initial & Continuing Calibration Verification Sets

CLP-VER-1-SET **4 x 100 mL**

CLP-ICV-01-1	CLP-CCV-02-1
CLP-CCV-01-1	CLP-CCV-03-1

CLP-VER-5-SET **4 x 500 mL**

CLP-ICV-01-5	CLP-CCV-02-5
CLP-CCV-01-5	CLP-CCV-03-5

Initial & Continuing Calibration Revised Verification Sets

CLP-VER-R-1-SET **4 x 100 mL**

CLP-ICV-01-R-1	CLP-CCV-02-1
CLP-CCV-01-1	CLP-CCV-03-1

CLP-VER-R-5-SET **4 x 500 mL**

CLP-ICV-01-R-5	CLP-CCV-02-5
CLP-CCV-01-5	CLP-CCV-03-5

Continuing Calibration Verification Standard Sets

CLP-CCV-1-SET **3 x 100 mL**

CLP-CCV-01-1	CLP-CCV-03-1
CLP-CCV-02-1	

CLP-CCV-5-SET **3 x 500 mL**

CLP-CCV-01-5	CLP-CCV-03-5
CLP-CCV-02-5	

Spiking Standards

Spiking Solution

CLP-SPS-01-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 18 comps.

Al (Aluminum)	200
Sb (Antimony)	50
As (Arsenic)	200
Ba (Barium)	200
Be (Beryllium)	5
Cd (Cadmium)	5
Cr (Chromium)	20
Co (Cobalt)	50
Cu (Copper)	25
Fe (Iron)	100
Pb (Lead)	50
Mn (Manganese)	50
Ni (Nickel)	50
Se (Selenium)	200
Ag (Silver)	5
Tl (Thallium)	200
V (Vanadium)	50
Zn (Zinc)	50

CLP Soil Spiking Solution

CLP-SPS-02-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Sb (Antimony)	100
As (Arsenic)	400
Ba (Barium)	400
Be (Beryllium)	10
Cd (Cadmium)	10
Cr (Chromium)	40
Co (Cobalt)	100
Cu (Copper)	50
Pb (Lead)	100
Mn (Manganese)	100
Ni (Nickel)	100
Se (Selenium)	400
Ag (Silver)	10
Tl (Thallium)	400
V (Vanadium)	100
Zn (Zinc)	100

Technical Note

Spiking solution CLP-SPS-01 can be used for both aqueous and solid samples. An additional spiking solution for soil as outlined in CLP SOW ILM03.0 is also available, CLP-SPS-02.

CLP Spiking Set

CLP-SPS-1-SET **2 x 100 mL**

CLP-SPS-01-1	CLP-SPS-02-1

Interference Check & Analyte Standards

The common interferents checked for CLP requirements and their associated analytes are listed in our primary interferent analyte solutions. Occasionally, additional interferents may cause other analytical problems according to CLP SOW ILM03.0. These additional six elements are available with their respective analytes in the alternate interferent/analyte solutions.

Primary Analytes

CLP-PAN-01-1 **100 mL**
CLP-PAN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Ag *(Silver)*	100
Ba *(Barium)*	50
Be *(Beryllium)*	50
Cd *(Cadmium)*	100
Co *(Cobalt)*	50
Cr *(Chromium)*	50
Cu *(Copper)*	50
Mn *(Manganese)*	50
Ni *(Nickel)*	100
Pb *(Lead)*	100
V *(Vanadium)*	50
Zn *(Zinc)*	100

Primary Interferents

CLP-PIN-01-1 **100 mL**
CLP-PIN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Al (Aluminum)	5000
Ca (Calcium)	5000
Fe (Iron)	2000
Mg (Magnesium)	5000

Alternate Interferents

CLP-PIN-02-1 **100 mL**
CLP-PIN-02-5 **500 mL**
1000 µg/mL each in 5% HNO_3 6 comps.

Cr (Chromium)	Ni (Nickel)
Cu (Copper)	Ti (Titanium)
Mn (Manganese)	V (Vanadium)

Interferent / Analyte Sets

CLP-IA-1-SET **4 x 100 mL**

CLP-PIN-01-1	CLP-PIN-02-1
CLP-PAN-01-1	CLP-PAN-02-1

CLP-IA-5-SET **4 x 500 mL**

CLP-PIN-01-5	CLP-PIN-02-5
CLP-PAN-01-5	CLP-PAN-02-5

Alternate Analytes

CLP-PAN-02-1 **100 mL**
CLP-PAN-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 12 comps.

Al (Aluminum)	100
Sb (Antimony)	100
As (Arsenic)	100
B (Boron)	100
Ca (Calcium)	10
Fe (Iron)	10
Mg (Magnesium)	10
Mo (Molybdenum)	100
Se (Selenium)	100
Si (Silicon)	10
Na (Sodium)	100
Tl (Thallium)	100

Detection Limit Standards

Contract Required Detection Limits (CRDL) Standard Solutions. We offer the flexibility of two convenient solutions:

CLP Detection Limits Standard #1

CLP-CRDL-01-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 15 comps.

Sb (Antimony)	120
As (Arsenic)	120
Be (Beryllium)	10
Cd (Cadmium)	10
Cr (Chromium)	20
Co (Cobalt)	100
Cu (Copper)	50
Pb (Lead)	120
Mn (Manganese)	30
Ni (Nickel)	80
Se (Selenium)	120
Ag (Silver)	20
Tl (Thallium)	120
V (Vanadium)	100
Zn (Zinc)	40

Contract Required Detection Limits (CRDL) Set

CLP-CRDL-1-SET **2 x 100 mL**

CLP-CRDL-01	CLP-CRDL-02

Technical Note

These standards are prepared to meet the requirements of the CLP protocol; Arsenic (As), Lead (Pb), Selenium (Se) and Thallium (Tl) are at a concentration two times the instrument detection limit (IDL) while the remaining elements are at two times the CRDL.

CLP Detection Limits Standard #2

CLP-CRDL-02-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 15 comps.

Sb (Antimony)	120
As (Arsenic)	20
Be (Beryllium)	10
Cd (Cadmium)	10
Cr (Chromium)	20
Co (Cobalt)	100
Cu (Copper)	50
Pb (Lead)	6
Mn (Manganese)	30
Ni (Nickel)	80
Se (Selenium)	10
Ag (Silver)	20
Tl (Thallium)	20
V (Vanadium)	100
Zn (Zinc)	40

Technical Note

These standards are designed for ICPs equipped with ultrasonic nebulizers and offer the elements of interest at two times the CRDL level.

Method 200.7 (Revision 4.4, May 1994) Calibration Standards

Mixed Calibration Standard #1

M-200.7-01-1 **100 mL**
M-200.7-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 10 comps.

Sb (Antimony)	50
As (Arsenic)	100
Ba (Barium)	10
B (Boron)	20
Cd (Cadmium)	20
Ca (Calcium)	100
Cu (Copper)	20
Mn (Manganese)	20
Se (Selenium)	50
Ag (Silver)	5

Mixed Calibration Standard #2

M-200.7-02R-1 **100 mL**
M-200.7-02R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 6 comps.

Li (Lithium)	50
Mo (Molybdenum)	100
K (Potassium)	200
Na (Sodium)	100
Sr (Strontium)	10
Ti (Titanium)	100

Mixed Calibration Standard #3

M-200.7-03R-1 **100 mL**
M-200.7-03R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Ce (Cerium)	20
Co (Cobalt)	20
P (Phosphorus)	100
V (Vanadium)	20

Mixed Calibration Standard #4

M-200.7-04-1 **100 mL**
M-200.7-04-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 5 comps.

Al (Aluminum)	100
Cr (Chromium)	50
Si (Silicon) †	100
Sn (Tin)	40
Zn (Zinc)	50

† 214 µg/mL as SiO_2

Mixed Calibration Standard #5

M-200.7-05-1 **100 mL**
M-200.7-05-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Be (Beryllium)	10
Fe (Iron)	100
Pb (Lead)	100
Mg (Magnesium)	100
Ni (Nickel)	20
Tl (Thallium)	50

Mixed Calibration Standards Sets

M-200.7-R-1-SET **5 x 100 mL**
M-200.7-01-1 M-200.7-04-1
M-200.7-02R-1 M-200.7-05-1
M-200.7-03R-1

M-200.7-5-R-5-SET **5 x 500 mL**
M-200.7-01-5 M-200.7-04-5
M-200.7-02R-5 M-200.7-05-5
M-200.7-03-5R

Method 200.7 Instrument Performance Standards

Instrument Performance Check Standard #1

M-200.7-IPC-01-1 **100 mL**
M-200.7-IPC-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Al (Aluminum)	20	Li (Lithium)	20
As (Arsenic)	20	Mg (Magnesium)	20
Ba (Barium)	20	Mn (Manganese)	20
Be (Beryllium)	20	Ni (Nickel)	20
B (Boron)	20	P (Phosphorus)	100
Cd (Cadmium)	20	K (Potassium)	100
Ca (Calcium)	20	Se (Selenium)	20
Ce (Cerium)	20	Ag (Silver)	2.5
Cr (Chromium)	20	Na (Sodium)	20
Co (Cobalt)	20	Sr (Strontium)	20
Cu (Copper)	20	Tl (Thallium)	20
Fe (Iron)	20	V (Vanadium)	20
Pb (Lead)	20	Zn (Zinc)	20

Instrument Performance Check Standard #2

M-200.7-IPC-02-1 **100 mL**
M-200.7-IPC-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 5 comps.

Sb (Antimony)	20
Mo (Molybdenum)	20
Si (Silicon) †	100
Sn (Tin)	20
Ti (Titanium)	20

† 214 µg/mL as SiO_2

Method 200.7 Performance Check, Fortifying Solution & Mercury Standard

Laboratory Performance Check Standard

For use in demonstrating the initial and continuing verification of the calibration curves produced by this method.

LPCS-01-1 **100 mL**
LPCS-01-5 **500 mL**

At stated conc. (µg/mL) in 5% HNO_3 tr. HF
29 comps.

Al (Aluminum)	20
Sb (Antimony)	20
As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
B (Boron)	20
Cd (Cadmium)	20
Ca (Calcium)	20
Cr (Chromium)	20
Co (Cobalt)	20
Cu (Copper)	20
Fe (Iron)	20
Pb (Lead)	20
Li (Lithium)	20
Mg (Magnesium)	20
Mn (Manganese)	20
Mo (Molybdenum)	20
Ni (Nickel)	20
P (Phosphorus)	100
K (Potassium)	100
Se (Selenium)	20
Si (Silicon) †	100
Ag (Silver)	5
Na (Sodium)	20
Sr (Strontium)	20
Tl (Thallium)	20
Sn (Tin)	20
V (Vanadium)	20
Zn (Zinc)	20

† 214 µg/mL as SiO_2

Laboratory Fortifying Stock Solution

For use in preparing the laboratory fortified blank and the laboratory fortified sample matrix.

LFSS-01-1 **100 mL**
LFSS-01-5 **500 mL**

At stated conc. (µg/mL) in 5% HNO_3 tr. HF
25 comps.

Al (Aluminum)	25
Sb (Antimony)	25
As (Arsenic)	25
Ba (Barium)	25
Be (Beryllium)	5
B (Boron)	25
Cd (Cadmium)	10
Cr (Chromium)	25
Co (Cobalt)	10
Cu (Copper)	25
Fe (Iron)	25
Pb (Lead)	25
Li (Lithium)	25
Mn (Manganese)	25
Mo (Molybdenum)	10
Ni (Nickel)	25
P (Phosphorus)	50
Se (Selenium)	25
Si (Silicon) †	25
Ag (Silver)	2.5
Sr (Strontium)	25
Tl (Thallium)	25
Sn (Tin)	10
V (Vanadium)	10
Zn (Zinc)	25

† 53.5 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to incompatibility with other elements.

TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**

20 µg/mL in 5% HNO_3

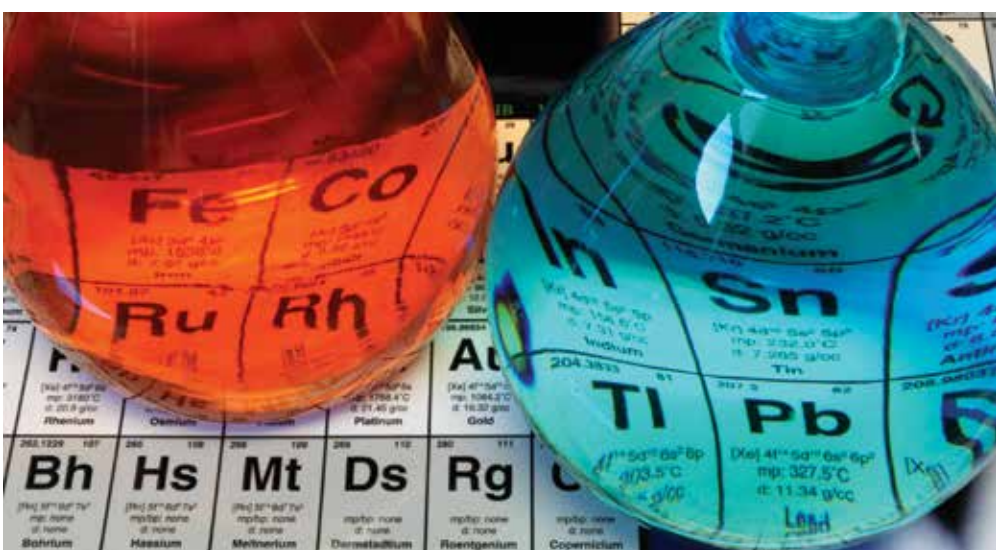
Hg (Mercury)

Technical Note

The analytes Ca, K, Mg, and Na are not included in the stock solution because their concentrations vary widely in environmental samples.

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.



Method 200.7 Fortifying (Spiking & Instrument Performance Standards)

These Standards have been split for stability and ease of use. Choose the Instrument Fortifying Standard you require for Part 1 & use with Part 2 to complete the analyte list. For Lab Fortified Blank use M-200.7-LFSS-01, for Water Samples use M-200.7-LFSS-01W, and for Solid Samples use M-200.7-LFSS-01S.

Part 1

Instrument Fortifying Standard

M-200.7-LFSS-01-1 **100 mL**
M-200.7-LFSS-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Al (Aluminum)	20
As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
B (Boron)	20
Cd (Cadmium)	20
Ca (Calcium)	20
Ce (Cerium)	20
Cr (Chromium)	20
Co (Cobalt)	20
Cu (Copper)	20
Fe (Iron)	20
Pb (Lead)	20
Li (Lithium)	20
Mg (Magnesium)	20
Mn (Manganese)	20
Ni (Nickel)	20
P (Phosphorus)	20
K (Potassium)	500
Se (Selenium)	20
Ag (Silver)	7.5
Na (Sodium)	20
Sr (Strontium)	20
Tl (Thallium)	20
V (Vanadium)	20
Zn (Zinc)	20

Instrument Fortifying Standard for Water

M-200.7-LFSS-01W-1 **100 mL**
M-200.7-LFSS-01W-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Al (Aluminum)	20
As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
B (Boron)	20
Cd (Cadmium)	20
Ce (Cerium)	20
Cr (Chromium)	20
Co (Cobalt)	20
Cu (Copper)	20
Fe (Iron)	20
Pb (Lead)	20
Li (Lithium)	20
Mn (Manganese)	20
Ni (Nickel)	20
P (Phosphorus)	20
K (Potassium)	500
Se (Selenium)	20
Ag (Silver)	7.5
Tl (Thallium)	20
V (Vanadium)	20
Zn (Zinc)	20

Instrument Fortifying Standard for Solids

M-200.7-LFSS-01S-1 **100 mL**
M-200.7-LFSS-01S-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 24 comps.

As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
B (Boron)	20
Cd (Cadmium)	20
Ca (Calcium)	20
Ce (Cerium)	20
Cr (Chromium)	20
Co (Cobalt)	20
Cu (Copper)	20
Pb (Lead)	20
Li (Lithium)	20
Mg (Magnesium)	20
Mn (Manganese)	20
Ni (Nickel)	20
P (Phosphorus)	20
K (Potassium)	500
Se (Selenium)	20
Ag (Silver)	7.5
Na (Sodium)	20
Sr (Strontium)	20
Tl (Thallium)	20
V (Vanadium)	20
Zn (Zinc)	20

Part 2

Instrument Fortifying Standard #2

M-200.7-LFSS-02-1 **100 mL**
M-200.7-LFSS-02-5 **500 mL**
20 µg/mL each in 5% HNO_3 tr. HF 5 comps.

Sb (Antimony)	Sn (Tin)
Mo (Molybdenum)	Ti (Titanium)
Si (Silicon) †	

† 42.78 µg/mL as SiO_2

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

ICP Multi-Element

Method 200.7 Spiking Solutions for Drinking Water

Spiking Standard #1R

M-200.7-SP-01-R ▼ **50 mL**
At stated conc. (µg/mL) in H_2O tr. HF 4 comps.

B (Boron)	400
Mo (Molybdenum)	200
Si (Silicon) †	2000
P (Phosphorus)	400

† 4278 µg/mL SiO_2

Spiking Standard #2R

M-200.7-SP-02-R **50 mL**
M-200.7-SP-02-R-1 **100 mL**
M-200.7-SP-02-R-5 **500 mL**
10,000 µg/mL each in in 2% HNO_3 4 comps.

Ca (Calcium)	K (Potassium)
Mg (Magnesium)	Na (Sodium)

Spiking Standard #3

M-200.7-SP-03 **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Al (Aluminum)	2000
Ba (Barium)	2000
Be (Beryllium)	50
Cr (Chromium)	200
Co (Cobalt)	500
Cu (Copper)	250
Fe (Iron)	1000
Mn (Manganese)	500
Ni (Nickel)	500
Ag (Silver)	50
V (Vanadium)	500
Zn (Zinc)	500

Method 200.7 Spiking Set

M-200.7-SP-R-SET **5 x 50 mL**

M-200.7-SP-01-R	M-200.7-SP-04-R
M-200.7-SP-02-R	M-200.7-SP-05-R
M-200.7-SP-03	

Spiking Standard #4R

M-200.7-SP-04-R **50 mL**
200 µg/mL in dilute HNO_3

Sb (Antimony)

Spiking Standard #5R

M-200.7-SP-05-R **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	200
Cd (Cadmium)	100
Pb (Lead)	200
Se (Selenium)	400
Tl (Thallium)	400

Method 200.7 Interference Check Standards

For use in testing and verifying the inter-element spectral correction process.

SIC Solution #1

Used to evaluate the spectral interference for the analytes: Al, Sb, Se, Sn, V

SICS-01-1 **100 mL**
SICS-01-5 **500 mL**
50 µg/mL in Water tr. NH_4OH

Mo (Molybdenum)

Check Solutions Sets

SIC-1-SET **3 x 100 mL**

SICS-01-1	SICS-03-1
SICS-02-1	

SIC-5-SET **3 x 500 mL**

SICS-01-5	SICS-03-5
SICS-02-5	

SIC Solution #2

Used to evaluate the spectral interference for the analytes: Sb, Pb, Zn, Mo, As, Be

SICS-02-1 **100 mL**
SICS-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 5 comps.

Cr (Chromium)	20
Co (Cobalt)	10
Cu (Copper)	40
Mn (Manganese)	20
V (Vanadium)	10

SIC Solution #3

Used to evaluate the spectral interference for the analytes: Sb, Zn, As, Ag, Cr, Mn, V

SICS-03-1 **100 mL**
SICS-03-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

Al (Aluminum)	30
Fe (Iron)	150
Ni (Nickel)	20

Since everyone experiences different interference problems in their analysis, it is often easiest to design standards to match the "real world" samples. Below is a set of single element standards that can be used for making these standards in your lab.

Spectral Interference Check Set

Single Elements

SIC-SING-1-SET **9 x 100 mL**
Each at 1,000 µg/mL in HNO_3

Al (Aluminum)	Mn (Manganese)
Cr (Chromium)	Mo (Molybdenum)
Co (Cobalt)	Ni (Nickel)
Cu (Copper)	V (Vanadium)
Fe (Iron)	

▼ Hazardous fee not required.

Method 6010B (Revision 2, from SW-846) Calibration Standards

Mixed Calibration Standard #1

MCS-01-1 **100 mL**
MCS-01-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 6 comps.

Be (Beryllium)	50
Cd (Cadmium)	150
Pb (Lead)	500
Mn (Manganese)	100
Se (Selenium)	200
Zn (Zinc)	150

Mixed Calibration Standard #2

MCS-02-1 **100 mL**
MCS-02-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 5 comps.

Ba (Barium)	100
Co (Cobalt)	100
Cu (Copper)	100
Fe (Iron)	10,000
V (Vanadium)	100

Complete Calibration Set 6010B, Rev. 2, 1996 and 6010C, Rev. 3, 2000

MCS-1996-1-SET **7 x 100 mL**

MCS-01-1, MCS-02-1, MCS-03R-1, MCS-04R-1, MCS-05R-1, MCS-06R-1, TCLP-02-1

MCS-1996-5-SET **7 x 500 mL**

MCS-01-5, MCS-02-5, MCS-03R-5, MCS-04R-5, MCS-05R-5, MCS-06R-5, TCLP-02-5

Mixed Calibration Standard #3R

MCS-03R-1 **100 mL**
MCS-03R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF 2 comps.

As (Arsenic)	500
Mo (Molybdenum)	100

Mixed Calibration Standard #4R

MCS-04R-1 **100 mL**
MCS-04R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 8 comps.

Al (Aluminum)	200
Ca (Calcium)	1000
Cr (Chromium)	20
Li (Lithium)	100
Ni (Nickel)	20
K (Potassium)	400
Na (Sodium)	200
Sr (Strontium)	10

Technical Note

Additional Analyte Calibration Standards. The use of this Standard Solution (MCS-06R), plus a Mercury Standard (TCLP-02), completes the analyte list for the 1996 Rev. 2 and 2000 Rev. 3.

Mixed Calibration Standard #5R

MCS-05R-1 **100 mL**
MCS-05R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Sb (Antimony)	200
Mg (Magnesium)	1000
Ag (Silver)	50
Tl (Thallium)	200

Mixed Calibration Standard 6R

MCS-06R-1 **100 mL**
MCS-06R-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3, tr. HF 5 comps.

P (Phosphorus)	200
Sn (Tin)	200
Ti (Titanium)	100
B (Boron)	50
Si (Silicon) †	100

† 214 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to its incompatibility with other elements.

TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

Method 6010B Spiking Standards

Three convenient solutions that can be used for spiking samples pre- or post- digestion.

Spiking Standard #1

QCS-01-1 **100 mL**
QCS-01-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 23 comps.

Sb (Antimony), As (Arsenic), Be (Beryllium), Cd (Cadmium), Ca (Calcium), Cr (Chromium), Co (Cobalt), Cu (Copper), Fe (Iron), Pb (Lead), Li (Lithium), Mg (Magnesium), Mn (Manganese), Mo (Molybdenum), Ni (Nickel), P (Phosphorus), Se (Selenium), Sr (Strontium), Tl (Thallium), Sn (Tin), Ti (Titanium), V (Vanadium), Zn (Zinc)

Spiking Standard #2

QCS-02-1 **100 mL**
QCS-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 7 comps.

Al (Aluminum)	100
Ba (Barium)	100
B (Boron)	100
K (Potassium)	1000
Si (Silicon) †	500
Ag (Silver)	50
Na (Sodium)	100

† 1070 µg/mL as SiO_2

QC Standard #2R

QCS-02-R1-1 **100 mL**
QCS-02-R1-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 7 comps.

Al (Aluminum), Ba (Barium), B (Boron), K (Potassium), Si (Silicon) †, Ag (Silver), Na (Sodium)

† 214 µg/mL as SiO_2

Mercury Standard

Mercury is available in a separate solution due to incompatibility with other elements.

TCLP-02-1 **100 mL**
TCLP-02-5 **500 mL**
20 µg/mL in 5% HNO_3

Hg (Mercury)

Method 6010B (Revision 2 from SW-846, Dec. 1996) Performance and Interference Check Standards

Laboratory Performance Check Standard

LPCS-01R-1 **100 mL**
LPCS-01R-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 30 comps.

Al (Aluminum)	20
Sb (Antimony)	20
As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
B (Boron)	20
Cd (Cadmium)	20
Ca (Calcium)	20
Cr (Chromium)	20
Co (Cobalt)	20
Cu (Copper)	20
Fe (Iron)	20
Pb (Lead)	20
Li (Lithium)	20
Mg (Magnesium)	20
Mn (Manganese)	20
Mo (Molybdenum)	20
Ni (Nickel)	20
P (Phosphorous)	100
K (Potassium)	100
Se (Selenium)	20
Si (Silicon) †	100
Ag (Silver)	5
Na (Sodium)	20
Sr (Strontium)	20
Tl (Thallium)	20
Sn (Tin)	20
Ti (Titanium)	20
V (Vanadium)	20
Zn (Zinc)	20

† 214 µg/mL as SiO_2

Primary Interferents

CLP-PIN-01-1 **100 mL**
CLP-PIN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Al (Aluminum)	5000
Ca (Calcium)	5000
Fe (Iron)	2000
Mg (Magnesium)	5000

Alternate Interferents

CLP-PIN-02-1 **100 mL**
CLP-PIN-02-5 **500 mL**
1000 µg/mL each in 5% HNO_3 6 comps.

Cr (Chromium)
Cu (Copper)
Mn (Manganese)
Ni (Nickel)
Ti (Titanium)
V (Vanadium)

Interference Set

SIC-SING-R-1-SET **set of 10 x 100 mL**
10 individual single element standards at 1,000 µg/mL in HNO_3

Al (Aluminum)
Ca (Calcium)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Mn (Manganese)
Ni (Nickel)
Ti (Titanium)
V (Vanadium)

Technical Note

Because interference problems are dependent on the types of sample matrices encountered, it is often easier to create your own set of matrix matching interference check solutions. Therefore, we are offering a set of single element solutions to be used for that purpose.

If you would like us to formulate an interference check solution to meet your needs, please call our Inorganic Technical Service Department for a custom quotation.

Set-up Solutions

Nebulizer Adjustment Solution

ICP-69N-1 **100 mL**
1000 µg/mL in HNO_3

Y (Yttrium)

Method 6010 (Revision 0, Sept. 1986) Interference Check Standards

Four standard mixtures are available for interference checks in SW-846, Method 6010 (Rev. 0, Sept. 1986) and Method 200.7.

Interference Check Standard #1

INT-01-1 **100 mL**
INT-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 17 comps.

As (Arsenic)	1000
Ba (Barium)	300
Be (Beryllium)	100
Cd (Cadmium)	300
Cr (Chromium)	300
Co (Cobalt)	300
Cu (Copper)	300
Pb (Lead)	1000
Mn (Manganese)	200
Hg (Mercury)	50
Ni (Nickel)	300
K (Potassium)	20,000
Se (Selenium)	500
Ag (Silver)	300
Tl (Thallium)	1000
V (Vanadium)	300
Zn (Zinc)	300

Interference Check Standard #2

INT-02-1 **100 mL**
INT-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 4 comps.

B (Boron)	500
Mo (Molybdenum)	300
Si (Silicon)	200
Ti (Titanium)	1000

Interference Check Standard #3

INT-03-1 **100 mL**
INT-03-5 **500 mL**
500 µg/mL in 2% HNO_3, tr. Tartaric acid

Sb (Antimony)

Interference Check Standard #4

INT-04-1 **100 mL**
INT-04-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Al (Aluminum)	1200
Ca (Calcium)	6000
Fe (Iron)	5000
Mg (Magnesium)	3000
Na (Sodium)	1000

Interference Check Standards Sets

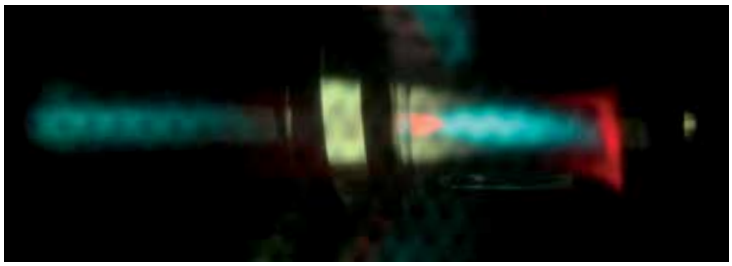
INT-1986-1-SET **4 x 100 mL**

INT-01-1
INT-02-1
INT-03-1
INT-04-1

INT-1986-5-SET **4 x 500 mL**

INT-01-5
INT-02-5
INT-03-5
INT-04-5

ICP Alternate Source



Save up to 50%

Cross Reference Part No. Index

These calibration and testing standards have been carefully formulated to be used for specific instrument setup and verification.

Over 100 ICP Alternate Source Multi-Element Standards

Merck

Instrument	AccuStandard	Page
1.09410	MES-23	3
1.09411	MES-24	3
1.09480	MES-13 *	3
1.09481	MES-14	3
1.09482	MES-15	3
1.09487	MES-16	3
1.09490	MES-12 *	3
1.09491	MES-11 *	2
1.09492	MES-08 *	2
1.09493	MES-10 *	2
1.09494	MES-09 *	2
1.09495	MES-17	3
1.09496	MES-19 *	3
1.09497	MES-20 *	3
1.09498	MES-21	3
1.09499	MES-22 *	3
1.09500	MES-18	3
1.10322	MES-07	2
1.10580	MES-06 *	2
1.10714	MES-05 *	2
1.11355	MES-04	2
1.15474	MES-01	2
1.15626	MES-03	2
1.15708	MES-02	2

Agilent

Instrument	AccuStandard	Page
5183-4681	AG-INT	6
5183-4682	AG-VER1	4
5183-4687	AG-SPIKE	4
5183-4688	AG-CAL	6
5188-6524	AG-TUN	4
5188-6525	AG-INTSTD	4
5188-6526	AG-INTFR-6020	6
5188-6527	AG-INTFR2-6020	6
5188-6564	AG-TUNSTOCK	4
5190-0465	AG-TUNSTOCK1	4
8500-6940	AG-MECAL2A	6
8500-6942	AG-MECAL4	6
8500-6944	AG-MECAL1	6
8500-6948	AG-MECAL3	6
190024400	VAR-TUN	4
190064800	AG-INTFA	5
190024900	AG-ICV7	5
190025000	AG-QCS27	5
190025100	AG-ANALTB	5
6610030000	AG-WAVECAL-10X	4
6610030100	AG-WAVECAL	4
6610030400	AG-INT2	6
6610030500	AG-CAL1	6
6610030600	AG-CAL2	6
6610030700	AG-CALMAJOR	6

Horiba/Jobin Yvon

Instrument	AccuStandard	Page
JYICP-MIXHM	JY-CALHM	7
JYICP-MIXMAJ	JY-CAL	7
JYICP-MIX7HSI	JY-QC7	7
JYICP-MIX9	JY-CHK	7
JYICP-MIX21	JY-QC21	7
JYICP-MIX23	JY-QC23	7
JYICP-QC1	JY-CHK1	7

Perkin Elmer

Instrument	AccuStandard	Page
N0582152	PE-UVWAVE	12
N0691579	PE-MCS	10
N0691580	PE-UV	12
N8122014	PE-SETUP2 *	11
N8122017	PE-CRDL3 *	8
N8125030	PE-STAB *	12
N8125031	PE-CRDL4 *	8
N8125032	PE-SETUP1 *	11
N8125034	PE-SENS *	11
N8125040	PE-SMTUNE *	11
N8125041	PE-SMTUNE2 *	11
N9300200	PE-MCS1	10
N9300201	PE-MCS2	10
N9300202	PE-MCS3	10
N9300203	PE-MCS4	10
N9300204	PE-MCS5	10
N9300205	PE-ICS18	9
N9300208	PE-ICS5	9
N9300211	PE-WPTM1	12
N9300212	PE-WPTM2	12
N9300213	PE-WPTM3	12
N9300214	PE-WPAM1	12
N9300215	PE-WPAM3	12
N9300216	PE-SDWA1	11
N9300217	PE-SDWA2	11
N9300218	PE-CAL4	8
N9300219	PE-CAL5	8
N9300220	PE-CAL6	8
N9300221	PE-CAL7	8
N9300224	PE-CRDL1 *	8
N9300225	PE-CRDL2	8
N9300226	PE-INTA	9
N9300227	PE-ANAB	8
N9300228	PE-ALTINTA	8
N9300229	PE-ALTB	8
N9300230	PE-SPIKE	11
N9300231	PE-MECAL1	10
N9300232	PE-MECAL2	10
N9300233	PE-MECAL3	10
N9300234	PE-MECAL4	10
N9300235	PE-MECAL5	10

Perkin Elmer

Instrument	AccuStandard	Page
N9300280	PE-QC7	11
N9300281	PE-QC21	11
N9301720	PE-MECAL3	10
N9301721	PE-CAL2	8
N9302946	PE-VISWAVE	12
N9303816	PE-CAL1	8
N9303818	PE-CAL3	8
N9303821	PE-CHK1	9
N9303822	PE-CHK3	9
N9303823	PE-CHK4	9
N9303824	PE-CHK5	9
N9303825	PE-VER1	12
N9303826	PE-VER2	12
N9303827	PE-INTFRA	9
N9303828	PE-INTFR1	9
N9303829	PE-INTFRB	9
N9303830	PE-INTFR2	9
N9303831	PE-INTFRC	9
N9303832	PE-INT	9
N9303834	PE-MEINT	10
N9303835	PE-MEM1	10
N9303836	PE-MEM2	10
N9303839	PE-SPIKE1	11
N9303840	PE-SPIKE2	11
N9303841	PE-SPIKE3	11
N9303843	PE-TUNSOL	12
N9307113	PE-MES1	9
N9307114	PE-MES2	9
N9307115	PE-MES3	9
N9307116	PE-MES4	9

Teledyne

Instrument	AccuStandard	Page
601-3110	TELE-CHK1 *	13
601-4101	TELE-CHK2 *	13
601-4102	TELE-CHK3 *	13
602-00065	TELE-CHK4	13
602-00067	TELE-CHK4	13
602-00068	TELE-CHK5	13
602-00070	TELE-CHK5	13
602-00071	TELE-CHK6	13
602-00073	TELE-CHK6	13
620-403	TELE-CHK7	13
602-00125	TELE-CHK8-0.1X *	13

*** similar formulation**

ICP Alternate Source
Merck

AccuStandard has received many requests for the following multi-element standards. We offer our own version of these popular mixes offered by Merck. Products are made to the same specifications as other mixes in our product line and subject to the same rigorous quality control.

AccuStandard equivalent of Merck Multi-Element Standards

ICP Multi-Element Standard Solution I

MES-01-1 **100 mL**
MES-01-5 **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 19 comps.

Ag (Silver)	50
Al (Aluminum)	100
B (Boron)	15
Ba (Barium)	5
Be (Beryllium)	1
Bi (Bismuth)	200
Cd (Cadmium)	20
Co (Cobalt)	20
Cr (Chromium)	25
Cu (Copper)	20
Fe (Iron)	15
Ga (Gallium)	150
In (Indium)	200
Mn (Manganese)	5
Ni (Nickel)	50
Pb (Lead)	200
Sr (Strontium)	1
Tl (Thallium)	400
Zn (Zinc)	20

ICP Multi-Element Standard Solution II

MES-02-1 **100 mL**
MES-02-5 **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 3 comps.

Li (Lithium)	250
K (Potassium)	10,000
Na (Sodium)	1000

ICP Multi-Element Standard Solution III

MES-03-1 **100 mL**
MES-03-5 **500 mL**
1000 µg/mL each in 1 mol/L HNO_3 4 comps.

Ba (Barium)	Mg (Magnesium)
Ca (Calcium)	Sr (Strontium)

ICP Multi-Element Standard Solution IV

MES-04-1 **100 mL**
MES-04-5 **500 mL**
1000 µg/mL each in 1 mol/L HNO_3 23 comps.

Ag (Silver)	In (Indium)
Al (Aluminum)	K (Potassium)
B (Boron)	Li (Lithium)
Ba (Barium)	Mg (Magnesium)
Bi (Bismuth)	Mn (Manganese)
Ca (Calcium)	Na (Sodium)
Cd (Cadmium)	Ni (Nickel)
Co (Cobalt)	Pb (Lead)
Cr (Chromium)	Sr (Strontium)
Cu (Copper)	Tl (Thallium)
Fe (Iron)	Zn (Zinc)
Ga (Gallium)	

ICP Multi-Element Standard Solution V

MES-05-1-SET **2x100 mL**
MES-05-5-SET **2x500 mL**
At stated conc. (µg/mL) in 2-10% HCl tr. HNO_3 26 comps.

MES-05

Al (Aluminum)	20
As (Arsenic)	20
B (Boron)	2
Ba (Barium)	2
Be (Beryllium)	1
Ca (Calcium)	10
Cd (Cadmium)	2
Cr (Chromium)	2
Cu (Copper)	2
Fe (Iron)	2
K (Potassium)	100
Li (Lithium)	2
Mg (Magnesium)	1
Mn (Manganese)	1
Na (Sodium)	20
Ni (Nickel)	5
P (Phosphorus)	10
Pb (Lead)	20
Sc (Scandium)	1
Se (Selenium)	20
Sr (Strontium)	1
Te (Tellurium)	20
Ti (Titanium)	2
Y (Yttrium)	1
Zn (Zinc)	2

MES-05-HG
5% HNO_3
Hg (Mercury) 5

Supplied separately for better stability

ICP Multi-Element Standard Solution VI for MS

MES-06-1-SET **100 mL**
MES-06-5-SET **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 tr. HF 30 comps.

Ag (Silver)	10
Al (Aluminum)	10
As (Arsenic)	100
B (Boron)	100
Ba (Barium)	10
Be (Beryllium)	100
Bi (Bismuth)	10
Ca (Calcium)	1000
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	100
Ga (Gallium)	10
K (Potassium)	10
Li (Lithium)	10
Mg (Magnesium)	10
Mn (Manganese)	10
Mo (Molybdenum)	10
Na (Sodium)	10
Ni (Nickel)	10
Pb (Lead)	10
Rb (Rubidium)	10
Se (Selenium)	100
Sr (Strontium)	10
Tl (Thallium)	10
U (Uranium)	10
V (Vanadium)	10
Zn (Zinc)	100

MES-06-TE
Te (Tellurium) 10

Supplied separately for better stability in 10% HCl

ICP Multi-Element Standard Solution VII

MES-07-1 ▼ **100 mL**
MES-07-5 ▼ **500 mL**
100 µg/mL each in Water tr. HNO_3 9 comps.

NH_4 (Ammonium)	Mn (Manganese)
Ba (Barium)	Na (Sodium)
Ca (Calcium)	Sr (Strontium)
K (Potassium)	
Li (Lithium)	
Mg (Magnesium)	

ICP Multi-Element Standard Solution VIII

MES-08-1-SET **2x100 mL**
MES-08-5-SET **2x500 mL**
100 µg/mL each in 1 mol/L HNO_3 24 comps.

MES-08

Al (Aluminum)	K (Potassium)
B (Boron)	Li (Lithium)
Ba (Barium)	Mg (Magnesium)
Be (Beryllium)	Mn (Manganese)
Bi (Bismuth)	Na (Sodium)
Ca (Calcium)	Ni (Nickel)
Cd (Cadmium)	Pb (Lead)
Co (Cobalt)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Cu (Copper)	Tl (Thallium)
Fe (Iron)	Zn (Zinc)
Ga (Gallium)	

MES-08-TE
10% HCl
Te (Tellurium)
Supplied separately for better stability

ICP Multi-Element Standard Solution IX

MES-09-1-SET **2x100 mL**
MES-09-5-SET **2x500 mL**
100 µg/mL each in 1 mol/L HNO_3 8 comps.

MES-09

As (Arsenic)	Ni (Nickel)
Be (Beryllium)	Se (Selenium)
Pb (Lead)	Tl (Thallium)
Cr (Chromium)	

MES-09-HG
Hg (Mercury)
Supplied separately for better stability.

ICP Multi-Element Standard Solution X

MES-10-1 **100 mL**
MES-10-5 **500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 23 comps.

Ca (Calcium)	3500
Mg (Magnesium)	1500
Na (Sodium)	800
K (Potassium)	300
B (Boron)	10
Fe (Iron)	10
Mo (Molybdenum)	10
Sr (Strontium)	10
As (Arsenic)	5
Ba (Barium)	5
Ni (Nickel)	5
V (Vanadium)	5
Zn (Zinc)	5
Mn (Manganese)	3
Co (Cobalt)	2.5
Pb (Lead)	2.5
Be (Beryllium)	2
Cd (Cadmium)	2
Cr (Chromium)	2
Cu (Copper)	2
Bi (Bismuth)	1
Se (Selenium)	1
Tl (Thallium)	1

Supplied at a 1:10 dilution for better long-term stability.

ICP Multi-Element Standard Solution XI

MES-11-1-SET **2x100 mL**
MES-11-5-SET **2x500 mL**
At stated conc. (µg/mL) in 1 mol/L HNO_3 6 comps.

MES-11

Cd (Cadmium)	10
Cr (Chromium)	900
Cu (Copper)	800
Ni (Nickel)	200
Pb (Lead)	900
Zn (Zinc)	2500

MES-11-HG
Hg (Mercury) 8
Supplied separately for better product stability

▼ Hazardous fee not required.

AccuStandard equivalent of Merck Multi-Element Standards

ICP Multi-Element Standard Solution XII

MES-12-1-SET **2x100 mL**
MES-12-5-SET **2x500 mL**
1000 µg/mL each in 5% HCl tr. HNO_3 7 comps.

MES-12-R1

As (Arsenic)	Si (Silicon)
Mo (Molybdenum)	W (Tungsten)
P (Phosphorus)	V (Vanadium)
S (Sulfur)	

MES-12-ZR
Zr (Zirconium)
Supplied separately for better product stability

ICP Multi-Element Standard Solution XIII

MES-13-1-SET **2x100 mL**
MES-13-5-SET **2x500 mL**
At stated conc. (µg/mL) in 5% HNO_3 15 comps.

MES-13

Al (Aluminum)	500
As (Arsenic)	100
Be (Beryllium)	100
Cd (Cadmium)	25
Co (Cobalt)	100
Cr (Chromium)	100
Cu (Copper)	100
Fe (Iron)	100
Mn (Manganese)	100
Ni (Nickel)	100
Pb (Lead)	100
Se (Selenium)	25
V (Vanadium)	250
Zn (Zinc)	100

MES-13-HG

Hg (Mercury)	5

Supplied separately for better stability

ICP Multi-Element Standard Solution XIV

MES-14-1 **100 mL**
MES-14-5 **500 mL**
At stated conc. (µg/mL) in 2% HCl tr. HNO_3 11 comps.

P (Phosphorus)	100
S (Sulfur)	100
K (Potassium)	100
As (Arsenic)	20
La (Lanthanum)	20
Li (Lithium)	20
Mo (Molybdenum)	20
Mn (Manganese)	20
Ni (Nickel)	20
Sc (Scandium)	20
Na (Sodium)	20

ICP Multi-Element Standard Solution XV

MES-15-1 **100 mL**
MES-15-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 8 comps.

Element	µg/mL
Ba (Barium)	1
Ca (Calcium)	1
K (Potassium)	50
La (Lanthanum)	10
Li (Lithium)	10
Mn (Manganese)	10
Na (Sodium)	10
Sr (Strontium)	10

ICP Multi-Element Standard Solution XVI

MES-16-1 **100 mL**
MES-16-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 21 comps.

Sb (Antimony)	Mg (Magnesium)
As (Arsenic)	Mn (Manganese)
Be (Beryllium)	Mo (Molybdenum)
Cd (Cadmium)	Ni (Nickel)
Ca (Calcium)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Co (Cobalt)	Tl (Thallium)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	V (Vanadium)
Pb (Lead)	Zn (Zinc)
Li (Lithium)	

ICP Multi-Element Standard Solution XVII

MES-17-1 **100 mL**
MES-17-5 **500 mL**
100 µg/mL each in in 15% HCl tr. HNO_3 7 comps.

Hf (Hafnium)	Ta (Tantalum)
Ir (Iridium)	Ti (Titanium)
Sb (Antimony)	Zr (Zirconium)
Sn (Tin)	

ICP Multi-Element GF AAS Standard Solution XVIII

MES-18-R1-1 **100 mL**
MES-18-R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Ag (Silver)	10
Al (Aluminum)	100
As (Arsenic)	100
Ba (Barium)	50
Be (Beryllium)	5
Cd (Cadmium)	5
Co (Cobalt)	50
Cr (Chromium)	20
Cu (Copper)	50
Fe (Iron)	20
Mn (Manganese)	20
Ni (Nickel)	50
Pb (Lead)	100
Sb (Antimony)	100
Se (Selenium)	100
Tl (Thallium)	100

ICP Multi-Element Standard Solution XIX for MS

MES-19-1 **100 mL**
MES-19-5 **500 mL**
1 µg/mL each in 1% HNO_3 5 comps.

Be (Beryllium)	Tl (Thallium)
Co (Cobalt)	U (Uranium)
In (Indium)	

Supplied as a 10X concentrate for better stability.

ICP Multi-Element Standard Solution XX for MS

MES-20-1 **100 mL**
MES-20-5 **500 mL**
1 µg/mL each in 1% HNO_3 tr. HCl 11 comps.

Mg (Magnesium)	Tl (Thallium)
Cu (Copper)	Ce (Cerium)
Cd (Cadmium)	Ge (Germanium)
Pb (Lead)	Tb (Terbium)
Sc (Scandium)	Ba (Barium)
Rh (Rhodium)	

Supplied as a 10X concentrate for better stability.

ICP Multi-Element Standard Solution XXI for MS

MES-21-1-SET **2x100 mL**
MES-21-5-SET **2x500 mL**
10 µg/mL each in 5% HNO_3 30 comps.

MES-21

Ag (Silver)	In (Indium)
Al (Aluminum)	K (Potassium)
As (Arsenic)	Li (Lithium)
Ba (Barium)	Mg (Magnesium)
Be (Beryllium)	Mn (Manganese)
Bi (Bismuth)	Na (Sodium)
Ca (Calcium)	Ni (Nickel)
Cd (Cadmium)	Pb (Lead)
Co (Cobalt)	Rb (Rubidium)
Cr (Chromium)	Se (Selenium)
Cs (Cesium)	Sr (Strontium)
Cu (Copper)	Tl (Thallium)
Fe (Iron)	V (Vanadium)
Ga (Gallium)	U (Uranium)
	Zn (Zinc)

MES-21-HG

Hg (Mercury)	10

Supplied separately for better product stability

ICP Multi-Element Standard Solution XXII for MS

MES-22-1 **100 mL**
MES-22-5 **500 mL**
2 µg/mL each in 2% HNO_3 tr. HCl 5 comps.

Cd (Cadmium)	Pb (Lead)
Cu (Copper)	Rh (Rhodium)
Mg (Magnesium)	

Supplied as a 10X concentrate for better stability.

ICP Multi-Element Standard Solution XXIII for MS

MES-23-1 **100 mL**
MES-23-5 **500 mL**
1 µg/mL each in 5% HNO_3 15 comps.

Ba (Barium)	Lu (Lutetium)
B (Boron)	Na (Sodium)
Co (Cobalt)	Rh (Rhodium)
Fe (Iron)	Sc (Scandium)
Ga (Gallium)	Tl (Thallium)
In (Indium)	U (Uranium)
K (Potassium)	Y (Yttrium)
Li (Lithium)	

ICP Multi-Element Standard Solution XXIV

MES-24-1 **100 mL**
MES-24-5 **500 mL**
At stated conc. (µg/mL) in 1% HNO_3 15 comps.

Al (Aluminum)	50
As (Arsenic)	50
Ba (Barium)	50
Cd (Cadmium)	50
Co (Cobalt)	50
Cr (Chromium)	50
Cu (Copper)	50
K (Potassium)	500
Mn (Manganese)	50
Mo (Molybdenum)	50
Ni (Nickel)	50
Pb (Lead)	50
Se (Selenium)	50
Sr (Strontium)	50
Zn (Zinc)	50

ICP Alternate Source
Agilent

AccuStandard offers calibration and testing standards for individual instruments. The Alternate Source Line (ASL) formulations match product from:

■ Agilent ■ Horiba/Jobin Yvon ■ Perkin Elmer ■ Teledyne

Save up to 50%

All of these products have been carefully formulated to be used for specific instrument setup and verification.

AccuStandard equivalent of Agilent Solutions

ICP-OES Wavelength Calibration Solution

AG-WAVECAL-ASL-1 **100 mL**
AG-WAVECAL-ASL-5 **500 mL**
AG-WAVECAL-ASL-10X-1 **100 mL**
AG-WAVECAL-ASL-10X-5 **500 mL**
At stated conc. (µg/mL) in 1% HNO_3 15 comps.

	CAL	CAL-10X
Al (Aluminum)	5	50
As (Arsenic)	5	50
Ba (Barium)	5	50
Cd (Cadmium)	5	50
Co (Cobalt)	5	50
Cr (Chromium)	5	50
Cu (Copper)	5	50
Mn (Manganese)	5	50
Mo (Molybdenum)	5	50
Ni (Nickel)	5	50
Pb (Lead)	5	50
Se (Selenium)	5	50
Sr (Strontium)	5	50
Zn (Zinc)	5	50
K (Potassium)	50	500

ICP/MS Stock Tuning Solution

AG-TUNSTOCK-ASL-1 **100 mL**
AG-TUNSTOCK-ASL-5 **500 mL**
10 µg/mL in 2% HNO_3 5 comps.

Li (Lithium)	Tl (Thalium)
Y (Yttrium)	Co (Cobalt)
Ce (Cerium)	

ICP/MS Stock Tuning Solution

AG-TUNSTOCK1-ASL-1 **100 mL**
AG-TUNSTOCK1-ASL-5 **500 mL**
10 µg/mL in 2% HNO_3 6 comps.

Li (Lithium)	Ce (Cerium)
Mg (Magnesium)	Tl (Thalium)
Y (Yttrium)	Co (Cobalt)

Internal Standard Mix for ICP/MS

AG-INTSTD-ASL-1 **100 mL**
AG-INTSTD-ASL-5 **500 mL**
100 µg/mL in 10% HNO_3, tr. HCl 8 comps.

Li-6 (Lithium-6)	In (Indium)
Sc (Scandium)	Tb (Terbium)
Ge (Germanium)	Lu (Lutetium)
Rh (Rhodium)	Bi (Bismuth)

7500 Series PA Tuning 1

AG-TUN1-ASL-1 **100 mL**
AG-TUN1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Zn (Zinc)	20	Ba (Barium)	5
Be (Beryllium)	20	Co (Cobalt)	5
Cd (Cadmium)	20	Sr (Strontium)	5
As (Arsenic)	20	V (Vanadium)	5
Ni (Nickel)	10	Cr (Chromium)	5
Pb (Lead)	10	Mn (Manganese)	5
Mg (Magnesium)	10	Li-6 (Lithium-6)	5
Tl (Thallium)	5	Sc (Scandium)	5
Na (Sodium)	5	In (Indium)	5
Al (Aluminum)	5	Lu (Lutetium)	5
U (Uranium)	5	Bi (Bismuth)	5
Cu (Copper)	5	Y (Yttrium)	2.5
Th (Thorium)	5	Yb (Ytterbium)	2.5

7500 Series PA Tuning 2

AG-TUN2-ASL-1 **100 mL**
AG-TUN2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 10% HCl, 1% HNO_3 tr. HF 8 comps.

Mo (Molybdenum)	10	Ru (Ruthenium)	10
Sb (Antimony)	10	Pd (Palladium)	10
Sn (Tin)	10	Ti (Titanium)	5
Ge (Germanium)	10	Ir (Iridium)	5

PA Tuning Solution Sets

AG-TUN-ASL-1-SET **2 x 100 mL**

AG-TUN1-ASL-1 AG-TUN2-ASL-1

AG-TUN-ASL-5-SET **2 x 500 mL**

AG-TUN1-ASL-5 AG-TUN2-ASL-5

ICP/MS Tuning Solution

VAR-TUN-ASL-1 **100 mL**
VAR-TUN-ASL-5 **500 mL**
10 µg/mL each in 2-5% HNO_3 8 comps.

Be (Beryllium)	Pb (Lead)
Mg (Magnesium)	Th (Thorium)
Co (Cobalt)	Ba (Barium)
In (Indium)	Ce (Cerium)

Environmental Spike Mix

AG-SPIKE-ASL-R1-1 **100 mL**
AG-SPIKE-ASL-R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 24 comps.

Ca (Calcium)	1000	Cr (Chromium)	100
Fe (Iron)	1000	Cu (Copper)	100
K (Potassium)	1000	Mn (Manganese)	100
Mg (Magnesium)	1000	Mo (Molybdenum)	100
Na (Sodium)	1000	Ni (Nickel)	100
Ag (Silver)	100	Pb (Lead)	100
Al (Aluminum)	100	Sb (Antimony)	100
As (Arsenic)	100	Se (Selenium)	100
Ba (Barium)	100	Tl (Thallium)	100
Be (Beryllium)	100	U (Uranium)	100
Cd (Cadmium)	100	V (Vanadium)	100
Co (Cobalt)	100	Zn (Zinc)	100

Environmental Initial Calibration Verification

AG-VER1-ASL-R1-1 **100 mL**
AG-VER1-ASL-R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 26 comps.

Ca (Calcium)	1000	Cr (Chromium)	10
Fe (Iron)	1000	Cu (Copper)	10
K (Potassium)	1000	Mn (Manganese)	10
Mg (Magnesium)	1000	Mo (Molybdenum)	10
Na (Sodium)	1000	Ni (Nickel)	10
Sr (Strontium)	100	Pb (Lead)	10
Ag (Silver)	10	Sb (Antimony)	10
Al (Aluminum)	10	Se (Selenium)	10
As (Arsenic)	10	Tl (Thallium)	10
Ba (Barium)	10	U (Uranium)	10
Be (Beryllium)	10	V (Vanadium)	10
Cd (Cadmium)	10	Zn (Zinc)	10
Co (Cobalt)	10	Th (Thorium)	10

AccuStandard is not affiliated with the companies and brands on these pages. The brands and company names appear for the purpose of cross reference with the corresponding AccuStandard products.

NEW

INTF-A Quality Control Standard

AG-INTFA-ASL-1 **100 mL**
AG-INTFA-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Al (Aluminum)	5000
Ca (Calcium)	5000
Mg (Magnesium)	5000
Fe (Iron)	2000

NEW

QCSTD-27 Quality Control Standard

AG-QCS27-ASL-1 **100 mL**
AG-QCS27-ASL-5 **500 mL**
100 µg/mL in 5% HNO_3 27 comps.

Al (Aluminum)	Co (Cobalt)	Se (Selenium)
Sb (Antimony)	Cu (Copper)	Si (Silicon)
As (Arsenic)	Fe (Iron)	Ag (Silver)
Ba (Barium)	Pb (Lead)	Sr (Strontium)
Be (Beryllium)	Mg (Magnesium)	Na (Sodium)
B (Boron)	Mn (Manganese)	Tl (Thallium)
Cd (Cadmium)	Mo (Molybdenum)	Ti (Titanium)
Ca (Calcium)	Ni (Nickel)	V (Vanadium)
Cr (Chromium)	K (Potassium)	Zn (Zinc)

AccuStandard equivalent of Agilent

ICV-7 Quality Control Standard

NEW

AG-ICV7-ASL-1 **100 mL**
AG-ICV7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Ca (Calcium)	5000	Cu (Copper)	25
Mg (Magnesium)	5000	Zn (Zinc)	20
K (Potassium)	5000	Mn (Manganese)	15
Na (Sodium)	5000	As (Arsenic)	10
Al (Aluminum)	200	Cr (Chromium)	10
Ba (Barium)	200	Ag (Silver)	10
Fe (Iron)	100	Tl (Thallium)	10
Sb (Antimony)	60	Be (Beryllium)	5
Co (Cobalt)	50	Cd (Cadmium)	5
V (Vanadium)	50	Pb (Lead)	5
Ni (Nickel)	40	Se (Selenium)	5

ANALT-B Quality Control Standard

NEW

AG-ANALTB-ASL-1 **100 mL**
AG-ANALTB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Ca (Calcium)	100	Be (Beryllium)	50
Ni (Nickel)	100	Co (Cobalt)	50
Pb (Lead)	100	Cr (Chromium)	50
Ag (Silver)	100	Cu (Copper)	50
Zn (Zinc)	100	Mn (Manganese)	50
Ba (Barium)	50	V (Vanadium)	50

Environmental Calibration Standard

AG-CAL-ASL-1 **100 mL**
AG-CAL-ASL-5 **500 mL**
At stated conc. (µg/mL) in 10% HNO_3 25 comps.

Ca (Calcium)	1000	Cu (Copper)	10
Fe (Iron)	1000	Mn (Manganese)	10
K (Potassium)	1000	Mo (Molybdenum)	10
Mg (Magnesium)	1000	Ni (Nickel)	10
Na (Sodium)	1000	Pb (Lead)	10
Ag (Silver)	10	Sb (Antimony)	10
Al (Aluminum)	10	Se (Selenium)	10
As (Arsenic)	10	Tl (Thallium)	10
Ba (Barium)	10	U (Uranium)	10
Be (Beryllium)	10	V (Vanadium)	10
Cd (Cadmium)	10	Zn (Zinc)	10
Co (Cobalt)	10	Th (Thorium)	10
Cr (Chromium)	10		

Calibration Mix 1 AA & ICP-OES

AG-CAL1-ASL-1 **100 mL**
AG-CAL1-ASL-5 **500 mL**
100 µg/mL each in 2% HNO_3 tr.HF 4 comps.

Sb (Antimony)	Sn (Tin)
Mo (Molybdenum)	Tl (Thallium)

Calibration Mix 2 AA & ICP-OES

AG-CAL2-ASL-1 **100 mL**
AG-CAL2-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3 18 comps.

Ag (Silver)	Mn (Manganese)
Al (Aluminum)	Ni (Nickel)
As (Arsenic)	Pb (Lead)
Ba (Barium)	Se (Selenium)
Be (Beryllium)	Tl (Thallium)
Cd (Cadmium)	Th (Thorium)
Co (Cobalt)	U (Uranium)
Cr (Chromium)	V (Vanadium)
Cu (Copper)	Zn (Zinc)

Calibration Mix Majors For AA & ICP-OES

AG-CALMAJOR-ASL-1 **100 mL**
AG-CALMAJOR-ASL-5 **500 mL**
500 µg/mL each in 5% HNO_3 5 comps.

Ca (Calcium)	Mg (Magnesium)
Fe (Iron)	Na (Sodium)
K (Potassium)	

6020 Interference Check Soln A

AG-INTFR-6020-ASL-1 **100 mL**
AG-INTFR-6020-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 12 comps.

Cl (Chloride)	20,000	Mg (Magnesium)	1000
Ca (Calcium)	3000	P (Phosphorus)	1000
Fe (Iron)	2500	K (Potassium)	1000
Na (Sodium)	2500	S (Sulfur)	1000
C (Carbon)	2000	Mo (Molybdenum)	20
Al (Aluminum)	1000	Ti (Titanium)	20

6020 Interference Check Soln B

AG-INTFR2-6020-ASL-1 **/ 100 mL**
AG-INTFR2-6020-ASL-5 **/ 500 mL**
At stated conc. (µg/mL) in 5% HNO_3 11 comps.

Cr (Chromium)	20	As (Arsenic)	10
Co (Cobalt)	20	Cd (Cadmium)	10
Cu (Copper)	20	Se (Selenium)	10
Mn (Manganese)	20	Zn (Zinc)	10
Ni (Nickel)	20	Ag (Silver)	5
V (Vanadium)	20		

Internal Standard Mix

AG-INT-ASL-1 **100 mL**
AG-INT-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 7 comps.

Bi (Bismuth)	Sc (Scandium)
Ge (Germanium)	Tb (Terbium)
In (Indium)	Y(Yttrium)
Li-6 (Lithium-6)	

ICP Internal Standard

AG-INT2-ASL-1 **100 mL**
AG-INT2-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3 6 comps.

Li-6 (Lithium-6)	In (Indium)
Sc (Scandium)	Tb (Terbium)
Y(Yttrium)	Bi (Bismuth)

▼ Hazardous fee not required.

Multi-Element Calibration Std. 1

AG-MECAL1-ASL-1 **100 mL**
AG-MECAL1-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 17 comps.

Ce (Cerium)	Pr (Praseodymium)
Dy (Dysprosium)	Sc (Scandium)
Er (Erbium)	Sm (Samarium)
Eu (Europium)	Tb (Terbium)
Gd (Gadolinium)	Th (Thorium)
Ho (Holmium)	Tm (Thulium)
La (Lanthanum)	Y (Yttrium)
Lu (Lutetium)	Yb (Ytterbium)
Nd (Neodymium)	

Multi-Element Calibration Std. 2A

AG-MECAL2A-ASL-1 **100 mL**
AG-MECAL2A-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 27 comps.

Ag (Silver)	Li (Lithium)
Al (Aluminum)	Mg (Magnesium)
As (Arsenic)	Mn (Manganese)
Ba (Barium)	Na (Sodium)
Be (Beryllium)	Ni (Nickel)
Ca (Calcium)	Pb (Lead)
Cd (Cadmium)	Rb (Rubidium)
Co (Cobalt)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Cs (Cesium)	Tl (Thallium)
Cu (Copper)	U (Uranium)
Fe (Iron)	V (Vanadium)
Ga (Gallium)	Zn (Zinc)
K (Potassium)	

Multi-Element Calibration Std. 3

AG-MECAL3-ASL-1 **100 mL**
AG-MECAL3-ASL-5 **500 mL**
10 µg/mL each in 10% HCl 10 comps.

Au (Gold)	Rh (Rhodium)
Hf (Hafnium)	Ru (Ruthenium)
Ir (Iridium)	Sb (Antimony)
Pd (Palladium)	Sn (Tin)
Pt (Platinum)	Te (Tellurium)

Multi-Element Calibration Std. 4

AG-MECAL4-ASL-1 ▼ **100 mL**
AG-MECAL4-ASL-5 ▼ **500 mL**
10 µg/mL each in Water, tr. HF 12 comps.

B (Boron)	S (Sulfur)
Ge (Germanium)	Si (Silicon)
Mo (Molybdenum)	Ta (Tantalum)
Nb (Niobium)	Ti (Titanium)
P (Phosphorus)	W (Tungsten)
Re (Rhenium)	Zr (Zirconium)

ICP Alternate Source
Horiba/Jobin Yvon

AccuStandard equivalent of Horiba/Jobin Yvon

Instrument Calibration Standard Heavy Metals

JY-CALHM-ASL-R1-1 **100 mL**
JY-CALHM-ASL-R1-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 5 comps.

As (Arsenic)	100
Tl (Thallium)	100
Cd (Cadmium)	50
Se (Selenium)	50
Pb (Lead)	50

Instrument Calibration Standard

JY-CAL-ASL-1 **100 mL**
JY-CAL-ASL-5 **500 mL**
5000 µg/mL each in 2-5% HNO_3 4 comps.

Ca (Calcium)	K (Potassium)
Mg (Magnesium)	Na (Sodium)

Instrument Check Standard

JY-CHK-ASL-1 **100 mL**
JY-CHK-ASL-5 **500 mL**
50 µg/mL each in 2-5% HNO_3 9 comps.

Al (Aluminum)	K (Potassium)
As (Arsenic)	Na (Sodium)
Co (Cobalt)	P (Phosphorus)
Cr (Chromium)	Pb (Lead)
Cu (Copper)	

Instrument Check Standard 1

JY-CHK1-ASL-1 **100 mL**
JY-CHK1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

K (Potassium)	1500
Pb (Lead)	1000
Al (Aluminum)	500
Mg (Magnesium)	500
Cd (Cadmium)	100

Quality Control Standard 7

JY-QC7-ASL-1 **100 mL**
JY-QC7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 7 comps.

K (Potassium)	1000
Si (Silicon)	500
Al (Aluminum)	100
B (Boron)	100
Ba (Barium)	100
Na (Sodium)	100
Ag (Silver)	50

Quality Control Standard 21

JY-QC21-ASL-1 **100 mL**
JY-QC21-ASL-5 **500 mL**
100 µg/mL each in 2-5% HNO_3 tr. HF 21 comps.

As (Arsenic)	Mo (Molybdenum)
Be (Beryllium)	Ni (Nickel)
Ca (Calcium)	Pb (Lead)
Cd (Cadmium)	Sb (Antimony)
Co (Cobalt)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	Tl (Thallium)
Li (Lithium)	V (Vanadium)
Mg (Magnesium)	Zn (Zinc)
Mn (Manganese)	

Quality Control Standard 23

JY-QC23-ASL-1 **100 mL**
JY-QC23-ASL-5 **500 mL**
1000 µg/mL each in 2-5% HNO_3 23 comps.

Ag (Silver)	In (Indium)
Al (Aluminum)	K (Potassium)
B (Boron)	Li (Lithium)
Ba (Barium)	Mg (Magnesium)
Bi (Bismuth)	Mn (Manganese)
Cd (Cadmium)	Na (Sodium)
Ca (Calcium)	Ni (Nickel)
Cr (Chromium)	Pb (Lead)
Co (Cobalt)	Sr (Strontium)
Cu (Copper)	Tl (Thallium)
Fe (Iron)	Zn (Zinc)
Ga (Gallium)	

ICP Alternate Source
Perkin Elmer

AccuStandard equivalent of Perkin Elmer

Alternate Interferents A
PE-ALTINTA-ASL-1 **100 mL**
PE-ALTINTA-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3 tr. HF 6 comps.

Cr (Chromium)	Ni (Nickel)
Cu (Copper)	Ti (Titanium)
Mn (Manganese)	V (Vanadium)

Analytes B
PE-ANAB-ASL-1 **100 mL**
PE-ANAB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF, tr. Tartaric acid 14 comps.

Cd (Cadmium)	100
Ni (Nickel)	100
Zn (Zinc)	100
Sb (Antimony)	60
Ba (Barium)	50
Be (Beryllium)	50
Co (Cobalt)	50
Cr (Chromium)	50
Cu (Copper)	50
Mn (Manganese)	50
V (Vanadium)	50
Ag (Silver)	20
As (Arsenic)	10
Tl (Thallium)	10

Alternate Analytes B
PE-ALTB-ASL-1 **100 mL**
PE-ALTB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF, tr. Tartaric acid 12 comps.

Al (Aluminum)	100
As (Arsenic)	100
B (Boron)	100
Mo (Molybdenum)	100
Na (Sodium)	100
Sb (Antimony)	100
Se (Selenium)	100
Tl (Thallium)	100
Ca (Calcium)	10
Fe (Iron)	10
Mg (Magnesium)	10
Si (Silicon)	10

Instrument Calibration Std. 1
PE-CAL1-ASL-1 **100 mL**
PE-CAL1-ASL-5 **500 mL**
20 µg/mL each in 2% HNO_3 tr. Tartaric acid 20 comps.

Ag (Silver)	Mo (Molybdenum)
Al (Aluminum)	Ni (Nickel)
As (Arsenic)	Pb (Lead)
Ba (Barium)	Sb (Antimony)
Be (Beryllium)	Se (Selenium)
Cd (Cadmium)	Th (Thorium)
Co (Cobalt)	Tl (Thallium)
Cr (Chromium)	U (Uranium)
Cu (Copper)	V (Vanadium)
Mn (Manganese)	Zn (Zinc)

Instrument Calibration Std. 2
PE-CAL2-ASL-1 **100 mL**
PE-CAL2-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF, tr. Tartaric acid 26 comps.

Ag (Silver)	Mn (Manganese)
Al (Aluminum)	Mo (Molybdenum)
As (Arsenic)	Na (Sodium)
Ba (Barium)	Ni (Nickel)
Be (Beryllium)	Pb (Lead)
Ca (Calcium)	Sb (Antimony)
Cd (Cadmium)	Se (Selenium)
Co (Cobalt)	Sn (Tin)
Cr (Chromium)	Sr (Strontium)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	Tl (Thallium)
K (Potassium)	V (Vanadium)
Mg (Magnesium)	Zn (Zinc)

Instrument Calibration Std. 3
PE-CAL3-ASL-1 **100 mL**
PE-CAL3-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3 5 comps.

Fe (Iron)	Na (Sodium)
K (Potassium)	Mg (Magnesium)
Ca (Calcium)	

Instrument Calibration Std. 1
PE-CAL4-ASL-1 **100 mL**
PE-CAL4-ASL-5 **500 mL**
5000 µg/mL each in 5% HNO_3 4 comps.

Ca (Calcium)	Na (Sodium)
K (Potassium)	
Mg (Magnesium)	

Instrument Calibration Std. 2
PE-CAL5-ASL-1 **100 mL**
PE-CAL5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Ni (Nickel)	400
Zn (Zinc)	200
Mn (Manganese)	150
Ag (Silver)	100
Cr (Chromium)	100

Instrument Calibration Std. 3
PE-CAL6-ASL-1 **100 mL**
PE-CAL6-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 7 comps.

Al (Aluminum)	2000
Ba (Barium)	2000
Fe (Iron)	1000
Co (Cobalt)	500
V (Vanadium)	500
Cu (Copper)	250
Be (Beryllium)	50

Instrument Calibration Std. 4
PE-CAL7-ASL-1 **100 mL**
PE-CAL7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	100
Tl (Thallium)	100
Cd (Cadmium)	50
Se (Selenium)	50
Pb (Lead)	50

Initial Calibration Verification Std.
PE-CRDL1-ASL-1 **100 mL**
PE-CRDL1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. Tartaric acid 21 comps.

Ca (Calcium)	5000
Mg (Magnesium)	5000
K (Potassium)	5000
Na (Sodium)	5000
Ba (Barium)	200
Al (Aluminum)	200
Fe (Iron)	100
Sb (Antimony)	60
Co (Cobalt)	50
V (Vanadium)	50
Ni (Nickel)	40
Cu (Copper)	25
Zn (Zinc)	20
Mn (Manganese)	15
As (Arsenic)	10
Cr (Chromium)	10
Ag (Silver)	10
Tl (Thallium)	10
Cd (Cadmium)	5
Se (Selenium)	5
Pb (Lead)	3

Supplied as a 10X concentrate for better stability.

Detection Limit
PE-CRDL2-ASL-1 **100 mL**
PE-CRDL2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF tr. Tartaric acid 15 comps.

Sb (Antimony)	120
Co (Cobalt)	100
V (Vanadium)	100
Ni (Nickel)	80
Cu (Copper)	50
Zn (Zinc)	40
Mn (Manganese)	30
Ag (Silver)	20
As (Arsenic)	20
Cr (Chromium)	20
Tl (Thallium)	20
Be (Beryllium)	10
Cd (Cadmium)	10
Se (Selenium)	10
Pb (Lead)	6

Detection Limit Standard for use with the ELAN 5000
PE-CRDL3-ASL-1 **100 mL**
PE-CRDL3-ASL-5 **500 mL**
1 µg/mL each in 1% HNO_3 5 comps.

Be (Beryllium)	Tl (Thallium)
Co (Cobalt)	U (Uranium)
In (Indium)	

Supplied as a 100X concentrate for better stability.

ELAN 6100 Detection Limit Solution
PE-CRDL4-ASL-1 **100 mL**
PE-CRDL4-ASL-5 **500 mL**
10 µg/mL each in 1% HNO_3 4 comps.

Be (Beryllium)	In (Indium)
Co (Cobalt)	U (Uranium)

Supplied as a 1000X concentrate for better stability.

ICP Alternate Source
Perkin Elmer

AccuStandard equivalent of Perkin Elmer

Instrument Check Standard 1
PE-CHK1-ASL-1 **100 mL**
PE-CHK1-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF, tr. Tartaric acid 17 comps.

Ag (Silver), Al (Aluminum), As (Arsenic), Ba (Barium), Be (Beryllium), Cd (Cadmium), Co (Cobalt), Cr (Chromium), Cu (Copper), Mn (Manganese), Ni (Nickel), Pb (Lead), Sb (Antimony), Se (Selenium), Tl (Thallium), V (Vanadium), Zn (Zinc)

Instrument Check Standard 3
PE-CHK3-ASL-1 **100 mL**
PE-CHK3-ASL-5 **500 mL**
200 µg/mL each in 2% HNO_3 5 comps.

Ca (Calcium), Fe (Iron), K (Potassium), Mg (Magnesium), Na (Sodium)

Instrument Check Standard 4
PE-CHK4-ASL-1 **100 mL**
PE-CHK4-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 3 comps.

Mo (Molybdenum), Th (Thorium), U (Uranium)

Instrument Check Standard 5
PE-CHK5-ASL-1 **100 mL**
PE-CHK5-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF 4 comps.

Mo (Molybdenum), Sn (Tin), Sr (Strontium), Ti (Titanium)

Multi-Element Solution 1 NEW
PE-MES1-ASL-1 **100 mL**
PE-MES1-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3, 4 comps.

Al (Aluminum), Ca (Calcium), Fe (Iron), Mg (Magnesium)

Multi-Element Solution 2 NEW
PE-MES2-ASL-1 **100 mL**
PE-MES2-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3, 3 comps.

K (Potassium), Na (Sodium), P (Phosphorus)

Multi-Element Solution 3 NEW
PE-MES3-ASL-1 ▼ **100 mL**
PE-MES3-ASL-5 ▼ **500 mL**
1000 µg/mL each in Water tr. HF 5 comps.

Mo (Molybdenum), Sb (Antimony), Sn (Tin), W (Tungsten), Zr (Zirconium)

Multi-Element Solution 4 NEW
PE-MES4-ASL-1 **100 mL**
PE-MES4-ASL-5 **500 mL**
1000 µg/mL each in 5% HNO_3, 17 comps.

As (Arsenic), Ba (Barium), Be (Beryllium), Cd (Cadmium), Cr (Chromium), Co (Cobalt), Cu (Copper), La (Lanthanum), Pb (Lead), Li (Lithium), Mn (Manganese), Ni (Nickel), Sc (Scandium), Sr (Strontium), V (Vanadium), Y (Yttrium), Zn (Zinc)

Interference Check Standard 5
PE-ICS5-ASL-1 **100 mL**
PE-ICS5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Ca (Calcium)	6000
Fe (Iron)	5000
Mg (Magnesium)	3000
Al (Aluminum)	1200
Na (Sodium)	1000

Interference Check Standard 18
PE-ICS18-ASL-1-SET **2 x 100 mL**
PE-ICS18-ASL-5-SET **2 x 500 mL**

PE-ICS18-ASL
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

K (Potassium)	20000
As (Arsenic)	1000
Pb (Lead)	1000
Tl (Thallium)	1000
Se (Selenium)	500
Ag (Silver)	300
Ba (Barium)	300
Cd (Cadmium)	300
Co (Cobalt)	300
Cr (Chromium)	300
Cu (Copper)	300
Ni (Nickel)	300
V (Vanadium)	300
Zn (Zinc)	300
Mn (Manganese)	200
Be (Beryllium)	100

PE-ICS18-HG-ASL
100 µg/mL in 5% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

Internal Standard Mix
PE-INT-ASL-1 **100 mL**
PE-INT-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 7 comps.

Li6 (Lithium), Sc (Scandium), Ge (Germanium), Y(Yttrium), In (Indium), Tb (Terbium), Bi (Bismuth)

Interferents A
PE-INTA-ASL-1 **100 mL**
PE-INTA-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 4 comps.

Al (Aluminum)	5000
Ca (Calcium)	5000
Mg (Magnesium)	5000
Fe (Iron)	2000

Interferents Check Solution 1
PE-INTFR1-ASL-1 **100 mL**
PE-INTFR1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 12 comps.

Cl (Chloride)	10000
C (Carbon)	2000
Al (Aluminum)	100
Ca (Calcium)	100
Fe (Iron)	100
K (Potassium)	100
Mg (Magnesium)	100
Na (Sodium)	100
P (Phosphorus)	100
S (Sulfur)	100
Mo (Molybdenum)	20
Ti (Titanium)	20

Interference Check Solution 2
PE-INTFR2-ASL-1 **100 mL**
PE-INTFR2-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 9 comps.

Ag (Silver), As (Arsenic), Cd (Cadmium), Co (Cobalt), Cr (Chromium), Cu (Copper), Mn (Manganese), Ni (Nickel), Zn (Zinc)

Interference Check Standard A
PE-INTFRA-ASL-1 **100 mL**
PE-INTFRA-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 12 comps.

Cl (Chloride)	21215
Ca (Calcium)	3000
Na (Sodium)	2500
Fe (Iron)	2500
C (Carbon)	2000
Al (Aluminum)	1000
K (Potassium)	1000
Mg (Magnesium)	1000
P (Phosphorus)	1000
S (Sulfur)	1000
Mo (Molybdenum)	20
Ti (Titanium)	20

Interference Check Standard B
PE-INTFRB-ASL-1 **100 mL**
PE-INTFRB-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 11 comps.

Co (Cobalt)	20
Cr (Chromium)	20
Cu (Copper)	20
Mn (Manganese)	20
Ni (Nickel)	20
V (Vanadium)	20
As (Arsenic)	10
Cd (Cadmium)	10
Se (Selenium)	10
Zn (Zinc)	10
Ag (Silver)	5

Interference Check Standard C
PE-INTFRC-ASL-1-SET **2 x 100 mL**
PE-INTFRC-ASL-5-SET **2 x 500 mL**
2 µg/mL each in 2% HNO_3 tr. HF tr. Tartaric acid 16 comps.

Sb (Antimony), As (Arsenic), Ba (Barium), Be (Beryllium), Cd (Cadmium), Cr (Chromium), Co (Cobalt), Cu (Copper), Pb (Lead), Mn (Manganese), Ni (Nickel), Se (Selenium), Ag (Silver), Tl (Thallium), V (Vanadium), Zn (Zinc)

PE-INTFRC-HG-ASL
2 µg/mL in 5% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

▼ Hazardous fee not required.

AccuStandard equivalent of Perkin Elmer

Mixed Calibration Standard

PE-MCS-ASL-1 **100 mL**
PE-MCS-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 10 comps.

As (Arsenic)	50
K (Potassium)	50
La (Lanthanum)	10
Li (Lithium)	10
Mn (Manganese)	10
Ni (Nickel)	10
Sr (Strontium)	10
Zn (Zinc)	10
Ba (Barium)	1
Mg (Magnesium)	1

Mixed Calibration Standard 1

PE-MCS1-ASL-1 **100 mL**
PE-MCS1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 6 comps.

Pb (Lead)	500
Se (Selenium)	200
Cd (Cadmium)	150
Zn (Zinc)	150
Mn (Manganese)	100
Be (Beryllium)	50

Mixed Calibration Standard 2

PE-MCS2-ASL-1 **100 mL**
PE-MCS2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Fe (Iron)	10000
Ba (Barium)	100
Co (Cobalt)	100
Cu (Copper)	100
V (Vanadium)	100

Mixed Calibration Standard 3

PE-MCS3-ASL-1 **100 mL**
PE-MCS3-ASL-5 **500 mL**
at stated conc. (µg/mL) in 2% HNO_3 tr. HF 3 comps.

As (Arsenic)	500
Mo (Molybdenum)	100
Si (Silicon)	100

Mixed Calibration Standard 4

PE-MCS4-ASL-1 **100 mL**
PE-MCS4-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 6 comps.

Ca (Calcium)	1000
K (Potassium)	400
Al (Aluminum)	200
Na (Sodium)	200
Cr (Chromium)	20
Ni (Nickel)	20

Mixed Calibration Standard 5

PE-MCS5-ASL-1 **100 mL**
PE-MCS5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF tr. Tartaric acid 5 comps.

Mg (Magnesium)	1000
Sb (Antimony)	200
Tl (Thallium)	200
B (Boron)	100
Ag (Silver)	50

Multi-Element Calibration Standard 1

PE-MECAL1-ASL-1 **100 mL**
PE-MECAL1-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 9 comps.

Be (Beryllium)	Mg (Magnesium)
Bi (Bismuth)	Ni (Nickel)
Ce (Cerium)	Pb (Lead)
Co (Cobalt)	U (Uranium)
In (Indium)	

Multi-Element Calibration Standard 2

PE-MECAL2-ASL-1 **100 mL**
PE-MECAL2-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 17 comps.

Ce (Cerium)	Pr (Praseodymium)
Dy (Dysprosium)	Sm (Samarium)
Er (Erbium)	Sc (Scandium)
Eu (Europium)	Tb (Terbium)
Gd (Gadolinium)	Th (Thorium)
Ho (Holmium)	Tm (Thulium)
La (Lanthanum)	Yb (Ytterbium)
Lu (Lutetium)	Y (Yttrium)
Nd (Neodymium)	

Multi-Element Calibration Standard 3

PE-MECAL3-ASL-1-SET **2 x 100 mL**
PE-MECAL3-ASL-5-SET **2 x 500 mL**

PE-MECAL3-ASL
10 µg/mL each in 5% HNO_3 29 comps.

Ag (Silver)	K (Potassium)
Al (Aluminum)	Li (Lithium)
As (Arsenic)	Mg (Magnesium)
Ba (Barium)	Mn (Manganese)
Be (Beryllium)	Na (Sodium)
Bi (Bismuth)	Ni (Nickel)
Ca (Calcium)	Pb (Lead)
Cd (Cadmium)	Rb (Rubidium)
Co (Cobalt)	Se (Selenium)
Cr (Chromium)	Sr (Strontium)
Cs (Cesium)	Tl (Thallium)
Cu (Copper)	U (Uranium)
Fe (Iron)	V (Vanadium)
Ga (Gallium)	Zn (Zinc)
In (Indium)	

PE-MECAL3-HG-ASL
10 µg/mL in 5% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

Multi-Element Calibration Standard 4

PE-MECAL4-ASL-1 **100 mL**
PE-MECAL4-ASL-5 **500 mL**
10 µg/mL each in 10% HCl 10 comps.

Au (Gold)	Rh (Rhodium)
Hf (Hafnium)	Ru (Ruthenium)
Ir (Iridium)	Sb (Antimony)
Pd (Palladium)	Sn (Tin)
Pt (Platinum)	Te (Tellurium)

Multi-Element Calibration Standard 5

PE-MECAL5-ASL-1 ▼ **100 mL**
PE-MECAL5-ASL-5 ▼ **500 mL**
10 µg/mL each in Water, tr. HF 12 comps.

B (Boron)	S (Sulfur)
Ge (Germanium)	Si (Silicon)
Mo (Molybdenum)	Ta (Tantalum)
Nb (Niobium)	Ti (Titanium)
P (Phosphorus)	W (Tungsten)
Re (Rhenium)	Zr (Zirconium)

Multi-Element Internal Standard

PE-MEINT-ASL-1 **100 mL**
PE-MEINT-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 7 comps.

Bi (Bismuth)	Sc (Scandium)
Ho (Holmium)	Tb (Terbium)
In (Indium)	Y(Yttrium)
Li6 (Lithium)	

Memory Test 1

PE-MEM1-ASL-1 **100 mL**
PE-MEM1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 21 comps.

Al (Aluminum)	1000
Ca (Calcium)	1000
Fe (Iron)	1000
K (Potassium)	1000
Mg (Magnesium)	1000
Na (Sodium)	1000
Ag (Silver)	20
As (Arsenic)	20
Ba (Barium)	20
Be (Beryllium)	20
Cd (Cadmium)	20
Co (Cobalt)	20
Cr (Chromium)	20
Cu (Copper)	20
Mn (Manganese)	20
Ni (Nickel)	20
Pb (Lead)	20
Se (Selenium)	20
Tl (Thallium)	20
V (Vanadium)	20
Zn (Zinc)	20

Memory Test 2

PE-MEM2-ASL-1 ▼ **100 mL**
PE-MEM2-ASL-5 ▼ **500 mL**
At stated conc. (µg/mL) in Water, tr. HF 7 comps.

Cl (Chloride)	7200
C (Carbon)	2000
P (Phosphorus)	1000
S (Sulfur)	1000
Mo (Molybdenum)	20
Sb (Antimony)	20
Ti (Titanium)	20

▼ Hazardous fee not required.

AccuStandard equivalent of Perkin Elmer

QC Standard 7 Elements

PE-QC7-ASL-1 **100 mL**
PE-QC7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 7 comps.

K (Potassium)	1000
Si (Silicon)	500
Al (Aluminum)	100
B (Boron)	100
Ba (Barium)	100
Na (Sodium)	100
Ag (Silver)	50

QC Standard 21 Elements

PE-QC21-ASL-1 **100 mL**
PE-QC21-ASL-5 **500 mL**
100 µg/mL each in 5% HNO_3, tr. HF, tr. Tartaric acid 21 comps.

As (Arsenic)
Be (Beryllium)
Ca (Calcium)
Cd (Cadmium)
Co (Cobalt)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Li (Lithium)
Mg (Magnesium)
Mn (Manganese)
Mo (Molybdenum)
Ni (Nickel)
Pb (Lead)
Sb (Antimony)
Se (Selenium)
Sr (Strontium)
Ti (Titanium)
Tl (Thallium)
V (Vanadium)
Zn (Zinc)

Primary Drinking Water Metals

PE-SDWA1-ASL-1-SET **2 x 100 mL**
PE-SDWA1-ASL-5-SET **2 x 500 mL**

PE-SDWA1-ASL
At stated conc. (µg/mL) in 2% HNO_3 7 comps.

Ba (Barium)	100
Ag (Silver)	10
As (Arsenic)	10
Cr (Chromium)	10
Pb (Lead)	10
Cd (Cadmium)	5
Se (Selenium)	5

PE-SDWA1-HG-ASL
10 µg/mL in 2% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

Secondary Drinking Water Metals

PE-SDWA2-ASL-1 **100 mL**
PE-SDWA2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Zn (Zinc)	500
Cu (Copper)	100
Fe (Iron)	30
Mn (Manganese)	5

ELAN 6100 DRC Sensitivity/ Detection Limit Solution

PE-SENS-ASL-1 **100 mL**
PE-SENS-ASL-5 **500 mL**
1 µg/mL each in 2% HNO_3, tr. HCl 13 comps.

Ba (Barium)
Be (Beryllium)
Ca (Calcium)
Ce (Cerium)
Co (Cobalt)
In (Indium)
Fe (Iron)
Pb (Lead)
Mg (Magnesium)
K (Potassium)
Rh (Rhodium)
Na (Sodium)
U (Uranium)

Supplied as a 1000X concentrate for better stability.

ELAN 9000/6X00 Dual Detector Calibration Solution

PE-SETUP1-ASL-1 **100 mL**
PE-SETUP1-ASL-5 **500 mL**
2 µg/mL each in 2% HNO_3 tr. HCl 5 comps.

Cd (Cadmium)
Cu (Copper)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)

Supplied as a 10X concentrate for better stability.

ELAN 6000/5000 Plasma Setup Solution

PE-SETUP2-ASL-1 **100 mL**
PE-SETUP2-ASL-5 **500 mL**
1 µg/mL each in 1% HNO_3 tr. HCl 11 comps.

Ba (Barium)
Cd (Cadmium)
Ce (Cerium)
Cu (Copper)
Ge (Germanium)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)
Sc (Scandium)
Tb (Terbium)
Tl (Thallium)

Supplied as a 100X concentrate for better stability.

SmartTune Solution for ELAN/DRC-e

PE-SMTUNE-ASL-1 **100 mL**
PE-SMTUNE-ASL-5 **500 mL**
1 µg/mL each in 2% HNO_3 tr. HCl 9 comps.

Ba (Barium)
Be (Beryllium)
Ce (Cerium)
Co (Cobalt)
In (Indium)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)
U (Uranium)

Supplied as a 100X concentrate for better stability.

SmartTune Solution for DRC/ DRC^{Plus}/DRC II

PE-SMTUNE2-ASL-1 **100 mL**
PE-SMTUNE2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 0.5% HNO_3 10 comps.

Ba (Barium)	10
Be (Beryllium)	1
Ce (Cerium)	1
Co (Cobalt)	1
In (Indium)	1
Fe (Iron)	1
Pb (Lead)	1
Mg (Magnesium)	1
Th (Thorium)	1
U (Uranium)	1

Supplied as a 1000X concentrate for better stability.

Spike Sample Analysis

PE-SPIKE-ASL-1 **100 mL**
PE-SPIKE-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 18 comps.

Al (Aluminum)	200
As (Arsenic)	200
Ba (Barium)	200
Se (Selenium)	200
Tl (Thallium)	200
Fe (Iron)	100
Co (Cobalt)	50
Mn (Manganese)	50
Ni (Nickel)	50
Pb (Lead)	50
Sb (Antimony)	50
V (Vanadium)	50
Zn (Zinc)	50
Cu (Copper)	25
Cr (Chromium)	20
Ag (Silver)	5
Be (Beryllium)	5
Cd (Cadmium)	5

Spike Sample Standard I (Water)

PE-SPIKE1-ASL-1 **100 mL**
PE-SPIKE1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 17 comps.

Fe (Iron)	500
Ba (Barium)	250
Zn (Zinc)	250
Co (Cobalt)	100
Cr (Chromium)	100
Cu (Copper)	100
Mn (Manganese)	100
Ni (Nickel)	100
Sb (Antimony)	100
V (Vanadium)	100
As (Arsenic)	50
Pb (Lead)	50
Ag (Silver)	25
Be (Beryllium)	25
Cd (Cadmium)	25
Se (Selenium)	25
Tl (Thallium)	25

Spike Sample Standard II (Soil)

PE-SPIKE2-ASL-1 **100 mL**
PE-SPIKE2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 15 comps.

Ba (Barium)	250
Cr (Chromium)	250
Cu (Copper)	250
Zn (Zinc)	250
V (Vanadium)	150
Ni (Nickel)	125
Co (Cobalt)	100
Pb (Lead)	100
Sb (Antimony)	100
As (Arsenic)	50
Cd (Cadmium)	50
Ag (Silver)	25
Be (Beryllium)	25
Se (Selenium)	25
Tl (Thallium)	25

Spike Sample Standard III (for ILM 05.2)

PE-SPIKE3-ASL-1 **100 mL**
PE-SPIKE3-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3, tr. HF, tr. Tartaric acid 17 comps.

Al (Aluminum)	200
Ba (Barium)	200
Co (Cobalt)	50
Mn (Manganese)	50
Ni (Nickel)	50
V (Vanadium)	50
Zn (Zinc)	50
Cu (Copper)	25
Cr (Chromium)	20
Sb (Antimony)	10
Be (Beryllium)	5
Cd (Cadmium)	5
Ag (Silver)	5
Tl (Thallium)	5
As (Arsenic)	4
Pb (Lead)	2
Se (Selenium)	1

AccuStandard equivalent of Perkin Elmer

ELAN 9000/6100 Setup/Stab/ Masscal Solution

PE-STAB-ASL-1 **100 mL**
PE-STAB-ASL-5 **500 mL**
1 µg/mL each in 1% HNO_3 tr. HCl 9 comps.

Ba (Barium)
Cd (Cadmium)
Ce (Cerium)
Cu (Copper)
In (Indium)
Pb (Lead)
Mg (Magnesium)
Rh (Rhodium)
U (Uranium)

Supplied as a 100X concentrate for better stability.

Tuning Solution I

PE-TUNSOL-ASL-1 **100 mL**
PE-TUNSOL-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3, tr. HCl 12 comps.

Ba (Barium)
Be (Beryllium)
Ce (Cerium)
Co (Cobalt)
In (Indium)
Li (Lithium)
Mg (Magnesium)
Pb (Lead)
Rh (Rhodium)
Tl (Thallium)
U (Uranium)
Y(Yttrium)

Low UV Standard

PE-UV-ASL-1 **100 mL**
PE-UV-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 3 comps.

Al (Aluminum)
P (Phosphorus)
S (Sulfur)

Save up to 50%

AccuStandard is not affiliated with the companies and brands on these pages. The brands and company names appear for the purpose of cross reference with the corresponding AccuStandard products.

VIS Wavecal Solution

PE-VISWAVE-ASL-1 **100 mL**
PE-VISWAVE-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 8 comps.

K (Potassium)	50
La (Lanthanum)	10
Li (Lithium)	10
Mn (Manganese)	10
Na (Sodium)	10
Sr (Strontium)	10
Ba (Barium)	1
Ca (Calcium)	1

UV Wavecal Solution

PE-UVWAVE-ASL-R1-1 **100 mL**
PE-UVWAVE-ASL-R1-5 **500 mL**
At stated conc. (µg/mL) in 5% HCl 12 comps.

K (Potassium)	100
P (Phosphorus)	100
S (Sulfur)	100
As (Arsenic)	20
La (Lanthanum)	20
Li (Lithium)	20
Mn (Manganese)	20
Mo (Molybdenum)	20
Na (Sodium)	20
Ni (Nickel)	20
Sc (Scandium)	20
Ca (Calcium)	1

Initial Calibration Verification Standard 1

PE-VER1-ASL-1 **100 mL**
PE-VER1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. Tartaric acid 26 comps.

Fe (Iron)	1000
K (Potassium)	1000
Ca (Calcium)	1000
Na (Sodium)	1000
Mg (Magnesium)	1000
Sr (Strontium)	1000
Ag (Silver)	10
Al (Aluminum)	10
As (Arsenic)	10
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Mn (Manganese)	10
Mo (Molybdenum)	10
Ni (Nickel)	10
Pb (Lead)	10
Sb (Antimony)	10
Se (Selenium)	10
Tl (Thallium)	10
V (Vanadium)	10
Zn (Zinc)	10
Th (Thorium)	10
U (Uranium)	10

Initial Calibration Verification Standard 2

PE-VER2-ASL-R1-1 **100 mL**
PE-VER2-ASL-R1-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF 2 comps.

Sn (Tin)
Ti (Titanium)

Trace Metals I

PE-WPTM1-ASL-1-SET **2 x 100 mL**
PE-WPTM1-ASL-5-SET **2 x 500 mL**

PE-WPTM1-ASL
At stated conc. (µg/mL) in 5% HNO_3 14 comps.

Al (Aluminum)	500
V (Vanadium)	250
As (Arsenic)	100
Be (Beryllium)	100
Co (Cobalt)	100
Cr (Chromium)	100
Cu (Copper)	100
Fe (Iron)	100
Mn (Manganese)	100
Ni (Nickel)	100
Pb (Lead)	100
Zn (Zinc)	100
Cd (Cadmium)	25
Se (Selenium)	25

PE-WPTM1-HG-ASL
10 µg/mL in 5% HNO_3

Hg (Mercury)

Supplied separately for better product stability.

Trace Metals II

PE-WPTM2-ASL-1 **100 mL**
PE-WPTM2-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 3 comps.

Sb (Antimony)	20
Tl (Thallium)	20
Ag (Silver)	10

Trace Metals III

PE-WPTM3-ASL-1 **100 mL**
PE-WPTM3-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 6 comps.

Ba (Barium)	500
Ca (Calcium)	500
Mo (Molybdenum)	500
Na (Sodium)	500
K (Potassium)	100
Mg (Magnesium)	100

Alternate Metals 1

PE-WPAM1-ASL-1 **100 mL**
PE-WPAM1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 11 comps.

Al (Aluminum)	20
Fe (Iron)	20
V (Vanadium)	20
Co (Cobalt)	10
Cu (Copper)	10
Mn (Manganese)	10
Ni (Nickel)	10
Zn (Zinc)	10
Be (Beryllium)	5
Sb (Antimony)	5
Tl (Thallium)	5

Alternate Metals 3

PE-WPAM3-ASL-1 **100 mL**
PE-WPAM3-ASL-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 4 comps.

Ca (Calcium)	500
Na (Sodium)	500
K (Potassium)	100
Mg (Magnesium)	100

AccuStandard equivalent of Teledyne

Check Mate 1

TELE-CHK1-ASL-1-SET **2 x 100 mL**
TELE-CHK1-ASL-5-SET **2 x 500 mL**

TELE-CHK1-ASL
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 24 comps.

Ca (Calcium)	100
K (Potassium)	100
Mg (Magnesium)	100
Na (Sodium)	100
Al (Aluminum)	10
As (Arsenic)	10
B (Boron)	10
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	10
Mn (Manganese)	10
Mo (Molybdenum)	10
Ni (Nickel)	10
Pb (Lead)	10
Sb (Antimony)	10
Se (Selenium)	10
Si (Silicon)	10
Tl (Thallium)	10
V (Vanadium)	10
Zn (Zinc)	10

TELE-CHK1-AG-ASL
1000 µg/mL in 2% HNO_3

Ag (Silver)

Supplied separately for better product stability.

Check Mate 2

TELE-CHK2-ASL-1-SET **2 x 100 mL**
TELE-CHK2-ASL-5-SET **2 x 500 mL**

TELE-CHK2-ASL
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 17 comps.

Ca (Calcium)	100
K (Potassium)	100
Mg (Magnesium)	100
Na (Sodium)	100
Al (Aluminum)	10
Ba (Barium)	10
Be (Beryllium)	10
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	10
Mn (Manganese)	10
Ni (Nickel)	10
Sb (Antimony)	10
V (Vanadium)	10
Zn (Zinc)	10

TELE-CHK2-AG-ASL
1000 µg/mL in 2% HNO_3

Ag (Silver)

Supplied separately for better product stability.

Check Mate 3

TELE-CHK3-ASL-1-SET **2 x 100 mL**
TELE-CHK3-ASL-5-SET **2 x 500 mL**

TELE-CHK3-ASL
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 17 comps.

Ca (Calcium)	10
K (Potassium)	10
Mg (Magnesium)	10
Na (Sodium)	10
Al (Aluminum)	1
Ba (Barium)	1
Be (Beryllium)	1
Cd (Cadmium)	1
Co (Cobalt)	1
Cr (Chromium)	1
Cu (Copper)	1
Fe (Iron)	1
Mn (Manganese)	1
Ni (Nickel)	1
Sb (Antimony)	1
V (Vanadium)	1
Zn (Zinc)	1

TELE-CHK3-AG-ASL
1000 µg/mL in 2% HNO_3

Ag (Silver)

Supplied separately for better product stability.

Check Mate 4

TELE-CHK4-ASL-1 **100 mL**
TELE-CHK4-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Ca (Calcium)	5000
K (Potassium)	5000
Mg (Magnesium)	5000
Na (Sodium)	5000
Ba (Barium)	200
Fe (Iron)	100
Al (Aluminum)	60
Sb (Antimony)	60
Co (Cobalt)	50
V (Vanadium)	50
Ni (Nickel)	40
Cu (Copper)	25
Zn (Zinc)	20
Mn (Manganese)	15
Ag (Silver)	10
As (Arsenic)	10
Cr (Chromium)	10
Tl (Thallium)	10
Be (Beryllium)	5
Cd (Cadmium)	5
Pb (Lead)	5
Se (Selenium)	5

Check Mate 5

TELE-CHK5-ASL-1 **100 mL**
TELE-CHK5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 16 comps.

Ca (Calcium)	2000
K (Potassium)	2000
Mg (Magnesium)	2000
Na (Sodium)	2000
Al (Aluminum)	1000
Ba (Barium)	1000
Fe (Iron)	1000
Co (Cobalt)	500
Ni (Nickel)	500
V (Vanadium)	500
Cr (Chromium)	200
Cu (Copper)	200
Ag (Silver)	100
Be (Beryllium)	100
Mn (Manganese)	100
Zn (Zinc)	100

Check Mate 6

TELE-CHK6-ASL-1 **100 mL**
TELE-CHK6-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

As (Arsenic)	500
Pb (Lead)	500
Se (Selenium)	500
Tl (Thallium)	500
Cd (Cadmium)	100

Check Mate 7

TELE-CHK7-ASL-1 **100 mL**
TELE-CHK7-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HCl, 1% HNO_3 17 comps.

Ca (Calcium)	50
K (Potassium)	50
Mg (Magnesium)	50
Na (Sodium)	50
Al (Aluminum)	5
Ba (Barium)	5
Be (Beryllium)	5
Cd (Cadmium)	5
Co (Cobalt)	5
Cr (Chromium)	5
Cu (Copper)	5
Fe (Iron)	5
Mn (Manganese)	5
Ni (Nickel)	5
Sb (Antimony)	5
V (Vanadium)	5
Zn (Zinc)	5

Check Mate 8

TELE-CHK8-ASL-0.1X-1 **100 mL**
TELE-CHK8-ASL-0.1X-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 22 comps.

Ca (Calcium)	500
K (Potassium)	500
Na (Sodium)	500
Mg (Magnesium)	500
Al (Aluminum)	200
Ba (Barium)	200
Fe (Iron)	100
Sb (Antimony)	60
Co (Cobalt)	50
V (Vanadium)	50
Ni (Nickel)	40
Cu (Copper)	25
Zn (Zinc)	20
Mn (Manganese)	15
Ag (Silver)	10
As (Arsenic)	10
Cr (Chromium)	10
Tl (Thallium)	10
Be (Beryllium)	5
Cd (Cadmium)	5
Pb (Lead)	5
Se (Selenium)	5

Supplied at a 1:10 dilution for better long-term stability.

EU Formulation

Scope: For the determination of 32 elements by ICP (Inductively Coupled Plasma)

DIN EN ISO 11885 - 32 Element ICP Standard Set

DINENISO-11885-1-SET **2 x 100 mL**
DINENISO-11885-5-SET **2 x 500 mL**

Part 1

DINENISO-11885A-1 **100 mL**
DINENISO-11885A-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF
24 comps.

Ag (Silver)	20
Al (Aluminum)	40
As (Arsenic)	80
Ba (Barium)	2
Be (Beryllium)	2
Bi (Bismuth)	40
Ca (Calcium)	2
Cd (Cadmium)	10
Co (Cobalt)	10
Cr (Chromium)	10
Cu (Copper)	10
Fe (Iron)	20
K (Potassium)	50
Li (Lithium)	2
Mg (Magnesium)	1
Mn (Manganese)	2
Na (Sodium)	20
Ni (Nickel)	50
Pb (Lead)	50
Sb (Antimony)	50
Se (Selenium)	50
Sr (Strontium)	0.5
V (Vanadium)	10
Zn (Zinc)	5

Part 2

DINENISO-11885B-1 **100 mL**
DINENISO-11885B-5 **500 mL**
At stated conc. (µg/mL) in 2-5% HNO_3 tr. HF
8 comps.

B (Boron)	5
Mo (Molybdenum)	30
P (Phosphorus)	50
S (Sulfur)	50
Si (Silicon)	20
Sn (Tin)	50
Ti (Titanium)	5
Zr (Zirconium)	10

ASTM D5184 Aluminum and Silicon in Fuel Oils by Ashing, Fusion, ICP-AES Spectrometry & AA Spectrometry

Tartaric Acid / Hydrochloric Acid Solution

D-5184-91-TA-5 **1 x 500 mL**

Tartaric acid @ 0.5% w/v in 4% HCl

Silicon Standard Solution

D-5184-91-SI-1 ▼ **1 x 100 mL**
D-5184-91-SI-5 ▼ **1 x 500 mL**

Silicon @ 1000 µg/mL in water tr. NaOH

Aluminum Standard Solution

D-5184-91-AL-1 **1 x 100 mL**
D-5184-91-AL-5 **1 x 500 mL**

Aluminum @ 1000 µg/mL in 5 % HCl

Technical Note

Contact our Technical Service Department for **Ready-to-Aspirate** working level calibration curves designed for your laboratories' specific calibration ranges.

ASTM D5600 Trace Metals in Petroleum Coke by ICP-AES

Multi-Element Calibration Standard

D-5600-01-1 **1 x 100 mL**
500 µg/mL each in 2-5% HNO_3 tr. HF 12 comps.

Aluminum	Nickel
Barium	Silicon
Calcium	Sodium
Iron	Titanium
Magnesium	Vanadium
Manganese	Zinc

Hydrochloric Acid Diluent

D-5600-BLH-5 **1 x 500 mL**
D-5600-BLH-L-VAP **L (2 x 500 mL)**

20% HCl in ASTM Type I water

Lithium Borate Diluent

D-5600-LIB-1 **1 x 100 mL**
D-5600-LIB-5 **1 x 500 mL**

2.0% Lithium Borate in 10% HCl

Technical Note

D5600 Ready-to-Aspirate Standards
We have formulated the following stock standards for ASTM Method D5600. We have prepared numerous **Ready-to-Aspirate** ICP multi-element solutions. Should your company want to eliminate the preparation process for Inorganic standards, contact our Inorganic Technical Department for a quote on a **Ready-to-Aspirate** working level Inorganic standards.

▼ Hazardous fee not required.

ICP/MS
Multi-Element Standards

■ **Ultra Pure Matrix** ■ **Special Packaging** ■ **Traceability to National Reference Materials**

AccuStandard's ICP/MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern, each standard is formulated in specially purified 18 megohm de-ionized water and ultra pure acids. After both wet chemical and instrumental analysis, the standards are packaged in acid leached FLPE containers to provide required protection.

Calibration Standards

These five standards encompass the entire range of elements all at 10 ppm.

Calibration Standard 1

ICP-MS-CAL1-1 — **100 mL**
10 µg/mL each in 5% HNO_3 — 17 comps.

Element	Most Abundant Isotope
Ce (Cerium)	140
Dy (Dysprosium)	164
Er (Erbium)	166
Eu (Europium)	153
Gd (Gadolinium)	158
Ho (Holmium)	165
La (Lanthanum)	139
Lu (Lutetium)	175
Nd (Neodymium)	143
Pr (Praseodymium)	141
Sm (Samarium)	152
Sc (Scandium)	45
Tb (Terbium)	159
Th (Thorium)	232
Tm (Thulium)	169
Yb (Ytterbium)	174
Y (Yttrium)	89

Calibration Standard 4

ICP-MS-CAL4-1 ▼ — **100 mL**
10 µg/mL each in H_2O tr. HF — 12 comps.

Element	Most Abundant Isotope
B (Boron)	11
Ge (Germanium)	74
Mo (Molybdenum)	98
Nb (Niobium)	93
P (Phosphorous)	31
Re (Rhenium)	187
Si (Silicon)	28
S (Sulphur)	32
Ta (Tantalum)	181
Ti (Titanium)	48
W (Tungsten)	184
Zr (Zirconium)	90

Calibration Standard 2

ICP-MS-CAL2-1 — **100 mL**
10 µg/mL each in 5% HNO_3 — 29 comps.

Element	Most Abundant Isotope
Al (Aluminum)	27
As (Arsenic)	75
Ba (Barium)	138
Be (Beryllium)	9
Bi (Bismuth)	209
Cd (Cadmium)	114
Ca (Calcium)	40
Cs (Cesium)	133
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Ga (Gallium)	69
In (Indium)	115
Fe (Iron)	56
Pb (Lead)	208
Li (Lithium)	7
Mg (Magnesium)	24
Mn (Manganese)	55
Ni (Nickel)	58
K (Potassium)	39
Rb (Rubidium)	85
Se (Selenium)	80
Ag (Silver)	107
Na (Sodium)	23
Sr (Strontium)	88
Tl (Thallium)	205
U (Uranium)	238
V (Vanadium)	51
Zn (Zinc)	64

Calibration Standard Set

ICP-MS-CAL-1-SET — **5 x 100 mL**

ICP-MS-CAL1-1
ICP-MS-CAL2-1
ICP-MS-CAL3-1
ICP-MS-CAL4-1
ICP-MS-CAL5-1

Calibration Standard 3

ICP-MS-CAL3-1 — **100 mL**
10 µg/mL each in 10% HCl — 10 comps.

Element	Most Abundant Isotope
Sb (Antimony)	121
Au (Gold)	197
Hf (Hafnium)	180
Ir (Iridium)	193
Pd (Palladium)	106
Pt (Platinum)	195
Rh (Rhodium)	103
Ru (Ruthenium)	102
Te (Tellurium)	130
Sn (Tin)	120

Calibration Standard 5

ICP-MS-CAL5-1 — **100 mL**
10 µg/mL in 5% HNO_3

Element	Most Abundant Isotope
Hg *(Mercury)*	202

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

Matrix Blanks

Nitric Acid Blank

ICP-MS-BLN-1 — **100 mL**
ICP-MS-BLN-5 — **500 mL**

5% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

ICP-MS-BLH-1 — **100 mL**
ICP-MS-BLH-5 — **500 mL**

5% HCl in 18 Megohm ASTM Type I deionized Water

These blanks are prepared from the same water source and acids as your standards and therefore provide a consistent matrix. They are excellent as a blank, preparing a standard curve, or as a diluent for standards and samples.

Water Blank

ICP-MS-BLW-1 ▼ — **100 mL**
ICP-MS-BLW-5 ▼ — **500 mL**

18 Megohm ASTM Type I deionized Water

▼ Hazardous fee not required.

Tuning Solutions

We offer two tuning solutions, both range from 7-238 mass units. Choose the one which best suits your needs.

ICP-MS-TUNSOL1-1 **100 mL**
100 µg/mL each in 2% HNO_3 8 comps.

Element	Most Abundant Isotope
Ba (Barium)	138
Be (Beryllium)	9
Cu (Copper)	63
In (Indium)	115
Li (Lithium)	7
Mg (Magnesium)	24
Tl (Thallium)	205
U (Uranium)	238

ICP-MS-TUNSOL2-1 **100 mL**
100 µg/mL each in 2% HNO_3 13 comps.

Element	Most Abundant Isotope
Ba (Barium)	138
Be (Beryllium)	9
Bi (Bismuth)	209
Ce (Cerium)	140
Cu (Copper)	63
Ho (Holmium)	165
In (Indium)	115
Pb (Lead)	208
Li (Lithium)	7
Mg (Magnesium)	24
Tl (Thallium)	205
U (Uranium)	238
Y (Yttrium)	89

Interference Check Standards

Solution A

ICP-MS-INTA-1 **100 mL**
At stated conc. (µg/mL) in 1% HNO_3 12 comps.

Element	µg/mL	Most Abundant Isotope
Al (Aluminum)	1000	27
C (Carbon)	2000	12
Ca (Calcium)	3000	40
Cl (Chloride)	18000	35
Fe (Iron)	2500	56
Mg (Magnesium)	1000	24
Mo (Molybdenum)	20	98
P (Phosphorous)	1000	31
K (Potassium)	1000	39
Na (Sodium)	2500	23
S (Sulphur)	1000	32
Ti (Titanium)	20	48

Solution B

ICP-MS-INTB-1 **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 11 comps.

Element	µg/mL	Most Abundant Isotope
As *(Arsenic)*	10	75
Cd *(Cadmium)*	10	114
C *(Carbon)*	20	12
Cr *(Chromium)*	20	52
Cu *(Copper)*	20	63
Mn *(Manganese)*	20	55
Ni *(Nickel)*	20	58
Se *(Selenium)*	10	80
Ag *(Silver)*	20	107
V *(Vanadium)*	20	51
Zn *(Zinc)*	10	64

Interference Check Standard Set

ICP-MS-INT-1-SET **2 x 100 mL**

ICP-MS-INTA-1 ICP-MS-INTB-1

Memory Check Solution

Memory Check Solution Sets

ICP-MS-MEMCHKA-R1-SET **2 x 100 mL**

ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1

ICP-MS-MEMCHK-R1-SET **3 x 100 mL**

ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1
ICP-MS-MEMCHKB-R1

Solution A

ICP-MS-MEMCHKA1-R1 **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 24 comps.

Element	µg/mL	Most Abundant Isotope
Al (Aluminum)	1000	27
Sb (Antimony)	20	121
As (Arsenic)	20	75
Ba (Barium)	20	138
Be (Beryllium)	20	9
Cd (Cadmium)	20	114
Ca (Calcium)	1000	40
C (Carbon)	2000	12
Cr (Chromium)	20	52
Co (Cobalt)	20	59
Cu (Copper)	20	63
Fe (Iron)	1000	56
Pb (Lead)	20	208
Mg (Magnesium)	1000	24
Mo (Molybdenum)	20	98
K (Potassium)	1000	39
Ti (Titanium)	20	48
Mn (Manganese)	20	55
Ni (Nickel)	20	58
Se (Selenium)	20	80
Na (Sodium)	1000	23
Tl (Thallium)	20	205
V (Vanadium)	20	51
Zn (Zinc)	20	64

ICP-MS-MEMCHKA2-R1 **100 mL**
20 µg/mL In 2% HNO_3

Element	Most Abundant Isotope
Ag (Silver)	107

Solution B

ICP-MS-MEMCHKB-R1 ▼ **100 mL**
At stated conc. (µg/mL) in H_2O 3 comps.

Element	µg/mL	Most Abundant Isotope
Cl (Chloride)	7200	35
P (Phosphorous)	1000	31
S (Sulphur)	1000	32

Technical Note

These memory check solutions are not designed to be used as standards. The solutions should be mixed together right before aspiration. Precipitate will form over time - this is normal and will not affect the performance of the solution. The mixture is used only to determine the memory or "carry-over" that occurs after running a "concentrated" solution.

▼ Hazardous fee not required.

Spiking Standards

Spiking Standard for Water

ICP-MS-SPIKE-W-1 **100 mL**

At stated conc. (µg/mL) in 5% HNO_3 17 comps.

Element	µg/mL	Most Abundant Isotope
Sb (Antimony)	100	121
As (Arsenic)	50	75
Ba (Barium)	250	138
Be (Beryllium)	25	9
Cd (Cadmium)	25	114
Cr (Chromium)	100	52
Co (Cobalt)	100	59
Cu (Copper)	100	63
Fe (Iron)	500	56
Pb (Lead)	50	208
Mn (Manganese)	100	55
Ni (Nickel)	100	58
Se (Selenium)	25	80
Ag (Silver)	25	107
Tl (Thallium)	25	205
V (Vanadium)	100	51
Zn (Zinc)	250	64

Spiking Standard for Soil

ICP-MS-SPIKE-S-1 **100 mL**

At stated conc. (µg/mL) in 5% HNO_3 15 comps.

Element	µg/mL	Most Abundant Isotope
Sb (Antimony)	100	121
As (Arsenic)	50	75
Ba (Barium)	250	138
Be (Beryllium)	25	9
Cd (Cadmium)	50	114
Cr (Chromium)	250	52
Co (Cobalt)	100	59
Cu (Copper)	250	63
Pb (Lead)	100	208
Ni (Nickel)	125	58
Se (Selenium)	25	80
Ag (Silver)	25	107
Tl (Thallium)	25	205
V (Vanadium)	150	51
Zn (Zinc)	250	90

Spiking Standard Set

ICP-MS-SPIKE-1-SET **2 x 100 mL**

ICP-MS-SPIKE-W-1 ICP-MS-SPIKE-S-1

Quality Control

Sample 1

ICP-MS-QC1-1 **100 mL**

10 µg/mL each in 2% HNO_3 9 comps.

Element	Most Abundant Isotope
Be (Beryllium)	9
Bi (Bismuth)	209
Ce (Cerium)	140
Co (Cobalt)	59
In (Indium)	115
Pb (Lead)	208
Mg (Magnesium)	24
Ni (Nickel)	58
U (Uranium)	238

Sample 2

ICP-MS-QC2-1 **100 mL**

10 µg/mL each in 5% HNO_3 25 comps

Element	Most Abundant Isotope
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Ba (Barium)	138
Be (Beryllium)	9
Cd (Cadmium)	114
Ca (Calcium)	40
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Fe (Iron)	56
Pb (Lead)	208
Mg (Magnesium)	24
Mn (Manganese)	55
Mo (Molybdenum)	98
Ni (Nickel)	56
K (Potassium)	39
Se (Selenium)	80
Ag (Silver)	107
Na (Sodium)	23
Tl (Thallium)	205
Th (Thorium)	232
U (Uranium)	238
V (Vanadium)	51
Zn (Zinc)	64

Sample 3

ICP-MS-QC3-1 **100 mL**

10 µg/mL each in 5% HNO_3 tr. HF 21 comps.

Element	Most Abundant Isotope
Sb (Antimony)	121
As (Arsenic)	75
Be (Beryllium)	9
Cd (Cadmium)	114
Ca (Calcium)	40
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Fe (Iron)	56
Pb (Lead)	208
Li (Lithium)	7
Mg (Magnesium)	24
Mn (Manganese)	55
Mo (Molybdenum)	98
Ni (Nickel)	58
Se (Selenium)	80
Sr (Strontium)	88
Tl (Thallium)	205
Ti (Titanium)	48
V (Vanadium)	51
Zn (Zinc)	64

Internal Standards

Single Internal Standards

For your convenience we offer two concentrations.

Element	Matrix	Unit	10 µg/mL	100 µg/mL
Bismuth	2-5% HNO	100 mL	ICP-MS-IS-BI-1	ICP-MS-IS-BI-10X-1
Holmium	2-5% HNO	100 mL	ICP-MS-IS-HO-1 **NEW**	ICP-MS-IS-HO-10X-1 **NEW**
Indium	2-5% HNO_3	100 mL	ICP-MS-IS-IN-1	ICP-MS-IS-IN-10X-1
Lutetium	2-5% HNO_3	100 mL	ICP-MS-IS-LU-1 **NEW**	ICP-MS-IS-LU-10X-1 **NEW**
Lithium-6	2-5% HNO_3	100 mL	ICP-MS-IS-LI6-1 **NEW**	ICP-MS-IS-LI6-10X-1 **NEW**
Rhodium	10% HCl	100 mL	ICP-MS-IS-RH-1	ICP-MS-IS-RH-10X-1
Scandium	2-5% HNO_3	100 mL	ICP-MS-IS-SC-1	ICP-MS-IS-SC-10X-1
Terbium	2-5% HNO_3	100 mL	ICP-MS-IS-TB-1	ICP-MS-IS-TB-10X-1
Yttrium	2-5% HNO_3	100 mL	ICP-MS-IS-Y-1	ICP-MS-IS-Y-10X-1

Internal Standard Mix

These internal standards have been chosen because they all have nearly 100% abundance of a single isotope and they are not commonly found in routine samples.

ICP-MS-IS-MIX1-1 **100 mL**

10 µg/mL each in 2% HNO_3 7 comps.

Element	Most Abundant Isotope
Bi (Bismuth)	209
Ho (Holmium)	165
In (Indium)	115
6-Li (Lithium-6)	6
Sc (Scandium)	45
Tb (Terbium)	159
Y (Yttrium)	89

Method 200.8 Determination of Trace Elements in Water and Waste by ICP/MS

Calibration Standards

Calibration Standard #1 (1991 Version)

ICP-MS-200.8-CAL1-1 — **100 mL**
10 µg/mL each in 5% HNO_3 tr. HF — 18 comps.

Element	Most Abundant Isotope
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Be (Beryllium)	9
Cd (Cadmium)	114
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Pb (Lead)	208
Mn (Manganese)	55
Mo (Molybdenum)	98
Ni (Nickel)	58
Se (Selenium)	80
Tl (Thallium)	205
Th (Thorium)	232
U (Uranium)	238
V (Vanadium)	51
Zn (Zinc)	64

Calibration Standard #2

ICP-MS-200.8-CAL2-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 2 comps.

Element	Most Abundant Isotope
Ba (Barium)	138
Ag (Silver)	67

Calibration Standard #1R (1994 Version)

ICP-MS-200.8-CAL1R-1 — **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 tr. HF — 18 comps.

Element	µg/mL	Most Abundant Isotope
Al (Aluminum)	10	27
Sb (Antimony)	10	121
As (Arsenic)	10	75
Be (Beryllium)	10	9
Cd (Cadmium)	10	114
Cr (Chromium)	10	52
Co (Cobalt)	10	59
Cu (Copper)	10	63
Pb (Lead)	10	208
Mn (Manganese)	10	55
Mo (Molybdenum)	10	98
Ni (Nickel)	10	58
Se (Selenium)	50	80
Tl (Thallium)	10	205
Th (Thorium)	10	232
U (Uranium)	10	238
V (Vanadium)	10	51
Zn (Zinc)	10	64

Calibration Standard #3

ICP-MS-200.8-CAL3-1 — **100 mL**
1 component in 5% HNO_3

Element	µg/mL	Most Abundant Isotope
Hg *(Mercury)*	5	202

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 — **100 mL**
100 µg/mL each in 2% HNO_3 — 5 comps.

Element	Most Abundant Isotope
Sc (Scandium)	45
Y (Yttrium)	89
In (Indium)	115
Tb (Terbium)	159
Bi (Bismuth)	209

Internal Standard #2

ICP-MS-200.8-IS2-1 — **100 mL**
100 µg/mL in 2% HNO_3

Element	Most Abundant Isotope
Au (Gold)	197

see previous pg for single element internal standards

Tuning Standard

ICP-MS-200.8-TUN-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 5 comps.

Element	Most Abundant Isotope
Be (Beryllium)	75
Mg (Magnesium)	24
Co (Cobalt)	59
In (Indium)	115
Pb (Lead)	208

Method 6020 Standards for Inductively Coupled Mass Spectrometry

Calibration Standard

ICP-MS-6020-CAL-R-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 22 comps.

Element	Most Abundant Isotope
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Ba (Barium)	138
Be (Beryllium)	9
Cd (Cadmium)	114
Ca (Calcium)	40
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Fe (Iron)	56
Pb (Lead)	208
Mg (Magnesium)	24
Mn (Manganese)	55
Ni (Nickel)	58
K (Potassium)	39
Se (Selenium)	80
Ag (Silver)	107
Na (Sodium)	23
Tl (Thallium)	205
V (Vanadium)	51
Zn (Zinc)	64

Calibration Standard

ICP-MS-6020-CAL-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 15 comps.

Element	Most Abundant Isotope
Al (Aluminum)	27
Sb (Antimony)	121
As (Arsenic)	75
Ba (Barium)	138
Be (Beryllium)	9
Cd (Cadmium)	114
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Pb (Lead)	208
Mn (Manganese)	55
Ni (Nickel)	58
Ag (Silver)	107
Tl (Thallium)	205
Zn (Zinc)	64

Interference Check Standard #1

ICP-MS-6020-INT1-1 — **100 mL**
At stated conc. (µg/mL) in 2% HNO_3 — 12 comps.

Element	µg/mL	Most Abundant Isotope
Al (Aluminum)	1000	27
Cl (Chloride)	10000	35
Ca (Calcium)	1000	40
C (Carbon)	2000	12
Fe (Iron)	1000	56
Mg (Magnesium)	1000	24
Mo (Molybdenum)	20	98
P (Phosphorous)	1000	31
K (Potassium)	1000	39
Na (Sodium)	1000	23
S (Sulfur)	1000	32
Ti (Titanium)	20	48

Interference Check Standard #2

ICP-MS-6020-INT2-1 — **100 mL**
2 µg/mL each in 5% HNO_3 tr. HF — 9 comps.

Element	Most Abundant Isotope
As (Arsenic)	75
Cd (Cadmium)	114
Cr (Chromium)	52
Co (Cobalt)	59
Cu (Copper)	63
Mn (Manganese)	55
Ni (Nickel)	58
Ag (Silver)	107
Zn (Zinc)	64

Tuning Standard

ICP-MS-6020-TUN-1 — **100 mL**
10 µg/mL each in 2% HNO_3 — 4 comps.

Element	Most Abundant Isotope
Co (Cobalt)	59
In (Indium)	115
Li (Lithium)	7
Tl (Thallium)	205

Organometallic Standards
AA, ICP, DCP & XRF Analysis

These Standards were formulated for the analysis of metals in oils and other organic matrices. These Standards and curves provide a convenient way to analyze for metals (wear metals, additives and contaminants) in lubricating oils, gasolines, residual oils, crude oils, turbine fuels and environmental samples. All standards undergo rigorous quality assurance checks. Major constituents in the final Standard are typically analyzed by both plasma emission and rotrode techniques. Organometallic Standards listed on this page may contain sulfur which can be introduced by possible sulfonate starting materials used to formulate the actual organometallic standard. We developed a Premium Organometallic line for chemists preferring to have organometallic standards with <1 ppm sulfur or phosphorous (see Table of Contents).

- Single & Multi Element Standards
- Prepared Calibration Curves
- Formulated from Ultra High Purity Organometallic starting materials & matrices
- Certificate of Analysis

Single Element Organometallic

Element	1000 µg/g in 75 cSt base oil Cat. No. (50 g)	5000 µg/g in 75 cSt base oil Cat. No. (50 g)
Al (Aluminum)	WM-75CST-01	WM-75CST-01-5X
Sb (Antimony)	WM-75CST-02	WM-75CST-02-5X
As (Arsenic)	WM-75CST-03	
Ba (Barium)	WM-75CST-04	WM-75CST-04-5X
Be (Beryllium)	WM-75CST-05	
Bi (Bismuth)	WM-75CST-06	WM-75CST-06-5X
B (Boron)	WM-75CST-07	WM-75CST-07-5X
Cd (Cadmium)	WM-75CST-08	WM-75CST-08-5X
Ca (Calcium)	WM-75CST-09	WM-75CST-09-5X
Cr (Chromium)	WM-75CST-13	WM-75CST-13-5X
Co (Cobalt)	WM-75CST-14	WM-75CST-14-5X
Cu (Copper)	WM-75CST-15	WM-75CST-15-5X
Fe (Iron)	WM-75CST-27	WM-75CST-27-5X
La (Lanthanum)	WM-75CST-28	
Pb (Lead)	WM-75CST-29	WM-75CST-29-5X
Li (Lithium)	WM-75CST-30	WM-75CST-30-5X
Mg (Magnesium)	WM-75CST-32	WM-75CST-32-5X
Mn (Manganese)	WM-75CST-33	WM-75CST-33-5X
Hg (Mercury)	WM-75CST-34	
Mo (Molybdenum)	WM-75CST-35	WM-75CST-35-5X
Ni (Nickel)	WM-75CST-37	WM-75CST-37-5X
P (Phosphorous)	WM-75CST-41	WM-75CST-41-5X
K (Potassium)	WM-75CST-43	WM-75CST-43-5X
Sc (Scandium)	WM-75CST-50	
Se (Selenium)	WM-75CST-51	
Si (Silicon)	WM-75CST-52	WM-75CST-52-5X
Ag (Silver)	WM-75CST-53	WM-75CST-53-5X
Na (Sodium)	WM-75CST-54	WM-75CST-54-5X
Sr (Strontium)	WM-75CST-55	
S (Sulfur)	WM-75CST-56	WM-75CST-56-5X
Tl (Thallium)	WM-75CST-60	
Sn (Tin)	WM-75CST-63	WM-75CST-63-5X
Ti (Titanium)	WM-75CST-64	WM-75CST-64-5X
V (Vanadium)	WM-75CST-67	WM-75CST-67-5X
Y (Yttrium)	WM-75CST-69	WM-75CST-69-5X
Zn (Zinc)	WM-75CST-70	WM-75CST-70-5X
Zn (Zirconium)	WM-75CST-71	WM-75CST-71-5X

Matrix Oil and Stabilizer

75 cSt Oil
MOSOL-75 — **500 mL**

Stabilizer
WM-STAB — **1 x 50 g**

Technical Note

Used to improve the stability of Organo-metallic Standards when diluting into solvents such as Kerosene. Add 0.6% by weight.

Metals Additives

MA-900-100G — **100 g**
MA-900-200G — **200 g**
900 µg/g each in Hydrocarbon oil

MA-1000-100G — **100 g**
MA-1000-200G — **200 g**
1000 µg/g each in Hydrocarbon oil

MA-3000-100G — **100 g**
MA-3000-200G — **200 g**
3000 µg/g each in Hydrocarbon oil

MA-5000-100G — **100 g**
MA-5000-200G — **200 g**
5000 µg/g each in Hydrocarbon oil — 5 comps.

Ba (Barium)
Ca (Calcium)
Mg (Magnesium)
P (Phosphorous)
Zn (Zinc)

See Petrochemical Section for Metals in Biofuels.

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

21 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-21-1X-100G
	200 g	WM-21-1X-200G
30 µg/g	100 g	WM-21-3X-100G
	200 g	WM-21-3X-200G
50 µg/g	100 g	WM-21-5X-100G
	200 g	WM-21-5X-200G
100 µg/g	100 g	WM-21-10X-100G
	200 g	WM-21-10X-200G
300 µg/g	100 g	WM-21-30X-100G
	200 g	WM-21-30X-200G
500 µg/g	100 g	WM-21-50X-100G
	200 g	WM-21-50X-200G
900 µg/g	100 g	WM-21-90X-100G
	200 g	WM-21-90X-200G

WM-21-100G-SET
set of above 7 x 100 g

WM-21-200G-SET
set of above 7 x 200 g

21 Wear Metals in hydrocarbon oil at the stated conc.

Ag (Silver)
Al (Aluminum)
B (Boron)
Ba (Barium)
Ca (Calcium)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Mn (Manganese)
Mo (Molybdenum)
Na (Sodium)
Ni (Nickel)
P (Phosphorus)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)
V (Vanadium)
Zn (Zinc)

22 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-22-1X-100G
	200 g	WM-22-1X-200G
30 µg/g	100 g	WM-22-3X-100G
	200 g	WM-22-3X-200G
50 µg/g	100 g	WM-22-5X-100G
	200 g	WM-22-5X-200G
100 µg/g	100 g	WM-22-10X-100G
	200 g	WM-22-10X-200G
300 µg/g	100 g	WM-22-30X-100G
	200 g	WM-22-30X-200G
500 µg/g	100 g	WM-22-50X-100G
	200 g	WM-22-50X-200G
900 µg/g	100 g	WM-22-90X-100G
	200 g	WM-22-90X-200G

100 gram Set WM-22-100G-SET
set of above 7 x 100 g

200 gram Set WM-22-200G-SET
set of above 7 x 200 g

21 Wear Metals plus K in hydrocarbon oil at the stated conc.

Ag (Silver)
Al (Aluminum)
B (Boron)
Ba (Barium)
Ca (Calcium)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
K (Potassium)
Mg (Magnesium)
Mn (Manganese)
Mo (Molybdenum)
Na (Sodium)
Ni (Nickel)
P (Phosphorus)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)
V (Vanadium)
Zn (Zinc)

23 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-23-1X-100G
	200 g	WM-23-1X-200G
30 µg/g	100 g	WM-23-3X-100G
	200 g	WM-23-3X-200G
50 µg/g	100 g	WM-23-5X-100G
	200 g	WM-23-5X-200G
100 µg/g	100 g	WM-23-10X-100G
	200 g	WM-23-10X-200G
300 µg/g	100 g	WM-23-30X-100G
	200 g	WM-23-30X-200G
500 µg/g	100 g	WM-23-50X-100G
	200 g	WM-23-50X-200G
900 µg/g	100 g	WM-23-90X-100G
	200 g	WM-23-90X-200G

100 gram Set WM-23-100G-SET
set of above 7 x 100 g

200 gram Set WM-23-200G-SET
set of above 7 x 200 g

21 Wear Metals plus K and Sb in hydrocarbon oil at the stated conc.

Ag (Silver)
Al (Aluminum)
B (Boron)
Ba (Barium)
Ca (Calcium)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
K (Potassium)
Mg (Magnesium)
Mn (Manganese)
Mo (Molybdenum)
Na (Sodium)
Ni (Nickel)
P (Phosphorus)
Pb (Lead)
Sb (Antimomy)
Si (Silicon)
Sn (Tin)
Ti (Titanium)
V (Vanadium)
Zn (Zinc)

TRACEABLE AccuTrace™ Reference Standards CERTIFIED

Organometallic Standards
Premium Sulfur-Free

Organometallic Single Element Stock Standards

Element	1000 µg/g Cat. No.	50 mL	5000 µg/g Cat. No.	50 mL
Al (Aluminum)	WM-NMS-01		WM-NMS-01-5X	
Sb (Antimony)	WM-NMS-02		WM-NMS-02-5X	
As (Arsenic)	WM-NMS-03		WM-NMS-03-5X	
Ba (Barium)	WM-NMS-04		WM-NMS-04-5X	
Be (Beryllium)	WM-NMS-05		WM-NMS-05-5X	
Cd (Cadmium)	WM-NMS-08		WM-NMS-08-5X	
Ca (Calcium)	WM-NMS-09		WM-NMS-09-5X	
Ce (Cerium)	WM-NMS-11		WM-NMS-11-5X	
Cr (Chromium)	WM-NMS-13		WM-NMS-13-5X	
Co (Cobalt)	WM-NMS-14		WM-NMS-14-5X	
Cu (Copper)	WM-NMS-15		WM-NMS-15-5X	
Ga (Gallium)	WM-NMS-20		WM-NMS-20-5X	
Au (Gold)	WM-NMS-22		----------	----
Fe (Iron)	WM-NMS-27		WM-NMS-27-5X	
Pb (Lead)	WM-NMS-29		WM-NMS-29-5X	
Li (Lithium)	WM-NMS-30		WM-NMS-30-5X	
Mg (Magnesium)	WM-NMS-32		WM-NMS-32-5X	
Mn (Manganese)	WM-NMS-33		WM-NMS-33-5X	
Hg (Mercury)	WM-NMS-34		WM-NMS-34-5X	
Mo (Molybdenum)	WM-NMS-35		WM-NMS-35-5X	
Ni (Nickel)	WM-NMS-37		WM-NMS-37-5X	
P (Phosphorous)	WM-NMS-41		WM-NMS-41-5X	
K (Potassium)	WM-NMS-43		WM-NMS-43-5X	
Se (Selenium)	WM-NMS-51		WM-NMS-51-5X	
Si (Silicon)	WM-NMS-52		WM-NMS-52-5X	
Ag (Silver)	WM-NMS-53		WM-NMS-53-5X	
Na (Sodium)	WM-NMS-54		WM-NMS-54-5X	
Sr (Strontium)	WM-NMS-55		WM-NMS-55-5X	
Tl (Thallium)	WM-NMS-60		WM-NMS-60-5X	
Sn (Tin)	WM-NMS-63		WM-NMS-63-5X	
Ti (Titanium)	WM-NMS-64		WM-NMS-64-5X	
V (Vanadium)	WM-NMS-67		WM-NMS-67-5X	
Y (Yttrium)	WM-NMS-69		WM-NMS-69-5X	
Zn (Zinc)	WM-NMS-70		WM-NMS-70-5X	
Zr (Zirconium)	WM-NMS-71		WM-NMS-71-5X	

Premium Sulfur-Free
Sulfur below detection limits for most elements
No Metallic Sulfonates

- Stabilized
- Ready for Use

Technical Note

Sulfur below detection limits for most elements. Sulfur content otherwise noted on certificate. For use with X-ray fluorescence (XRF), plasma emission (ICP or DCP), rotating disk (RDE), or atomic absorption (AA) spectroscopy. May be blended together to prepare multi-element standards. Solutions are stabilized with proprietary chelation and stabilization solution and are ready for use. Additional stabilizers may be required in some cases. Contact Technical Service for additional information.

Organometallic Single Element Concentrates

Element	Conc. (Wt. %)	Cat. No. 25 grams	Cat. No. 50 grams
Al (Aluminum)	3	WM-NMS-01-30X-25G	WM-NMS-01-30X-50G
Sb (Antimony)	2	WM-NMS-02-20X-25G	WM-NMS-02-20X-50G
Ba (Barium)	12.5	WM-NMS-04-125X-25G	WM-NMS-04-125X-50G
Cd (Cadmium)	10	WM-NMS-08-100X-25G	WM-NMS-08-100X-50G
Ca (Calcium)	5	WM-NMS-09-50X-25G	WM-NMS-09-50X-50G
Ce (Cerium)	5	WM-NMS-11-50X-25G	WM-NMS-11-50X-50G
Cr (Chromium)	3.5	WM-NMS-13-35X-25G	WM-NMS-13-35X-50G
Co (Cobalt)	7.5	WM-NMS-14-75X-25G	WM-NMS-14-75X-50G
Cu (Copper)	6	WM-NMS-15-60X-25G	WM-NMS-15-60X-50G
Fe (Iron)	4	WM-NMS-27-40X-25G	WM-NMS-27-40X-50G
Pb (Lead)	20	WM-NMS-29-200X-25G	WM-NMS-29-200X-50G
Li (Lithium)	1.5	WM-NMS-30-15X-25G	WM-NMS-30-15X-50G
Mg (Magnesium)	3	WM-NMS-32-30X-25G	WM-NMS-32-30X-50G
Mn (Manganese)	6	WM-NMS-33-60X-25G	WM-NMS-33-60X-50G
Mo (Molybdenum)	5	WM-NMS-35-50X-25G	WM-NMS-35-50X-50G
Ni (Nickel)	5	WM-NMS-37-50X-25G	WM-NMS-37-50X-50G
P (Phosphorus)	5	WM-NMS-41-50X-25G	WM-NMS-41-50X-50G
K (Potassium)	7.5	WM-NMS-43-75X-25G	WM-NMS-43-75X-50G
Pr (Praseodymium)	3	WM-NMS-44-30X-25G	WM-NMS-44-30X-50G
Se (Selenium)	3.5	WM-NMS-51-35X-25G	WM-NMS-51-35X-50G
Si (Silicon)	7.5	WM-NMS-52-75X-25G	WM-NMS-52-75X-50G
Na (Sodium)	2.5	WM-NMS-54-25X-25G	WM-NMS-54-25X-50G
Sr (Strontium)	10	WM-NMS-55-100X-25G	WM-NMS-55-100X-50G
Tl (Thallium)	5	WM-NMS-60-50X-25G	WM-NMS-60-50X-50G
Sn (Tin)	7.5	WM-NMS-63-75X-25G	WM-NMS-63-75X-50G
Ti (Titanium)	5	WM-NMS-64-50X-25G	WM-NMS-64-50X-50G
V (Vanadium)	4	WM-NMS-67-40X-25G	WM-NMS-67-40X-50G
Y (Yttrium)	2.5	WM-NMS-69-25X-25G	WM-NMS-69-25X-50G
Zn (Zinc)	6	WM-NMS-70-60X-25G	WM-NMS-70-60X-50G
Zr (Zirconium)	5	WM-NMS-71-50X-25G	WM-NMS-71-50X-50G

Technical Note

Sulfur below detection limits for most elements. Sulfur content otherwise noted on certificate. Made from ultrapure starting materials which have been certified against NIST SRMs whenever available. Concentrates can be used to formulate sets of standards for the analysis of additive elements in lubricating oils; iron, nickel and vanadium in residual oil; and wear metal in oils for X-Ray Fluorescence Spectroscopy (XRF). Can also be used to prepare single element or multi-element standards for plasma emission (ICP or DCP), rotating disk (RDE), or atomic absorption (AA) spectroscopy. Solutions are stabilized with proprietary chelation and stabilization solution but often require additional stabilizers when diluting with kerosene or mineral oil. Contact Technical Service for additional information.

Stabilization Solutions

The solutions were specifically designed for chelating & solubilizing our line of Sulfur-Free Organometallic Standards.

Stabilizer Solution A
ASTM-P-0122-0.5 50 mL
ASTM-P-0122-1 100 mL

Stabilizer Solution B
ASTM-P-0123-0.5 50 mL
ASTM-P-0123-1 100 mL

Stabilizer Solution C
ASTM-P-0124-0.5 50 mL
ASTM-P-0124-1 100 mL

Stabilizer Solution D
ASTM-P-0125-0.5 50 mL
ASTM-P-0125-1 100 mL

Premium Sulfur-Free
Sulfur below detection limits for most elements
No Metallic Sulfonates

Organometallic standards do not require a hazardous shipping fee except where noted.

Organometallic Standards
Premium Sulfur-Free

11 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-11-NMS-1X-1
30 µg/g	100 mL	WM-11-NMS-3X-1
50 µg/g	100 mL	WM-11-NMS-5X-1
100 µg/g	100 mL	WM-11-NMS-10X-1
300 µg/g	100 mL	WM-11-NMS-30X-1
500 µg/g	100 mL	WM-11-NMS-50X-1
900 µg/g	100 mL	WM-11-NMS-90X-1

WM-11-NMS-1-SET
set of above 7 x 100 mL

11 Wear Metals in Mineral oil at the stated concentration.

Al (Aluminum)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Na (Sodium)
Ni (Nickel)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)

12 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-12-NMS-1X-1
30 µg/g	100 mL	WM-12-NMS-3X-1
50 µg/g	100 mL	WM-12-NMS-5X-1
100 µg/g	100 mL	WM-12-NMS-10X-1
300 µg/g	100 mL	WM-12-NMS-30X-1
500 µg/g	100 mL	WM-12-NMS-50X-1
900 µg/g	100 mL	WM-12-NMS-90X-1

WM-12-NMS-1-SET
set of above 7 x 100 mL

12 Wear Metals in Mineral oil at the stated concentration.

Ag (Silver)
Al (Aluminum)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Na (Sodium)
Ni (Nickel)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)

Suitable for ASTM D4628, D4927, D4951, D5056, D5185, D6443, D6481

Premium Sulfur-Free
Sulfur below detection limits for most elements
No Metallic Sulfonates

20 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-20-NMS-1X-1
30 µg/g	100 mL	WM-20-NMS-3X-1
50 µg/g	100 mL	WM-20-NMS-5X-1
100 µg/g	100 mL	WM-20-NMS-10X-1
300 µg/g	100 mL	WM-20-NMS-30X-1
500 µg/g	100 mL	WM-20-NMS-50X-1
900 µg/g	100 mL	WM-20-NMS-90X-1

WM-20-NMS-1-SET
set of above 7 x 100 mL

20 Wear Metals in Mineral oil at the stated concentration.

Al (Aluminum)
B (Boron)
Ba (Barium)
Ca (Calcium)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Mn (Manganese)
Mo (Molybdenum)
Na (Sodium)
Ni (Nickel)
P (Phosphorus)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)
V (Vanadium)
Zn (Zinc)

21 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-21-NMS-1X-1
30 µg/g	100 mL	WM-21-NMS-3X-1
50 µg/g	100 mL	WM-21-NMS-5X-1
100 µg/g	100 mL	WM-21-NMS-10X-1
300 µg/g	100 mL	WM-21-NMS-30X-1
500 µg/g	100 mL	WM-21-NMS-50X-1
900 µg/g	100 mL	WM-21-NMS-90X-1

100 mL Set **WM-21-NMS-1-SET**
set of above 7 x 100 mL

21 Wear Metal in Mineral oil at the stated concentration.

Ag (Silver)
Al (Aluminum)
B (Boron)
Ba (Barium)
Ca (Calcium)
Cd (Cadmium)
Cr (Chromium)
Cu (Copper)
Fe (Iron)
Mg (Magnesium)
Mn (Manganese)
Mo (Molybdenum)
Na (Sodium)
Ni (Nickel)
P (Phosphorus)
Pb (Lead)
Si (Silicon)
Sn (Tin)
Ti (Titanium)
V (Vanadium)
Zn (Zinc)

Technical Note

For analysis by XRF, AA, ICP or AE for applications for which sulfur interference is undesirable. Prepared with Sulfur-free organometallics that do not contain metallic sulfonates. Solutions are stabilized with proprietary chelation and stabilization solution and are ready for use. Additional stabilizers may be required in some cases. Contact Technical Service for additional information.

Recommended Internal Standard

Organometallic (Internal Standard) Sulfur free

	Conc.	Cat. No.	50 mL
Cobalt	1000 µg/g	WM-NMS-14	
	5000 µg/g	WM-NMS-14-5X	

Sulfur and Metals in Oil

Sulfur and Metals in Mineral Oil

ASTM-P-0100-SET — **12 x 100 mL**

Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0100-01	0	0	0	
ASTM-P-0100-02	0.50	10	500	
ASTM-P-0100-03	1	100	25	
ASTM-P-0100-04	1.50	80	250	
ASTM-P-0100-05	2	40	100	
ASTM-P-0100-06	2.50	5	400	
ASTM-P-0100-07	3	60	300	
ASTM-P-0100-08	3.50	0	200	
ASTM-P-0100-09	4	100	0	
ASTM-P-0100-10	4.50	50	250	
ASTM-P-0100-11	5	20	500	
ASTM-P-0100-12	5.50	100	50	

Sulfur and Metals in Residual Fuel Oil

ASTM-P-0101-SET — **12 x 100 mL**

Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0101-01	0	0	0	
ASTM-P-0101-02	0.50	10	500	
ASTM-P-0101-03	1	100	25	
ASTM-P-0101-04	1.50	80	250	
ASTM-P-0101-05	2	40	100	
ASTM-P-0101-06	2.50	5	400	
ASTM-P-0101-07	3	60	300	
ASTM-P-0101-08	3.50	0	200	
ASTM-P-0101-09	4	100	0	
ASTM-P-0101-10	4.50	50	250	
ASTM-P-0101-11	5	20	500	
ASTM-P-0101-12	5.50	100	50	

Test Method A - ICP with an Organic Solvent Specimen Solution

Sulfur and Metals in Mineral Oil

Designed for ASTM D5708

ASTM-P-0102-SET — **12 x 100 mL**

Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0102-01	0	0	0	0	
ASTM-P-0102-02	0.50	300	10	500	
ASTM-P-0102-03	1	500	100	25	
ASTM-P-0102-04	-----	100	80	250	
ASTM-P-0102-05	2	200	40	100	
ASTM-P-0102-06	2.50	400	5	400	
ASTM-P-0102-07	3	0	60	300	
ASTM-P-0102-08	3.50	500	0	200	
ASTM-P-0102-09	-----	100	100	0	
ASTM-P-0102-10	4.50	300	50	250	
ASTM-P-0102-11	5	200	20	500	
ASTM-P-0102-12	5.50	50	100	50	

Sulfur and Metals in Residual Fuel Oil

Designed for ASTM D5708

ASTM-P-0103-SET — **12 x 100 mL**

Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0103-01	0	0	0	0	
ASTM-P-0103-02	0.50	300	10	500	
ASTM-P-0103-03	1	500	100	25	
ASTM-P-0103-04	-----	100	80	250	
ASTM-P-0103-05	2	200	40	100	
ASTM-P-0103-06	2.50	400	5	400	
ASTM-P-0103-07	3	0	60	300	
ASTM-P-0103-08	3.50	500	0	200	
ASTM-P-0103-09	-----	100	100	0	
ASTM-P-0103-10	4.50	300	50	250	
ASTM-P-0103-11	5	200	20	500	
ASTM-P-0103-12	5.50	50	100	50	

After Acid Decomposition of Sample

Stock Multi-Element in Mineral Oil

D-5708-A-10X — **100 mL**

100 µg/g in 20 cSt mineral oil — 3 comps.

Iron, Nickel, Vanadium

Working Level Multi-Element Aqueous Standard

D-5708-B-5 ▲ — **500 mL**

10 µg/mL each in 2-5% HNO_3 — 3 comps.

Iron, Nickel, Vanadium

Stock Multi-Element Standard in Mineral Oil

D-5863-95B-10X-1 — **1 x 100 mL**

At stated conc. (µg/g) in 20 cst Mineral Oil — 3 comps.

Sodium	50	Vanadium	150
Nickel	200		

Nitric Acid Blank

CLP-BLN-5 ▲ — **500 mL**

CLP-BLN-L-VAP ▲ — **1 L** (2 x 500 mL)

5% HNO_3 in ASTM Type I Water

▲ Hazardous fee required.

Stock Multi-Element Aqueous Standard

D-5708-B-10X-1 ▲ — **100 mL**

D-5708-B-10X-5 ▲ — **500 mL**

100 µg/mL each in 2-5% HNO_3 — 3 comps.

Iron, Nickel, Vanadium

NEW

Stock Multi-Element Standard in Mineral Oil

D-5863-00A-10X-1 — **1 x 100 mL**

At stated conc. (µg/g) in 20 cst Mineral Oil — 3 comps.

Nickel	100	Iron	10
Vanadium	500	Sodium	20

ISO/CD 14597 Vanadium and Nickel Standards with Manganese (Internal Standard)

Vanadium Standards - Low Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0104-SET — **9 x 100 mL**

Cat. No.	Vanadium Conc. (Wt.%)	100 mL
ASTM-P-0104-01	005	
ASTM-P-0104-02	025	
ASTM-P-0104-03	050	
ASTM-P-0104-04	075	
ASTM-P-0104-05	0.0100	
ASTM-P-0104-06	0.0125	
ASTM-P-0104-07	0.0150	
ASTM-P-0104-08	0.0175	
ASTM-P-0104-09	0.0200	

Vanadium Standards - High Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0105-SET — **7 x 100 mL**

Cat. No.	Vanadium Conc. (Wt.%)	100 mL
ASTM-P-0105-01	000	
ASTM-P-0105-02	0.0300	
ASTM-P-0105-03	0.0400	
ASTM-P-0105-04	0.0500	
ASTM-P-0105-05	0.0600	
ASTM-P-0105-06	0.0800	
ASTM-P-0105-07	0.1000	

Internal Standard

ASTM-P-0107-5 — **500 mL**

Manganese @ 0.05 Wt. % in Xylene-Mineral Oil

Nickel Standards for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0106-SET — **7 x 100 mL**

Cat. No.	Nickel Conc. (Wt.%)	100 mL
ASTM-P-0106-01	000	
ASTM-P-0106-02	005	
ASTM-P-0106-03	010	
ASTM-P-0106-04	025	
ASTM-P-0106-05	050	
ASTM-P-0106-06	075	
ASTM-P-0106-07	0.0100	

Lubricating Oil Standards

ASTM-P-0108-SET — 17 x 100 mL

Designed for ASTM D6481

Cat. No. Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0108-01	0.600	05	0.175	0.060
ASTM-P-0108-02	0.500	0.200	0.050	0.080
ASTM-P-0108-03	0.400	0.150	0.300	0.180
ASTM-P-0108-04	0.260	0.250	0.150	0.120
ASTM-P-0108-05	05	05	0.450	0.070
ASTM-P-0108-06	0.400	0.025	0.350	0.100
ASTM-P-0108-07	0.300	0.060	0.250	0.120
ASTM-P-0108-08	0.200	0.100	0.450	0.100
ASTM-P-0108-09	0.060	0.080	0.300	0.130
ASTM-P-0108-10	0.060	0.050	0.200	0.050
ASTM-P-0108-11	0.050	0.120	0.100	0.075
ASTM-P-0108-12	0.025	0.150	0.200	0.130
ASTM-P-0108-13	05	0.200	0.400	0.150
ASTM-P-0108-14	0.170	0.250	0.550	0.110
ASTM-P-0108-15	0.100	0.100	0.200	0.200
ASTM-P-0108-16	0.010	0.010	0.600	0.250
ASTM-P-0108-17	00	00	00	00

ASTM-P-0109-SET — 17 x 100 mL

Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0109-01	0.600	0.100	05	0.175	0.060
ASTM-P-0109-02	0.500	00	0.200	0.050	0.080
ASTM-P-0109-03	0.400	0.010	0.150	0.300	0.180
ASTM-P-0109-04	0.260	0.500	0.250	0.150	0.120
ASTM-P-0109-05	05	10	05	0.450	0.070
ASTM-P-0109-06	0.400	0.400	0.025	0.350	0.100
ASTM-P-0109-07	0.300	0.100	0.060	0.250	0.120
ASTM-P-0109-08	0.200	0.010	0.100	0.450	0.100
ASTM-P-0109-09	0.060	0.050	0.080	0.300	0.130
ASTM-P-0109-10	0.060	0.200	0.050	0.200	0.050
ASTM-P-0109-11	0.050	0.500	0.120	0.100	0.075
ASTM-P-0109-12	0.025	0.800	0.150	0.200	0.130
ASTM-P-0109-13	05	10	0.200	0.400	0.150
ASTM-P-0109-14	0.170	0.600	0.250	0.550	0.110
ASTM-P-0109-15	0.100	0.200	0.100	0.200	0.200
ASTM-P-0109-16	0.010	0.400	0.010	0.600	0.250
ASTM-P-0109-17	00	00	00	00	00

ASTM-P-0110-SET — 17 x 100 mL

Designed for ASTM D4927

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0110-01	0.100	0.600	05	0.175	0.060
ASTM-P-0110-02	0.175	0.500	0.200	0.050	0.080
ASTM-P-0110-03	00	0.400	0.150	0.300	0.180
ASTM-P-0110-04	0.025	0.260	0.250	0.150	0.120
ASTM-P-0110-05	0.150	05	05	0.450	0.070
ASTM-P-0110-06	00	0.400	0.025	0.350	0.100
ASTM-P-0110-07	0.200	0.300	0.060	0.250	0.120
ASTM-P-0110-08	00	0.200	0.100	0.450	0.100
ASTM-P-0110-09	0.100	0.060	0.080	0.300	0.130
ASTM-P-0110-10	0.050	0.060	0.050	0.200	0.050
ASTM-P-0110-11	0.075	0.050	0.120	0.100	0.075
ASTM-P-0110-12	0.010	0.025	0.150	0.200	0.130
ASTM-P-0110-13	05	05	0.200	0.400	0.150
ASTM-P-0110-14	00	0.170	0.250	0.550	0.110
ASTM-P-0110-15	00	0.100	0.100	0.200	0.200
ASTM-P-0110-16	05	0.010	0.010	0.600	0.250
ASTM-P-0110-17	00	00	00	00	00

ASTM-P-0111-SET — 17 x 100 mL

Designed for ASTM D4927

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0111-01	0.100	0.600	0.100	05	0.175	0.060
ASTM-P-0111-02	0.175	0.500	00	0.200	0.050	0.080
ASTM-P-0111-03	00	0.400	0.010	0.150	0.300	0.180
ASTM-P-0111-04	0.025	0.260	0.500	0.250	0.150	0.120
ASTM-P-0111-05	0.150	05	10	05	0.450	0.070
ASTM-P-0111-06	00	0.400	0.400	0.025	0.350	0.100
ASTM-P-0111-07	0.200	0.300	0.100	0.060	0.250	0.120
ASTM-P-0111-08	00	0.200	0.010	0.100	0.450	0.100
ASTM-P-0111-09	0.100	0.060	0.050	0.080	0.300	0.130
ASTM-P-0111-10	0.050	0.060	0.200	0.050	0.200	0.050
ASTM-P-0111-11	0.075	0.050	0.500	0.120	0.100	0.075
ASTM-P-0111-12	0.010	0.025	0.800	0.150	0.200	0.130
ASTM-P-0111-13	05	05	10	0.200	0.400	0.150
ASTM-P-0111-14	00	0.170	0.600	0.250	0.550	0.110
ASTM-P-0111-15	00	0.100	0.200	0.100	0.200	0.200
ASTM-P-0111-16	05	0.010	0.400	0.010	0.600	0.250
ASTM-P-0111-17	00	00	00	00	00	00

ASTM-P-0112-SET — 17 x 100 mL

Cat. No. Nominal Value	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0112-01	0.600	0.100	05	0.175	0.060
ASTM-P-0112-02	0.500	0.150	0.200	0.050	0.080
ASTM-P-0112-03	0.400	0.350	0.150	0.300	0.180
ASTM-P-0112-04	0.260	0.225	0.250	0.150	0.120
ASTM-P-0112-05	05	0.450	05	0.450	0.070
ASTM-P-0112-06	0.400	0.500	0.025	0.350	0.100
ASTM-P-0112-07	0.300	0.325	0.060	0.250	0.120
ASTM-P-0112-08	0.200	0.250	0.100	0.450	0.100
ASTM-P-0112-09	0.060	0.100	0.080	0.300	0.130
ASTM-P-0112-10	0.060	0.400	0.050	0.200	0.050
ASTM-P-0112-11	0.050	0.300	0.120	0.100	0.075
ASTM-P-0112-12	0.025	0.200	0.150	0.200	0.130
ASTM-P-0112-13	05	0.375	0.200	0.400	0.150
ASTM-P-0112-14	0.170	0.175	0.250	0.550	0.110
ASTM-P-0112-15	0.100	0.425	0.100	0.200	0.200
ASTM-P-0112-16	0.010	0.275	0.010	0.600	0.250
ASTM-P-0112-17	00	00	00	00	00

ASTM-P-0113-SET — 17 x 100 mL

Designed for ASTM D4628 & D4927

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0113-01	0.025	0.600	0.100	05	0.175	0.060
ASTM-P-0113-02	00	0.500	0.150	0.200	0.050	0.080
ASTM-P-0113-03	0.100	0.400	0.350	0.150	0.300	0.180
ASTM-P-0113-04	0.175	0.260	0.225	0.250	0.150	0.120
ASTM-P-0113-05	0.150	05	0.450	05	0.450	0.070
ASTM-P-0113-06	00	0.400	0.500	0.025	0.350	0.100
ASTM-P-0113-07	0.100	0.300	0.325	0.060	0.250	0.120
ASTM-P-0113-08	0.200	0.200	0.250	0.100	0.450	0.100
ASTM-P-0113-09	0.050	0.060	0.100	0.080	0.300	0.130
ASTM-P-0113-10	0.075	0.060	0.400	0.050	0.200	0.050
ASTM-P-0113-11	0.010	0.050	0.300	0.120	0.100	0.075
ASTM-P-0113-12	00	0.025	0.200	0.150	0.200	0.130
ASTM-P-0113-13	0.175	05	0.375	0.200	0.400	0.150
ASTM-P-0113-14	05	0.170	0.175	0.250	0.550	0.110
ASTM-P-0113-15	00	0.100	0.425	0.100	0.200	0.200
ASTM-P-0113-16	05	0.010	0.275	0.010	0.600	0.250
ASTM-P-0113-17	00	00	00	00	00	00

Lubricating Oil Standards (Continued)

ASTM-P-0114-SET — **17 x 100 mL**

EDXRF ASTM Method — Designed for ASTM D6481

Cat. No. / Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0114-01	05	05	0.050	0.050
ASTM-P-0114-02	0.600	00	00	00
ASTM-P-0114-03	00	0.300	00	00
ASTM-P-0114-04	10	00	10	00
ASTM-P-0114-05	00	00	00	0.300
ASTM-P-0114-06	05	0.250	0.800	0.300
ASTM-P-0114-07	0.500	0.150	0.500	0.150
ASTM-P-0114-08	0.010	0.200	0.100	0.250
ASTM-P-0114-09	0.050	0.010	0.400	0.075
ASTM-P-0114-10	0.100	0.150	0.200	0.200
ASTM-P-0114-11	0.200	0.200	0.800	0.100
ASTM-P-0114-12	0.400	05	0.800	0.300
ASTM-P-0114-13	0.600	0.100	0.500	0.050
ASTM-P-0114-14	0.800	0.010	0.050	0.100
ASTM-P-0114-15	10	0.300	10	0.150
ASTM-P-0114-16	0.400	0.050	0.600	0.250
ASTM-P-0114-17	00	00	00	00

ASTM-P-0115-SET — **17 x 100 mL**

Cat. No. / Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)	Mg (Wt.%)
ASTM-P-0115-01	05	05	0.050	0.050	0.100
ASTM-P-0115-02	0.600	00	00	00	0.150
ASTM-P-0115-03	00	0.300	00	00	0.350
ASTM-P-0115-04	10	00	10	00	0.225
ASTM-P-0115-05	00	00	00	0.300	0.450
ASTM-P-0115-06	05	0.250	0.800	0.300	0.500
ASTM-P-0115-07	0.500	0.150	0.500	0.150	0.325
ASTM-P-0115-08	0.010	0.200	0.100	0.250	0.250
ASTM-P-0115-09	0.050	0.010	0.400	0.075	0.050
ASTM-P-0115-10	0.100	0.150	0.200	0.200	0.400
ASTM-P-0115-11	0.200	0.200	0.800	0.100	0.300
ASTM-P-0115-12	0.400	05	0.800	0.300	0.200
ASTM-P-0115-13	0.600	0.100	0.500	0.050	0.375
ASTM-P-0115-14	0.800	0.010	0.050	0.100	0.175
ASTM-P-0115-15	10	0.300	10	0.150	0.425
ASTM-P-0115-16	0.400	0.050	0.600	0.250	0.275
ASTM-P-0115-17	00	00	00	00	00

ASTM-P-0116-SET — **11 x 100 mL**

Additives — Designed for ASTM D6481

Cat. No. / Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0116-01	0.500	10	0.500	0.500
ASTM-P-0116-02	30	10	30	20
ASTM-P-0116-03	20	1.250	10	1.500
ASTM-P-0116-04	50	1.500	0.500	1.200
ASTM-P-0116-05	40	0.500	1.500	0.750
ASTM-P-0116-06	2.500	0.750	40	10
ASTM-P-0116-07	40	0.500	20	1.250
ASTM-P-0116-08	0.500	20	50	10
ASTM-P-0116-09	10	0.750	20	1.500
ASTM-P-0116-10	2.500	1.200	30	0.500
ASTM-P-0116-11	00	00	00	00

ASTM-P-0117-SET — **10 x 100 mL**

WLXRF ASTM Method — Designed for ASTM D6443

Cat. No. / Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0117-01	0.020	0.030	0.010	0.200	0.250	10	0.020
ASTM-P-0117-02	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0117-03	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0117-04	0.020	0.200	0.050	0.040	0.020	10	0.020
ASTM-P-0117-05	0.400	0.020	0.010	0.040	0.020	10	0.250
ASTM-P-0117-06	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0117-07	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0117-08	0.400	0.200	0.050	0.200	0.250	10	0.250
ASTM-P-0117-09	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0117-10	00	00	00	00	00	00	00

ASTM-P-0118-SET — **10 x 100 mL**

WLXRF ASTM Method — Designed for ASTM D4628, D4927, D4951, D6443

Cat. No. / Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0118-01	0.020	0.020	0.030	0.010	0.200	0.250	10	0.020
ASTM-P-0118-02	0.250	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0118-03	0.020	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0118-04	0.250	0.020	0.200	0.050	0.040	0.020	10	0.020
ASTM-P-0118-05	0.020	0.400	0.020	0.010	0.040	0.020	10	0.250
ASTM-P-0118-06	0.250	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0118-07	0.020	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0118-08	0.250	0.400	0.200	0.050	0.200	0.250	10	0.250
ASTM-P-0118-09	0.130	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0118-10	00	00	00	00	00	00	00	00

Lubricating Oil Standards (Continued)

ASTM-P-0119-SET — **22 x 100 mL**

				Designed for ASTM D4628, D4927, D4951, D6443			
Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0119-01	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0119-02	0.250	0.100	00	0.010	0.150	00	0.150
ASTM-P-0119-03	0.500	00	0.035	0.160	0.150	00	0.020
ASTM-P-0119-04	0.350	0.010	00	0.120	0.080	0.200	00
ASTM-P-0119-05	0.110	00	0.015	0.100	0.100	0.300	0.050
ASTM-P-0119-06	0.200	0.100	00	0.200	0.050	0.250	0.150
ASTM-P-0119-07	00	0.050	0.025	00	00	0.450	0.020
ASTM-P-0119-08	0.150	0.030	00	0.100	0.030	0.400	0.040
ASTM-P-0119-09	0.250	0.150	0.010	0.160	00	0.350	0.080
ASTM-P-0119-10	0.110	0.150	0.040	05	0.030	0.750	0.150
ASTM-P-0119-11	0.260	0.050	00	00	00	0.750	00
ASTM-P-0119-12	0.200	00	05	0.140	0.080	0.500	0.080
ASTM-P-0119-13	00	00	05	0.020	0.020	0.200	0.020
ASTM-P-0119-14	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0119-15	0.050	00	00	00	0.150	00	00
ASTM-P-0119-16	0.400	00	01	0.080	00	0.500	0.020
ASTM-P-0119-17	0.180	0.020	0.020	00	0.020	0.600	0.060
ASTM-P-0119-18	0.400	0.010	01	0.010	0.020	00	00
ASTM-P-0119-19	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0119-20	0.050	05	0.050	00	08	00	0.120
ASTM-P-0119-21	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0119-22	00	00	00	00	00	00	00

ASTM-P-0120-SET — **23 x 100 mL**

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0120-01	0.100	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0120-02	0.175	0.250	0.100	00	0.010	0.150	00	0.150
ASTM-P-0120-03	0.040	0.500	00	0.035	0.160	0.150	00	0.020
ASTM-P-0120-04	0.020	0.350	0.010	00	0.120	0.080	0.200	00
ASTM-P-0120-05	0.150	0.110	00	0.015	0.100	0.100	0.300	0.050
ASTM-P-0120-06	00	0.200	0.100	00	0.200	0.050	0.250	0.150
ASTM-P-0120-07	0.200	00	0.050	0.025	00	00	0.450	0.020
ASTM-P-0120-08	00	0.150	0.030	00	0.100	0.030	0.400	0.040
ASTM-P-0120-09	00	0.250	0.150	0.010	0.160	00	0.350	0.080
ASTM-P-0120-10	00	0.110	0.150	0.040	05	0.030	0.750	0.150
ASTM-P-0120-11	0.100	0.260	0.050	00	00	00	0.750	00
ASTM-P-0120-12	0.050	0.200	00	05	0.140	0.080	0.500	0.080
ASTM-P-0120-13	00	00	00	05	0.020	0.020	0.200	0.020
ASTM-P-0120-14	0.080	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0120-15	0.010	0.050	00	00	00	0.150	00	00
ASTM-P-0120-16	00	0.400	00	01	0.080	00	0.500	0.020
ASTM-P-0120-17	00	0.180	0.020	0.020	00	0.020	0.600	0.060
ASTM-P-0120-18	00	0.400	0.010	01	0.010	0.020	00	00
ASTM-P-0120-19	0.150	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0120-20	05	0.050	05	0.050	00	08	00	0.120
ASTM-P-0120-21	0.100	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0120-22	0.120	0.200	00	00	00	00	0.750	00
ASTM-P-0120-23	00	00	00	00	00	00	00	00

Standards of Interest

Concentrations for the sets on pages 380-382 are targets. Actual production lots may vary.

Metal Working Fluids

ASTM-P-0121-SET — **13 x 100 mL**

Cat. No. Nominal Value	Cl (Wt.%)	P (Wt.%)	S (Wt.%)
ASTM-P-0121-01	00	00	00
ASTM-P-0121-02	0.750	0.025	0.500
ASTM-P-0121-03	0.050	0.100	30
ASTM-P-0121-04	10	0.500	2.500
ASTM-P-0121-05	0.100	05	20
ASTM-P-0121-06	1.500	0.200	10
ASTM-P-0121-07	20	05	30
ASTM-P-0121-08	10	0.050	0.100
ASTM-P-0121-09	0.500	0.400	00
ASTM-P-0121-10	20	0.200	1.500
ASTM-P-0121-11	00	0.500	1.500
ASTM-P-0121-12	1.250	0.010	0.050
ASTM-P-0121-13	0.050	0.300	0.050

Stabilization Solutions

The solutions were specifically designed for chelating & solubilizing our line of Sulfur-Free Organometallic Standards. Contact Tech Service for additional information.

Stabilizer Solution A

ASTM-P-0122-0.5	**50 mL**
ASTM-P-0122-1	**100 mL**

Stabilizer Solution B

ASTM-P-0123-0.5	**50 mL**
ASTM-P-0123-1	**100 mL**

Stabilizer Solution C

ASTM-P-0124-0.5	**50 mL**
ASTM-P-0124-1	**100 mL**

Stabilizer Solution D

ASTM-P-0125-0.5	**50 mL**
ASTM-P-0125-1	**100 mL**

ASTM D3230 Determination of Salts in Crude Oil

Mixed Salt Solution

D-3230-89-1 ▲ **100 mL**
D-3230-89-5 ▲ **500 mL**
At stated conc. in Alcohol Solution (1-butanol : MeOH) (ratio 63:37) tr. H_2O 3 comps.

Calcium chloride	10 µg/mL	Sodium chloride	70 µg/mL
Magnesium chloride	20 µg/mL		

ASTM D3237 Lead in Gasoline by AA Spectroscopy

Lead Standard Calibration Curve

D-3237-CAL-SET ▲ **4 x 100 mL**
Set includes the following Catalog Numbers:

Description	Cat. No.	100 mL
Blank 1% Aliquot 336/MIBK	D-3237-01 ▲	
0.02 g Pb / gal (5.3 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-02 ▲	
0.05 g Pb / gal (13.2 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-03 ▲	
0.10 g Pb / gal (26.4 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-04 ▲	

D3237 Meets EPA Guidelines for RFG Analysis

ASTM D3605 Trace Metals in Gas Turbine Fuels by AA & Flame Emission & Spectroscopy

Trace Metals Standard

D-3605-91-R1-1 **1 x 100 mL**
At stated conc. in 75 cSt Hydrocarbon oil 4 comps.

Na (Sodium)	(250 µg/mL)	Ca (Calcium)	(250 µg/mL)
Pb (Lead)	(250 µg/mL)	V (Vanadium)	(250 µg/mL)

Standards of Interest

See Table of Contents for a complete listing of Wear Metal Standards.

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

Manganese Stock Solution

D-3831-1 ▲ **1 x 100 mL**

Manganese @ 1.0 g Mn / gal (264.2 mg Mn / L) in Methyl isobutyl ketone

▲ Hazardous fee required.

Thousands of Standards, just a click away

AccuStandard.com

Solid Matrix Standards

AccuStandard offers a broad range of trace element standards in Solid Matrices to meet the requirements for “real world” solid waste reference materials. All Standards are furnished with a Certificate of Analysis, with the certified values, standard deviations, confidence intervals and performance intervals. A list of additional elements/analytes, instructions and other pertinent information is also included.

Solid Matrix Standards

Description	Cat. No.	Unit
Metals in Ashes		
Trace Metals in Fly Ash 1	CRM001-100G	100 g
Trace Metals - Fly Ash 2	CRM012-100G	100 g
Trace Metals - Fly Ash 3	CRM019-50G	50 g
TCLP Metals - Ash 1	CRM205-225G	225 g
Metals in Particulates & Water Treatment Media		
Trace Metals - Activated Charcoal	CRM002-100G	100 g
Trace Metals - Diatomaceous Earth	CRM004-100G	100 g
Trace Metals - Sewage Amended Soil	CRM005-50G	50 g
Trace Metals - Baghouse Dust	CRM014-50G	50 g
Metals in Paint		
Trace Metals - Paint Sludge 1	CRM006-50G	50 g
Trace Metals - Paint Chips	CRM013-50G	50 g
Trace Metals - Powdered Paint 1 **NEW**	CRM017-20G	20 g
Lead-Free Paint - Powdered **NEW**	CRM050-20G	20 g
Metals in Sludges		
Trace Metals - Paint Sludge 1	CRM006-50G	50 g
Trace Metals - Electroplating Sludge 1	CRM009-100G	100 g
Trace Metals - Electroplating Sludge 2	CRM010-100G	100 g
Trace Metals - Electroplating Sludge 3	CRM011-100G	100 g
Trace Metals - Wet Sewage Sludge	CRM018-50G	50 g
Trace Metals - Sewage Sludge 2 **NEW**	CRM029-50G	50 g
Trace Metals - Sewage Sludge 3 **NEW**	CRM031-40G	40 g
Trace Metals - Sewage Sludge 4	CRM055-50G	50 g
TCLP Metals		
TCLP Metals - Sandy Loam 1	CRM202-225G	225 g
TCLP Metals - Sandy Loam 2	CRM204-225G	225 g
TCLP Metals - Ash 1	CRM205-225G	225 g
TCLP Metals - Sandy Loam 3	CRM206-225G	225 g
TCLP Metals - Loamy Sand 3	CRM207-225G	225 g
TCLP Metals - Sandy Loam 4	CRM208-225G	225 g
TCLP Metals - Sandy Loam 11 **NEW**	CRM209-225G	225 g
TCLP Metals - Sandy Loam 12 **NEW**	CRM210-225G	225 g
TCLP Metals - Sandy Loam 13 **NEW**	CRM211-225G	225 g
TCLP Metals - Loamy Sand 1 **NEW**	CRM212-225G	225 g
TCLP Metals - Loamy Sand 2 **NEW**	CRM213-225G	225 g
TCLP Metals - Sandy Loam 6 **NEW**	CRM215-225G	225 g
TCLP Metals - Loam 1 **NEW**	CRM218-225G	225 g
Metals in Soil		
Trace Metals - Fresh Water Sediment 2	CRM015-50G	50 g
Trace Metals - Fresh Water Sediment 3	CRM016-50G	50 g
Trace Metals - Sandy Loam 2	CRM020-50G	50 g
Trace Metals - Sandy Loam 3	CRM021-100G	100 g
Trace Metals/Cyan - Loam 5	CRM022-20G	20 g
Trace Metals - Sandy Loam 7	CRM023-50G	50 g
Trace Metals - Loamy Sand 1	CRM024-50G	50 g
Trace Metals - Sandy Loam 8	CRM025-50G	50 g
Trace Metals - Sandy Loam 9	CRM026-50G	50 g
Trace Metals - Sandy Loam 10	CRM027-50G	50 g
Trace Metals - Sandy Loam 11 **NEW**	CRM028-50G	50 g
Trace Metals - Sandy Loam 2 **NEW**	CRM030-50G	50 g
Trace Metals - Loamy Sand 10 **NEW**	CRM033-50G	50 g
Trace Metals - Loamy Sand 3 **NEW**	CRM034-50G	50 g
Trace Metals - Loamy Sand 4 **NEW**	CRM036-50G	50 g
Chromium VI - Soil **NEW**	CRM041-30G	30 g
Trace Metals - Loam 3 **NEW**	CRM042-50G	50 g
Trace Metals - Sandy Loam 6 **NEW**	CRM043-50G	50 g
Trace Metals - Silt Loam 1 **NEW**	CRM044-50G	50 g
Trace Metals - Silty Clay 1 **NEW**	CRM045-50G	50 g
Trace Metals - Clay 1 **NEW**	CRM046-50G	50 g
Trace Metals - Sand 1 **NEW**	CRM048-50G	50 g
Trace Metals - Sandy Clay 1 **NEW**	CRM049-50G	50 g
Trace Metals - Clay 2 **NEW**	CRM051-50G	50 g
Trace Metals - Loamy Clay 1 **NEW**	CRM052-50G	50 g
Trace Metals - Loamy Clay 2 **NEW**	CRM059-50G	50 g

- **Ideal for AA and ICP Analysis**
- **Certified by EPA Methods and Protocols**
- **NATURAL Matrix, Not spiked or fortified**
- **US EPA SW-846, Method 3050B**
- **Method 1311**
- **Lead Abatement Program Material**

Solid waste standards do not require a hazardous shipping fee.

Solid Matrix Standards (continued)

Description	Cat. No.	Unit
Metals in Soil (continued)		
Chromium VI - Clay **NEW**	CRM060-30G	30 g
Chromium VI - Sandy Loam **NEW**	CRM061-30G	30 g
Nutrients - Clay Soil **NEW**	CRM090-100G	100 g
Nutrients - Sandy Loam **NEW**	CRM091-100G	100 g
Nutrients - Sand **NEW**	CRM092-100G	100 g
Trace Metals - Taiwan Clay 1 **NEW**	CRM2003-50G	50 g
PH - Sandy Clay **NEW**	CRM497-100G	100 g
PH/Conductivity - Clay Soil **NEW**	CRM498-100G	100 g
PH - Loamy Sand **NEW**	CRM499-100G	100 g
Anions - Sandy Loam 1 **NEW**	CRM700-50G	50 g
Anions - Clay 1 **NEW**	CRM701-50G	50 g
Anions - Loamy Sand 1 **NEW**	CRM702-50G	50 g
Cyanide - Sediment **NEW**	CRM750-30G	30 g
Cyanide - Clay **NEW**	CRM751-30G	30 g
Cyanide - Sandy Loam **NEW**	CRM752-30G	30 g
Sulfide - Sediment **NEW**	CRM775-30G	30 g
Sulfide - Clay **NEW**	CRM776-30G	30 g
Sulfide - Sandy Loam **NEW**	CRM777-30G	30 g

Real World samples. Concentration on actual lots may vary.

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Trace Metals - Industrial Incinerator Ash

ISO Guide 34
Cert# AR-1470

ISO/IEC 17025
Cert# AT-1467

Number CRM012-100G
Lot AR12
Solvent (Matrix) Incinerator Ash
Hazard Irritant
Storage &Handling Store in a cool dry environment.
Expiration Date See Sample Label
Certification Date: August 31, 2011
Certified By: Christopher Rucinski - QA Director

Analyte	*Units*	*Certified Value* [1,4]	*k* [3]	*Standard Deviation* [2]	*Confidence Interval*	*Prediction Interval*
Aluminum, Al Traceable to: NIST SRM 3101a Lot 992003	mg/Kg	2160 ± 30.8	2.00	91.0	2070 - 2250	1640 - 2680
Barium, Ba Traceable to: NIST SRM 3104a Lot 070222	mg/Kg	18.7 ± 0.372	2.00	1.10	17.6 - 19.8	13.1 - 24.3
Cadmium, Cd Traceable to: NIST SRM 3108 Lot 060531	mg/Kg	362 ± 5.92	2.00	17.5	344 - 379	375 - 448
Calcium, Ca Traceable to: NIST SRM 3109a Lot 050825	mg/Kg	2110 ± 34.2	2.00	101	2010 - 2210	1620 - 2600
Chromium, Cr (total) Traceable to: NIST SRM 3112a Lot 990607	mg/Kg	162000 ± 2044	2.00	6040	155000 - 168000	129000 - 194000
Copper, Cu Traceable to: NIST SRM 3114 Lot 891811	mg/Kg	3020 ± 46.7	2.00	138	2880 - 3150	2320 - 3710
Iron, Fe Traceable to: NIST SRM 3126a Lot 051031	mg/Kg	28700 ± 423	2.00	1250	27400 - 29900	22200 - 35200
Lead, Pb Traceable to: NIST SRM 3128 Lot 030721	mg/Kg	120 ± 6.26	2.00	18.5	102 - 139	18.8 - 222
Magnesium, Mg Traceable to: NIST SRM 3131a Lot 050302	mg/Kg	1510 ± 30.5	2.00	90.0	1420 - 1590	1080 - 1930
Manganese, Mn Traceable to: NIST SRM 3132 Lot 050429	mg/Kg	202 ± 2.71	2.00	8.00	194 - 210	158 - 247
Nickel, Ni Traceable to: NIST SRM 3136 Lot 000612	mg/Kg	13300 ± 150	2.00	442	12800 - 13700	10900 - 15700
Potassium, K Traceable to: NIST SRM 3141a Lot 051220	mg/Kg	73300 ± 866	2.00	2560	70800 - 75900	61000 - 85600
Silver, Ag Traceable to: NIST SRM 3151 Lot 992212	mg/Kg	54.8 ± 1.47	2.00	4.35	50.4 - 59.1	33.5 - 76.1
Sodium, Na Traceable to: NIST SRM 3152a Lot 010728	mg/Kg	29200 ± 382	2.00	1130	28100 - 30300	23800 - 34600
Zinc, Zn Traceable to: NIST SRM 3168a Lot 001402	mg/Kg	635 ± 9.48	2.00	28.0	607 - 663	495 - 774

Additional Information

Informational Values (Non-certified)
Trace Metal Acid Digestion by USEPA 3050B
Cobalt, Co - 22.4mg/Kg
Vanadium, V - 51.8mg/Kg

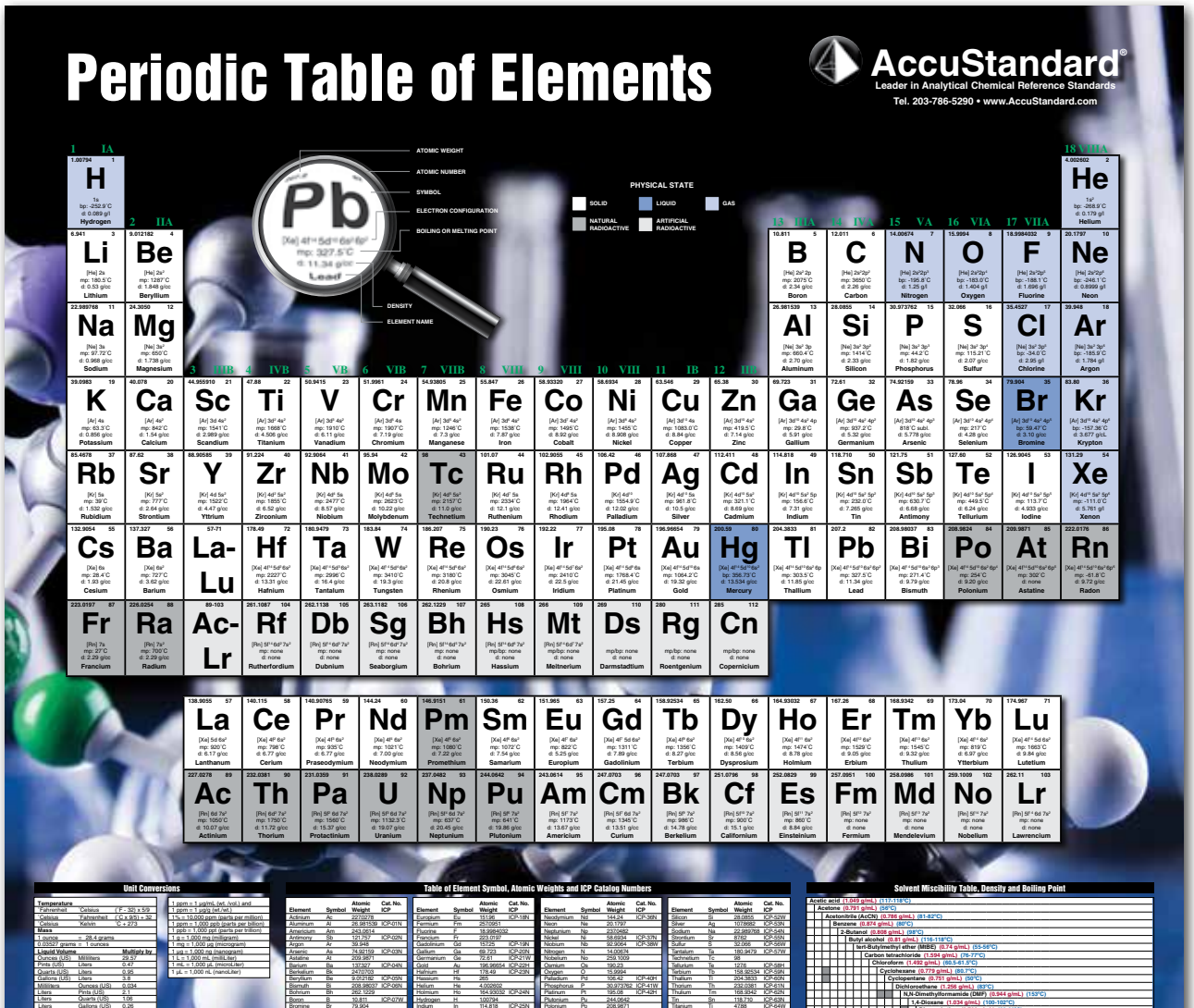
Description
A total sample size of 100 g is provided.
The sample has been heat sterilized.
This sample should be digested using USEPA method 3050, 3051 or equivilent methods.
This material was collected from a hazardous waste incinerator located in Western United States. The material is a natural matrix (not fortified) and the only processing was homogenization.

Page 1 of 3

Request our Periodic Table of Elements

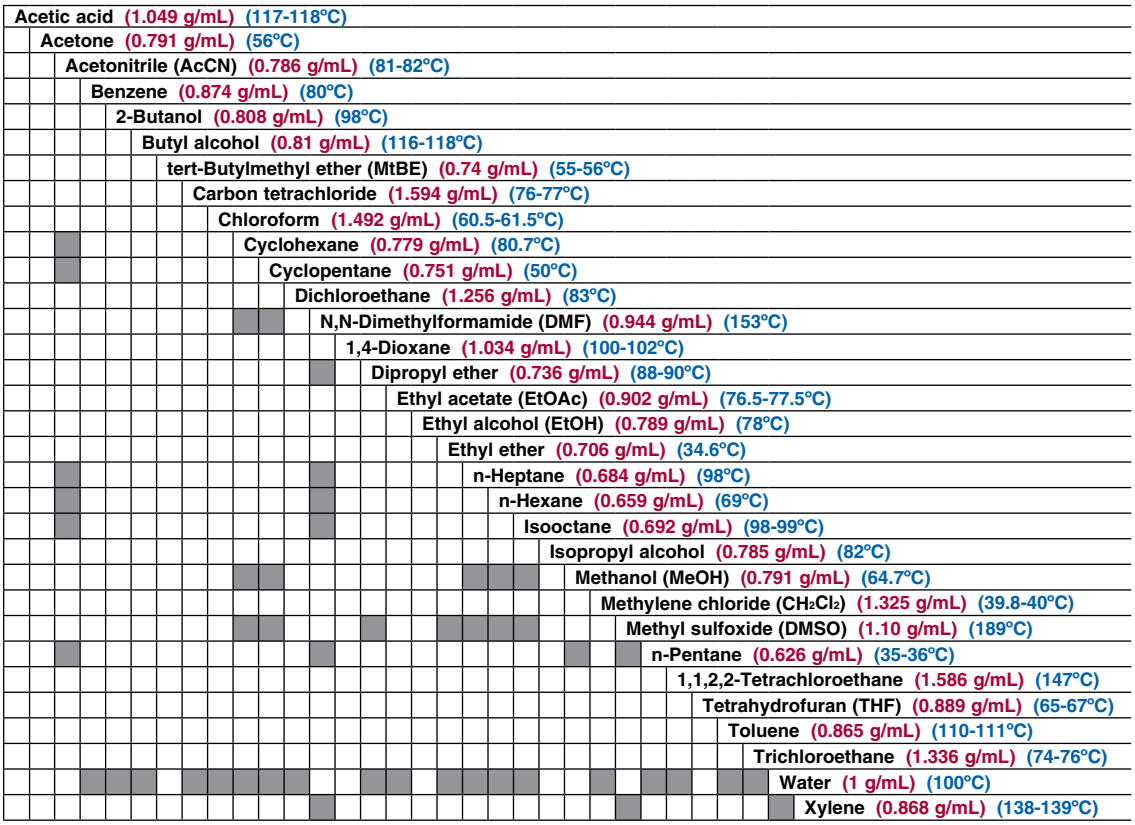
(20 x 20 inch laminated poster)

With references, such as unit conversions, general constants, element symbols, atomic weights and solvent miscibility table with densities and boiling points.



Organic Technical Reference

Solvent Miscibility Table, Density and Boiling Point



☐ Miscible
■ Immiscible

Read down column and across for solvent miscibility

Density@25°C
Boiling Point

Abbreviations

AA	Atomic Absorption	ICP	Inductively Coupled Plasma
ACS	American Chemical Society	IR	Infrared
ANSI	American National Standards Institute	KF	Karl Fischer
AOAC	Association of Official Analytical Chemists	meq	Milliequivalent
APHA	American Public Health Association	NF	National Formulary
ASTM	American Society for Testing Materials	NIST	National Institute of Standards and Technology
BSI	British Standards Institute	OSHA	Occupational Safety and Health Administration
CAS	Chemical Abstracts Service	RFA	Renewable Fuel Association
CI	Color Index	SPE	Solid Phase Extraction
EPA	U.S. Environmental Protection Agency	TLC	Thin Layer Chromatography
GLC	Gas Liquid Chromatography	USDA	U.S. Department of Agriculture
GR	Guaranteed Reagent	USP	U.S. Pharmacopoeia

Instrumentation for Analysis

GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectroscopy
GC/FID	Gas Chromatography/Flame Ionization Detector
GC/PID	Gas Chromatography/Photoionization Detector
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/ELCD	Gas Chromatography/Electrolytic Conductivity Detector
GC/NPD	Gas Chromatography/Nitrogen Phosphorus Detector
HPLC	High Performance Liquid Chromatography
NPD/TEA	Nitrogen-Phosphorus Detector/Thermal Energy Analyzer with the reductive Hall detector
TCD/FID	Thermal Conductivity Detector/Flame Ionization Detector
NPD/AFD/TSD	Nitrogen-Phosphorus Detector/Alkali-Flame Detector/Thermionic Specific Detector
NPA/ELCD/FPD	Nitrogen-Phosphorus Detector/Electrolytic Conductivity Detector/Flame Photometric Detector
HRGC/LRMS	High Resolution Gas Chromatography/Low Resolution Mass Spectrometry
FTIR	Fourier Transform Infrared

General Constants

Universal Gas Constant	R = 0.0821(Atm)(L)/(K)(mole)
Acceleration Due to Gravity	g = 32.17 ft/sec^2, 9.8 m/sec^2
Avogadro's Constant	N = 6.023 x 10^{23} molecules/mole
Speed of Light	c = 186,282 miles/sec, 3 x 10^{10} cm/sec
Heat of Fusion (water 1 atm, 0ºC)	ΔH_{fus} = 79.7 cal/g
Heat of Vaporization (water 1 atm, 100ºC)	ΔH_{vap} = 540 cal/g
Volume of Perfect Gas	22.4L/mol at 0ºC, 760 torr
Faraday's Constant	F = 96485.31 C/mol
Planck's Constant	h = 6.626 x 10^{-27} erg/sec
Bragg's Law	2d nλ = 2d sin(θ)
Absolute Zero	-273.15 ºC
Temp. of Liquid Nitrogen	-195.8 ºC

Unit Conversions

Temperature		
°Fahrenheit	°Celsius	(°F - 32) x 5/9
°Celsius	°Fahrenheit	(°C x 9/5) + 32
°Celsius	°Kelvin	°C + 273
Mass		
1 ounce	= 28.4 grams	
0.03527 ounces	= 1 gram	

Liquid Volume		**Multiply by**
Ounces (US)	Milliliters	29.57
Pints (US)	Liters	0.47
Quarts (US)	Liters	0.95
Gallons (US)	Liters	3.8
Milliliters	Ounces (US)	0.034
Liters	Pints (US)	2.1
Liters	Quarts (US)	1.06
Liters	Gallons (US)	0.26
Cubic Feet	Cubic meters	0.03
Cubic Yards	Cubic meters	0.76

1 ppm = 1 µg/mL (wt. /vol.) and
1 ppm = 1 µg/g (wt./wt.)
1% = 10,000 ppm (parts per million)
1 ppm = 1,000 ppb (parts per billion)
1 ppb = 1,000 ppt (parts per trillion)

1 g = 1,000 mg (milligram)
1 mg = 1,000 µg (microgram)
1 µg = 1,000 ng (nanogram)

1 L = 1,000 mL (milliLiter)
1 mL = 1,000 µL (microLiter)
1 µL = 1,000 nL (nanoLiter)

Labels, Safety, Storage and Packaging

All organic solutions are in 2 mL Ampules, filled to approxiately 1.2 mL to ensure 1 mL can be transferred.

2-Part Label System

Smudgeproof, tear and solvent resistant * (Organic products in ampules)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

* Includes the most common solvents:
Methylene chloride, Methanol and Acetone

Usage, Handing and Storage

Amber ampules are used to ensure the integrity of the contents. The ampule contains at least 120% of the stated volume of a solution, allowing easy transfer. Transfer the required amount using a pipet or clean gastight syringe. Excess solution can be stored in a tightly capped vial.

Expiration dates are determined by short-term and long-term stability studies, experience and knowledge of chemical interactions. As part of our long-term studies, standards are analyzed at the end of their assigned period and sometimes can be recertified for an additional length of time.

All products come with storage conditions listed on the label of the ampule or bottle. Some chemical formulations require refrigeration or freezer storage to inhibit adverse reactions among the components. It is imperative that these conditions are followed to preserve the integrity of the material.

GHS Symbols

GHS-06
- Acute Toxicity (fatal or toxic)

GHS-07
- Irritant
- Skin Sensitizer
- Acute toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant

GHS-09
- Aquatic Toxicity

GHS-02
- Flammables
- Self Reactives
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Organic Peroxides

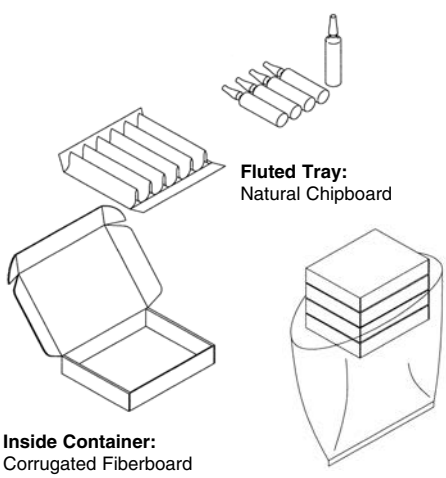
GHS-03
- Oxidizers

GHS-05
- Corrosives
- Skin corrosion/burns
- Eye Damage
- Corrosive to Metals

GHS-08
- Carcingen
- Respiratory Sensitizer
- Reproductive Toxicity
- Mutagenicity
- Aspiration Toxicity

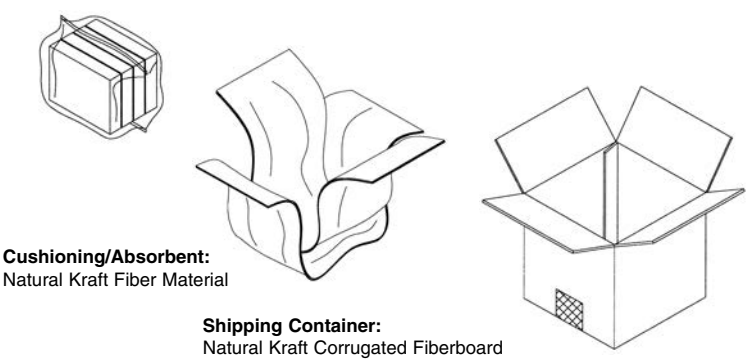
AccuStandard uses recyclable and biogradable material

Package compliant with DOT and International regulations.



Fluted Tray:
Natural Chipboard

Inside Container:
Corrugated Fiberboard



Cushioning/Absorbent:
Natural Kraft Fiber Material

Shipping Container:
Natural Kraft Corrugated Fiberboard

CAS Number Index

CAS Number Index

CAS Number Index

CAS Number Index

CAS Number Index

Organic Analyte Index

Organic Analyte Index

D

Organic Analyte Index

Organic Analyte Index

G

H

I

Organic Analyte Index

J

K

L

M

Organic Analyte Index

N

O

P

Organic Analyte Index

Q

R

S

T

Organic Analyte Index

U

V

W

X

Z

Catalog Number Index

Catalog Number Index

Catalog Number Index

B

Catalog Number Index

C

Catalog Number Index

Catalog Number Index

D

Catalog Number Index

E

F

Catalog Number Index

G

H

Catalog Number Index

I

Catalog Number Index

J

K

L

M

Catalog Number Index

Catalog Number Index

Catalog Number Index

Catalog Number Index

N

O

P

Catalog Number Index

Catalog Number Index

Catalog Number Index

Catalog Number Index

Catalog Number Index

Q

R

S

Catalog Number Index

T

U

V

W

Catalog Number Index

X

Z

Custom Services

Custom Synthesis

The AccuStandard Synthesis Department employs several PhD. Organic Chemists with many years of pertinent academic and industrial experience. The experienced staff has developed hundreds of pure chemical compounds for companies and governmental agencies around the world. The very well-equipped synthetic laboratory, with significant analytical support has made many notable synthesis projects possible. We specialize in synthesizing chemicals of high purity to be used as reference standards, and also offer custom synthesis capability on milligram to kilogram scales.

Analytical Capabilities

- GC-MS, GC-FID, GC-ECD, GC-NPD
- HPLC, LC-MS
- ICP, ICP-MS
- access to more anlytical instrumentation if necessary

Synthesis and Purification

- Milligram to Kilogram Glassware
- Inert Conditions Equipment
- High Performance Flash Chromatography
- Distillation Equipment - High Vacuum, Molecular (Kugelrohr), and Spinning Band Columns Preparative TLC
- Parr Pressure and Hydrogenation Reactor

Custom Synthesized Products

- PCBs (all 209 congeners), & hydroxy, methoxy, and methylsulfonyl metabolites
- Halo-Dibenzodioxins and Furans
- PBDEs (all 209 congeners) & hydroxy, methoxy, chloro metabolites
- Fluorinated PBDEs
- Other Brominated Flame Retardants
- PBBs
- PAHs, Nitro-PAHs, Methyl-PAHs
- Pesticides and metabolites
- Explosives and metabolites
- Nonyl- and Octylphenol Ethoxylates
- Mono- and Diester Phthalates
- Organophosphates
- Other Rare Chemicals

AccuStandard is renowned for its quick response to the needs for new compounds. The company's especially strong Synthesis Department allows the synthesis of important and unique products. Featured in its history of firsts are all of the 209 congeners of polychlorinated biphenyls (PCBs), 209 congeners of polybrominated diphenyl ethers (PBDEs) as well as many halogenated dioxins and dibenzofurans, PAHs, pesticides and fluorinated surrogates substituting the expensive isotopically labelled compounds.

Among the more recent introductions are the hydroxy and methoxy PBDE congeners, mixed bromo/chloro hydroxy and methoxy diphenyl ethers, organophosphate flame retardants, biofuels, plastic additives (AccuStandard authored the Handbook for the Chemical Analysis of Plastic and Polymer Additives published by CRC Press), EPA Method 535 pesticide derivatives and previously unavailable explosive standards.

Custom Formulations

With over 30,000+ custom and 10,000+ listed standards, there is a good chance that AccuStandard will have a standard to meet your needs. However, if your laboratory requires something specific, our Chemists will manufacture a Custom Standard to meet your unique requirements. Custom Standards are an economical and time saving way to have a Standard prepared for your individual needs.

Custom QC options

1. Gravimetric/Volumetric Certification: Each purity is measured gravimetrically and QC verified instrumentally (where available). Every component in the Standard is guaranteed to be within +/-0.5% of the requested value unless otherwise stated on the Certificate of Analysis. The solutions are diluted to volume using Class A glassware. A Certificate of Analysis accompanies each Standard and documents the gravimetric values used.
2. Full Quantitative Certification: This QA/QC method includes extended GC analysis using both internal calibration standards plus statistical analysis. A data package containing analytical and gravimetric data can be provided if requested during the quotation phase (Organic Customs only).

Custom Packaging and Bulk Quantity Requirements

AccuStandard has the resources and equipment to meet your custom packaging requirements.

- Automated ampule filling & sealing 0.2 mL up to 20 mL and ampule sizes from 1 mL to 20 mL
- Quantities from 500 to over 500,000 ampules
- Homogeneity testing
- Amber ampules for added product stability
- Private labeling and packaging (OEM)

We can reduce your costs using the Cozzoli Auto Filling/Sealing Machine to package just the right size product for your application. OEM Standards - Privately labeled standards manufactured and tested to your specifications. Cold and under Nitrogen sealing available.

Custom Quotation Request Form

From: Company Contact _____

Company Name _____

Phone: ( ) _____ Ext. _____

FAX: ( ) _____

Email: _____

Send to:

Page ___ of ___

For Internal Use Only

AS Tech. Rep. _____ Product Ordering # _____

Quote Creation Date _____ Quoted price $ _____

No. of Comps. ____

Product Description _____

Concentration _____

Solvent / Matrix _____

Requested Quantity

Organic

- ☐ 5 x 1 mL
- ☐ 10 x 1 mL
- ☐ 20 x 1 mL
- ☐ other ___ x ___

Inorganic

- ☐ 1 x 500 mL
- ☐ ___ x 500 mL

	Component (s)	CAS No. (optional)	Concentration (if varied)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Concentration Units

- ☐ ng/mL
- ☐ µg/mL
- ☐ mg/mL
- ☐ wt. %
- ☐ vol. %

Photocopy
this form for future use

Quotation Notes _____

Requested Delivery Date _____

Contact / Order Information

For ordering information contact your AccuStandard Distributor
Visit our website www.accustandard.com

Liability:

- Products listed in this catalog are for research use only.
- No warranty for any particular application is expressed or implied.
- Due to the products hazardous nature, they should be handled by trained personnel.
- AccuStandard's liability will be limited to, replacement of product or refund of purchase price.
- Notice of claims must be made within thirty (30) days from the date of delivery.

AccuStandard.com

✓ **Thousands of Standards**
✓ **Online SDSs, COAs and EPA Methods**
✓ **New Products and Technical Information**

New Products in this Catalog

- Phthalates 17 NEW
- Phosphate Flame Retardants (PFRs)
- PBDE Congeners (209)
- PBDE Metabolites 25 NEW
- PBCDE Metabolites
- Biocides (EU Directive)
- Pesticides Over 125 NEW
- Plastic Additives 20 NEW
- Bisphenol Analogs
- EN14105, EN15721 Biofuels
- Halobenzoquinones
- Imidazoles

AccuStandard®

ISO Guide 34 • 17025 • 9001