



AccuStandard®

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Custom Services

- Synthesis
- Formulations
- Packaging
- Bulk Quantity Requirements

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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.



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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

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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 synthesis of all 209 PCB and PBDE congeners, as well as many halogenated dioxins and dibenzofurans, PAHs and pesticides.

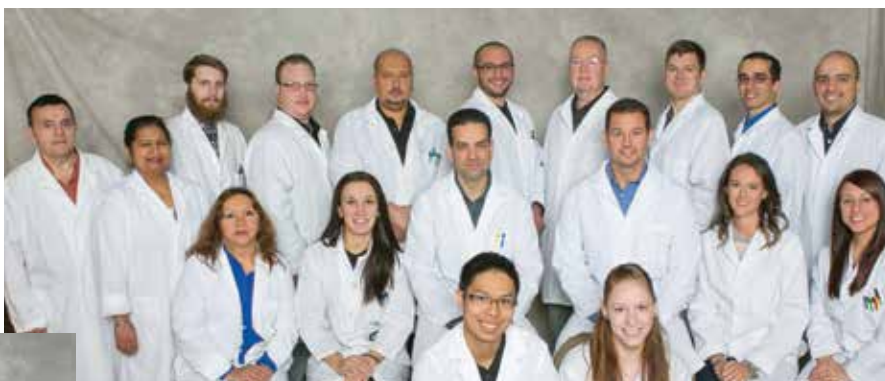
Among the more recent introductions are the hydroxy and methoxy PBDE congeners as well as mixed bromo/chloro hydroxy and methoxy diphenyl ethers, fluorinated PBDE congeners (used as internal standards), organophosphate flame retardants, biofuels, plastic additives (AccuStandard authored a CRC Press Handbook), 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 Certified 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 $\pm 0.5\%$ 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 / Quantities 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).



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



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 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 Formulated to USEPA, ASTM, Internal, and Custom Designed Specifications.

AccuStandard is accredited to ISO Guide 34:2009, ISO/IEC 17025:2005 and certified to ISO 9001:2008.

Visit our website at www.accustandard.com 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.
CERTIFICATE OF ANALYSIS

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

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


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

Included on ISO/IEC 17025 Scope of Accreditation
 Included on ISO Guide 34 Scope of Accreditation


Danger 2

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.

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Visit our website for
the latest New Products
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History of 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 bioaccumulation.

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

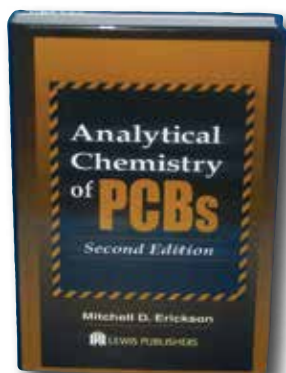
To obtain meaningful analytical data, the congeners need to be formulated into groupings of solutions that are all resolved on a gas chromatographic column. The "holy grail" of columns, the single column on which all 209 congeners are separated has, to this date, eluded all GC column manufacturers.

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 quantities 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

209 Solutions in a Set **Exclusive**

C-35-SET 35 µg/mL in Isooctane
C-100-SET 100 µg/mL in Isooctane

set of 209 x 1 mL
set of 209 x 1 mL

Technical Note

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

Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane	
					35 µg/mL Cat. No.	100 µg/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

PCBS



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 Cat. No.	1 mL	100 µg/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

PCBS

Chlorobiphenyl Congeners (PCBs)



Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane	
					35 µg/mL Cat. No.	100 µg/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)
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Chlorobiphenyl Congeners (PCBs)

Purity 99+%

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTIONS in Isooctane		
					35 µg/mL Cat. No.	1 mL	100 µg/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',4,5',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 (continued)

PCB Congener Mix #4

M-1668A-4-0.01X

At stated conc. in Isooctane

1 x 1 mL

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

At stated conc. in Isooctane

1 x 1 mL

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'-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)

PCBS

Method 1668A/1668 Combined Congener Standards

M-1668A-C-NT-LOC-WD

M-1668A-C-NT-LOC-WD-PAK

20 µg/mL each in Isooctane

SAVE

1 x 1 mL

5 x 1 mL

33 comps.

GPC Calibration Solution

CLP-027-R2-WL-10ML

At stated conc. in CH₂Cl₂

1 x 10 mL

5 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	

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

At stated conc. in Isooctane

1 x 1 mL

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

At stated conc. in Isooctane

1 x 1 mL

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	
No.	14 comps.
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',4,4',5,5'-Hexachlorobiphenyl (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',6'-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	
No.	15 comps.
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	
No.	15 comps.
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	
No.	15 comps.
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	
No.	41 comps.
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.

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
<i>10 µg/mL each in Isooctane</i>		
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
<i>10 µg/mL each in Isooctane</i>		
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
<i>10 µg/mL each in Isooctane</i>		
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.

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'-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',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



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. Jones² 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',5,5'-Hexachlorobiphenyl (169)
3,3',4,4',5-Pentachlorobiphenyl (126)

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) 2,2',3,4,4',5'-Hexachlorobiphenyl (138)
2,3',4,4',5-Pentachlorobiphenyl (118) 2,3,3',4,4',5'-Hexachlorobiphenyl (156)
2,2',3,3',4,4'-Hexachlorobiphenyl (128) 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',3,4,4',5,5'-Heptachlorobiphenyl (180)
2,2',4,4',5-Pentachlorobiphenyl (99) 2,2',3,4,4',5,6-Heptachlorobiphenyl (183)
2,2',4,5,5'-Pentachlorobiphenyl (101) 2,2',3,3',4,4',5,5'-Octachlorobiphenyl (194)
2,2',4,4',5,5'-Hexachlorobiphenyl (153)

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) 2,4,4',5-Tetrachlorobiphenyl (74)
2,2',3,5'-Tetrachlorobiphenyl (44) 2,2',3,5,5',6-Hexachlorobiphenyl (151)
2,2',4,5'-Tetrachlorobiphenyl (49) 2,2',3,3',4',5,6-Heptachlorobiphenyl (177)
2,2',5,5'-Tetrachlorobiphenyl (52) 2,2',3,4',5,5',6-Heptachlorobiphenyl (187)
2,3',4',5-Tetrachlorobiphenyl (70) 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) 2,3,3',4,4',5'-Hexachlorobiphenyl (157)
3,4,4',5-Tetrachlorobiphenyl (81) 2,3,3',4,4',6-Hexachlorobiphenyl (157)
2,3,4,4',5-Pentachlorobiphenyl (114) 2,3',4,4',5,5'-Hexachlorobiphenyl (167)
2,3',4,4',6-Pentachlorobiphenyl (119) 2,3',4,4',5,6-Hexachlorobiphenyl (168)
2',3,4,4',5-Pentachlorobiphenyl (123) 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) 2,3,4,4',5-Pentachlorobiphenyl (114)
2,4,4'-Trichlorobiphenyl (28) 2,3',4,4',5-Pentachlorobiphenyl (118)
3,4,4'-Trichlorobiphenyl (37) 3,3',4,4',5-Pentachlorobiphenyl (126)
2,2',3,5'-Tetrachlorobiphenyl (44) 2,2',3,3',4,4',5'-Hexachlorobiphenyl (128)
2,2',4,5'-Tetrachlorobiphenyl (49) 2,2',3,4,4',5'-Hexachlorobiphenyl (138)
2,2',5,5'-Tetrachlorobiphenyl (52) 2,2',4,4',5,5'-Hexachlorobiphenyl (153)
2,3,4,4'-Tetrachlorobiphenyl (60) 2,3,3',4,4',5'-Hexachlorobiphenyl (156)
2,3',4,4'-Tetrachlorobiphenyl (66) 2,3,3',4,4',6-Hexachlorobiphenyl (158)
2,3',4',5-Tetrachlorobiphenyl (70) 2,3,4,4',5,6-Hexachlorobiphenyl (166)
2,4,4',5-Tetrachlorobiphenyl (74) 3,3',4,4',5,5'-Hexachlorobiphenyl (169)
3,3',4,4'-Tetrachlorobiphenyl (77) 2,2',3,3',4,4',5'-Heptachlorobiphenyl (170)
2,2',3,3',4-Pentachlorobiphenyl (82) 2,2',3,3',5,6,6'-Heptachlorobiphenyl (179)
2,2',3,4,5'-Pentachlorobiphenyl (87) 2,2',3,4,4',5,5'-Heptachlorobiphenyl (180)
2,2',4,4',5-Pentachlorobiphenyl (99) 2,2',3,4,4',5,6-Heptachlorobiphenyl (183)
2,2',4,5,5'-Pentachlorobiphenyl (101) 2,2',3,4',5,5',6-Heptachlorobiphenyl (187)
2,3,3',4,4'-Pentachlorobiphenyl (105) 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

PCBs

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

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

DCMA-PCB Isomer Mixture

M-002 1 x 1 mL
M-002-PAK 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 5 x 1 mL
PCB-W22-SET 15 x 1 mL
100 µg/mL in Isooctane (Set of Individual Solutions)

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

Technical Note

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

Dioxin-Like Congeners

C-DIOXLIK	Level 1 -01	Level 2 -02	Level 3 -03	Level 4 -04	Level 5 -05	Level 6 -06	Level 7 -07	Level 8 -08	Level 9 -09	Level 10 -10	Level 11 -11	Level 12 -12
	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	ng/mL	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-DIOXLIK2-SET 5 x 1 mL Set includes C-DIOXLIK-03 C-DIOXLIK-05 C-DIOXLIK-07	C-DIOXLIK3-SET 5 x 1 mL Set includes C-DIOXLIK-04 C-DIOXLIK-06 C-DIOXLIK-08	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
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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

PCBS



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 †

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 †

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

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



PCBS

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	
M-680-IS-10X	1 x 1 mL
M-680-IS-10X-PAK SAVE	5 x 1 mL
750 µg/mL each in Hexane	
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	
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	
3,3',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	
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 ₂ Cl 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	
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	
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	
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',4,4',5,5',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		SAVE PAK		Isooctane		Methanol		SAVE PAK		Methanol	
	35 µg/mL	1 mL	5 x 1 mL	5 x 1 mL	100 µg/mL	1 mL	35 µg/mL	1 mL	5 x 1 mL	5 x 1 mL	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		SAVE PAK	
	100 µg/mL	1 mL	1000 µg/mL	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		PAK SAVE	
		Cat. No.	1 mL	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'-Hexachlorobiphenyl (# 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



PCBS

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	Compound	100 µg/mL in Isooctane Cat. No.	1 mL
2-Methoxy-5-chlorobiphenyl	MOPCB-1001S		2-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4001S	
4-Methoxy-2-chlorobiphenyl	MOPCB-1002S		2-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4002S	
4-Methoxy-3-chlorobiphenyl	MOPCB-1003S		2-Methoxy-2',4',5,6'-tetrachlorobiphenyl	MOPCB-4003S	
4-Methoxy-4'-chlorobiphenyl	MOPCB-1004S		3-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4004S	
2-Methoxy-2'-5-dichlorobiphenyl NEW	MOPCB-2001S		3-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4005S	
3-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2002S		4-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4007S	
4-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2003S		4-Methoxy-2',3,4',6'-tetrachlorobiphenyl	MOPCB-4008S	
4-Methoxy-3,5-dichlorobiphenyl	MOPCB-2004S		4-Methoxy-2',3,5,5'-tetrachlorobiphenyl	MOPCB-4009S	
2-Methoxy-2',3'-dichlorobiphenyl	MOPCB-2005S		4'-Methoxy-3,3',4,5'-tetrachlorobiphenyl NEW	MOPCB-4011S	
2-Methoxy-3',4'-dichlorobiphenyl	MOPCB-2006S		3-Methoxy-2,2',6,6'-tetrachlorobiphenyl NEW	MOPCB-4012S-0.5X *	
2-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3001S		2-Methoxy-2',3',4',5,5'-pentachlorobiphenyl	MOPCB-5001S	
2-Methoxy-2',5,5'-trichlorobiphenyl	MOPCB-3002S		2-Methoxy-2',3',5,5',6'-pentachlorobiphenyl	MOPCB-5002S	
3-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3003S		4-Methoxy-2,2',3',4',5'-pentachlorobiphenyl	MOPCB-5003S	
4-Methoxy-2,2',5'-trichlorobiphenyl	MOPCB-3004S		4-Methoxy-2,2',3',5',6'-pentachlorobiphenyl	MOPCB-5004S	
4-Methoxy-2',3,5'-trichlorobiphenyl	MOPCB-3005S		4-Methoxy-2,2',4',5,5'-pentachlorobiphenyl	MOPCB-5009S	
4-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3006S		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

PCBS

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 (MeSO₂-PCBs) have been added. Only the 3- and 4-MeSO₂-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	100 µg/mL in MeOH	
				Cat. No.	1 mL
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 ₂ Cl ₂	M-625-04	
		1 mg/mL	Acetone	M-551.1-SS-100X	
		2 mg/mL	CH ₂ Cl 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 ₂ Cl ₂	M-625-05	
		1 mg/mL	Acetone	M-8111-IS-20X	
		2 mg/mL	CH ₂ Cl ₂	M-625-05-10X	
		0.2 mg/mL	CH ₂ Cl ₂	M-625-06	
4,4'-Dibromooctafluorobiphenyl	10386-84-2	2 mg/mL	CH ₂ Cl ₂	M-625-06-10X	
		0.2 mg/mL	CH ₂ Cl ₂	M-625-07	
2,2'-Difluorobiphenyl	388-82-9	1 mg/mL	MeOH	M-1653-IIS	
		2 mg/mL	CH ₂ Cl ₂	M-625-07-10X	
		5 mg/mL	Acetone	M-1653-IIS-R	
		0.2 mg/mL	CH ₂ Cl ₂	M-625-09	
2-Fluorobiphenyl	321-60-8	2 mg/mL	CH ₂ Cl ₂	M-625-09-10X	
		0.1 mg/mL	MeOH	N-1013S	
Halowax 1013	1321-64-8	0.1 mg/mL	MeOH	N-1014S	
Halowax 1014	1335-87-1	0.1 mg/mL	MeOH	N-1051S	
Halowax 1051		0.1 mg/mL	MeOH	N-1099S	
Halowax 1099	39450-05-0	0.1 mg/mL	MeOH	AS-E0470	
		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- <i>o</i> -terphenyl		35 µg/mL	Toluene	T-004S	
Tetradecachloro- <i>m</i> -terphenyl		35 µg/mL	Toluene	T-005S	
Tetradecachloro- <i>p</i> -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 µg/mL	Isooctane	CDE-003S	
2,4-Dichlorodiphenyl ether		10 mg	NEAT	CDE-007N	
		50 µg/mL	Isooctane	CDE-007S	
4,4'-Dichlorodiphenyl ether	2444-89-5	10 mg	NEAT	CDE-015N	
		50 µg/mL	Isooctane	CDE-015S	
3,3',4,4'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-077S	
2,3,3',4,4'-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-105S	
2,3',4,4',5-Pentachlorodiphenyl ether	60123-65-1	10 mg	NEAT	CDE-118N	
		50 µg/mL	Isooctane	CDE-118S	
Decachlorodiphenyl ether	31710-30-2	10 mg	NEAT	CDE-209N	
		50 µg/mL	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%

Dioxins

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-Tetrabromodibenzo-p-dioxin	BDD-402S	10 µg/mL	Toluene	
	BDD-402S-2.5X	25 µg/mL	Toluene	
	BDD-403S	10 µg/mL	Toluene	
Tetrabromodibenzo-p-dioxin-Mixed Isomers	BDD-403S-2.5X	25 µg/mL	Toluene	
1,2,4,7-Tetrabromodibenzo-p-dioxin / 1,2,4,8-Tetrabromodibenzo-p-dioxin				
2,3,7,8-Tetrabromodibenzo-p-dioxin	X-001	1 mg	NEAT	



Chlorodibenzo-p-dioxin Congeners

Canadian Method, Method 1613, 8280

Dioxins

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.

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.

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

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		SOLUTION		
		Cat. No.	Unit	Cat. No.	Conc.	Solvent
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	X-011	1 mL
	0.1 mg/mL in Toluene		
4-Chlorophenyl methyl sulfoxide	934-73-6	X-004	10 mg
4,6-Dinitro- <i>o</i> -toluidine	7477-94-3	X-002	10 mg
1,4-Dioxino(2,3-b:5,6-b')dipyridine	262-16-8	X-005	5 mg
(Dipyridine analog of dibenzo- <i>p</i> -dioxin)			
<i>n,n'</i> -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- <i>p</i> -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
<i>N,N'</i> -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 analytical 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.





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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

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 Ether (PBDE) Congeners



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

PBDE Congeners continued on next page



Polybrominated Diphenyl Ether (PBDE) Congeners

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:	BDE-209S	
				Toluene (90:10)	
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



PBDE Mixtures

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 Isooctane	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

At stated conc. (ng/mL) in Isooctane

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

Method 1614

Mixtures of PBDEs Standard Solution for Accuracy & Precision

BDE-AAP-A <i>At stated conc. in Isooctane</i>	1 x 1 mL 39 comps. ng/mL	BDE-AAP-A-15X <i>At stated conc. in Isooctane</i>	1 x 1 mL 39 comps. µg/mL
2-Bromodiphenyl ether (#1)	100	2-Bromodiphenyl ether (#1)	1.5
3-Bromodiphenyl ether (#2)	100	3-Bromodiphenyl ether (#2)	1.5
4-Bromodiphenyl ether (#3)	100	4-Bromodiphenyl ether (#3)	1.5
2,4-Dibromodiphenyl ether (#7)	100	2,4-Dibromodiphenyl ether (#7)	1.5
2,4'-Dibromodiphenyl ether (#8)	100	2,4'-Dibromodiphenyl ether (#8)	1.5
2,6-Dibromodiphenyl ether (#10)	100	2,6-Dibromodiphenyl ether (#10)	1.5
3,3'-Dibromodiphenyl ether (#11)	100	3,3'-Dibromodiphenyl ether (#11)	1.5
3,4-Dibromodiphenyl ether (#12)	100	3,4-Dibromodiphenyl ether (#12)	1.5
3,4'-Dibromodiphenyl ether (#13)	100	3,4'-Dibromodiphenyl ether (#13)	1.5
4,4'-Dibromodiphenyl ether (#15)	100	4,4'-Dibromodiphenyl ether (#15)	1.5
2,2',4,-Tribromodiphenyl ether (#17)	100	2,2',4-Tribromodiphenyl ether (#17)	1.5
2,3',4-Tribromodiphenyl ether (#25)	100	2,3',4-Tribromodiphenyl ether (#25)	1.5
2,4,4'-Tribromodiphenyl ether (#28)	100	2,4,4'-Tribromodiphenyl ether (#28)	1.5
2,4,6-Tribromodiphenyl ether (#30)	100	2,4,6-Tribromodiphenyl ether (#30)	1.5
2,4',6-Tribromodiphenyl ether (#32)	100	2,4',6-Tribromodiphenyl ether (#32)	1.5
2',3,4-Tribromodiphenyl ether (#33)	100	2',3,4-Tribromodiphenyl ether (#33)	1.5
3,3',4-Tribromodiphenyl ether (#35)	100	3,3',4-Tribromodiphenyl ether (#35)	1.5
3,4,4'-Tribromodiphenyl ether (#37)	100	3,4,4'-Tribromodiphenyl ether (#37)	1.5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	100	2,2',4,4'-Tetrabromodiphenyl ether (#47)	1.5
2,2',4,5'-Tetrabromodiphenyl ether (#49)	100	2,2',4,5'-Tetrabromodiphenyl ether (#49)	1.5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	100	2,3',4,4'-Tetrabromodiphenyl ether (#66)	1.5
2,3',4',6-Tetrabromodiphenyl ether (#71)	100	2,3',4',6-Tetrabromodiphenyl ether (#71)	1.5
2,4,4',6-Tetrabromodiphenyl ether (#75)	100	2,4,4',6-Tetrabromodiphenyl ether (#75)	1.5
3,3',4,4'-Tetrabromodiphenyl ether (#77)	100	3,3',4,4'-Tetrabromodiphenyl ether (#77)	1.5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	150	2,2',3,4,4'-Pentabromodiphenyl ether (#85)	2.25
2,2',4,4',5-Pentabromodiphenyl ether (#99)	150	2,2',4,4',5-Pentabromodiphenyl ether (#99)	2.25
2,2',4,4',6-Pentabromodiphenyl ether (#100)	150	2,2',4,4',6-Pentabromodiphenyl ether (#100)	2.25
2,3,4,5,6-Pentabromodiphenyl ether (#116)	150	2,3,4,5,6-Pentabromodiphenyl ether (#116)	2.25
2,3',4,4',5-Pentabromodiphenyl ether (#118)	150	2,3',4,4',5-Pentabromodiphenyl ether (#118)	2.25
2,3',4,4',6-Pentabromodiphenyl ether (#119)	150	2,3',4,4',6-Pentabromodiphenyl ether (#119)	2.25
3,3',4,4',5-Pentabromodiphenyl ether (#126)	150	3,3',4,4',5-Pentabromodiphenyl ether (#126)	2.25
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	200	2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	3.0
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	200	2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	3.0
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	200	2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	3.0
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	200	2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	3.0
2,3,4,4',5,6'-Hexabromodiphenyl ether (#166)	200	2,3,4,4',5,6'-Hexabromodiphenyl ether (#166)	3.0
2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	250	2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	3.75
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	250	2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	3.75
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	250	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 <i>At stated conc. in Isooctane</i>	1 x 1 mL 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 <i>At stated conc. in Isooctane</i>	1 x 1 mL 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 <i>At stated conc. in Isooctane</i>	1 x 1 mL 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 <i>At stated conc. in Isooctane</i>	1 x 1 mL 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 <i>50 µg/mL each in Isooctane</i>	8 x 1 mL 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**



PBDE Metabolites

Methoxy PBDE Metabolites

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',4,4'-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',3,4,4',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',4,4',5',6',6'-octabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-8001S	

Mixed Bromo/Chloro Hydroxylated Diphenyl Ethers



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



Fluorinated PBDEs

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 ¹³C 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

HBCD, Dechlorane, Bromobiphenyls

Hexabromocyclododecane Isomers

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

Dechlorane Plus Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Dechlorane Plus "Anti"	135821-74-8	50 $\mu\text{g/mL}$	Toluene	FRS-061S-0.5X	
Dechlorane Plus "Syn"	135821-03-3	50 $\mu\text{g/mL}$	Toluene	FRS-062S-0.5X	
Dechlorane Plus (Mixed isomers)	13560-89-9	10 mg	NEAT	FRS-033N	
		100 $\mu\text{g/mL}$	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 $\mu\text{g/mL}$	Isooctane	B-001S	
		1 mg/mL	Acetone	M-8081-SS-X	
3-Bromobiphenyl	2113-57-7	50 mg	NEAT	B-002N	
		35 $\mu\text{g/mL}$	Isooctane	B-002S	
		50 mg	NEAT	B-003N	
4-Bromobiphenyl	92-66-0	35 $\mu\text{g/mL}$	Isooctane	B-003S	
		10 mg	NEAT	B-004N	
		35 $\mu\text{g/mL}$	Isooctane	B-004S	
2,2'-Dibromobiphenyl	13029-09-9	10 mg	NEAT	B-004N	
		35 $\mu\text{g/mL}$	Isooctane	B-004S	
		10 mg	NEAT	B-007N-10MG	
2,4-Dibromobiphenyl	53592-10-2	35 $\mu\text{g/mL}$	Isooctane	B-007S	
		25 mg	NEAT	B-009N	
		35 $\mu\text{g/mL}$	Isooctane	B-009S	
2,6-Dibromobiphenyl	59080-32-9	5 mg	NEAT	B-010N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-010S	
		10 mg	NEAT	B-015N	
4,4'-Dibromobiphenyl	92-86-4	35 $\mu\text{g/mL}$	Isooctane	B-015S	
		10 mg	NEAT	B-018N	
		35 $\mu\text{g/mL}$	Isooctane	B-018S	
2,3',5-Tribromobiphenyl	59080-34-1	10 mg	NEAT	B-026N	
		35 $\mu\text{g/mL}$	Isooctane	B-026S	
		35 $\mu\text{g/mL}$	Isooctane	B-029S	
2,4,5-Tribromobiphenyl	115245-07-3	25 mg	NEAT	B-030N	
		35 $\mu\text{g/mL}$	Isooctane	B-030S	
		10 mg	NEAT	B-031N	
2,4',5-Tribromobiphenyl	59080-35-3	35 $\mu\text{g/mL}$	Isooctane	B-031S	
		5 mg	NEAT	B-049N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-049S	
2,2',5,5'-Tetrabromobiphenyl	59080-37-4	10 mg	NEAT	B-052N	
		35 $\mu\text{g/mL}$	Isooctane	B-052S	
		5 mg	NEAT	B-053N-5MG	
2,2',5,6'-Tetrabromobiphenyl	60044-25-9	35 $\mu\text{g/mL}$	Isooctane	B-053S	
		35 $\mu\text{g/mL}$	Isooctane	B-077S	
		35 $\mu\text{g/mL}$	Isooctane	B-080S	
3,3',4,4'-Tetrabromobiphenyl	77102-82-0	35 $\mu\text{g/mL}$	Isooctane	B-114S	
		5 mg	NEAT	B-101N	
		35 $\mu\text{g/mL}$	Isooctane	B-101S	
3,3',5,5'-Tetrabromobiphenyl	16400-50-3	5 mg	NEAT	B-103N	
		35 $\mu\text{g/mL}$	Isooctane	B-103S	
		35 $\mu\text{g/mL}$	Isooctane	B-137S	
2,3,4,4',5-Pentabromobiphenyl	96551-70-1	35 $\mu\text{g/mL}$	Isooctane	B-141S	
		5 mg	NEAT	B-153N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-153S	
2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	5 mg	NEAT	B-155N	
		35 $\mu\text{g/mL}$	Isooctane	B-155S	
		35 $\mu\text{g/mL}$	Isooctane	B-156S	
2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	35 $\mu\text{g/mL}$	Isooctane	B-159S	
		5 mg	NEAT	B-169S	
		35 $\mu\text{g/mL}$	Isooctane	B-169S	
2,3,3',4,4',5'-Hexabromobiphenyl	77607-09-1	35 $\mu\text{g/mL}$	Isooctane	B-180S	
		35 $\mu\text{g/mL}$	Isooctane	B-189S	
		35 $\mu\text{g/mL}$	Isooctane	B-189S	
3,3',4,4',5,5'-Hexabromobiphenyl	60044-26-0	35 $\mu\text{g/mL}$	Isooctane	B-194S	
		35 $\mu\text{g/mL}$	Isooctane	B-200S	
		35 $\mu\text{g/mL}$	Isooctane	B-200S	
2,2',3,3',4,4',5,5'-Heptabromobiphenyl	67733-52-2	35 $\mu\text{g/mL}$	Isooctane	B-209N	
		35 $\mu\text{g/mL}$	Isooctane	B-209S	
		25 mg	NEAT	B-209N	
2,2',3,3',4,4',5,5',6,6'-Octabromobiphenyl	119264-60-7	35 $\mu\text{g/mL}$	Isooctane	B-209S	
		35 $\mu\text{g/mL}$	Isooctane	B-209S	
		35 $\mu\text{g/mL}$	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	





Industrial Flame Retardants

Bromine Containing (BFRs)

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.

Industrial Flame Retardants

Bromine Containing (BFRs)



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 100 µg/mL	Isooctane Isooctane	B-250S-0.35X 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 100 µg/mL	Isooctane Isooctane	B-600S-0.35X B-600S	
Firemaster™ PHT4	632-79-1	Tetrabromophthalic anhydride	10 mg 100 µg/mL	NEAT Toluene	FRS-007N FRS-007S	
Firemaster™ T23P (Michigan Chemical)	126-72-7	Tris(2,3-dibromopropyl)phosphate	10 mg 100 µg/mL	NEAT Toluene	FRS-008N FRS-008S	
Firemaster™ 680 (Great Lakes)	37853-59-1	1,2-Bis(2,4,6-tribromophenoxy)ethane	50 mg 100 µg/mL	NEAT Toluene	FRS-037N FRS-037S	
Firemaster™ 2100 (Great Lakes)	84852-53-9	Decabromodiphenylethane	50 mg 100 µg/mL	NEAT Toluene	FRS-036N FRS-036S	
FR-300BA	1163-19-5	Decabromodiphenyl ether 85.5%	10 mg 100 µg/mL	NEAT Toluene	FRS-009N FRS-009S	
FR-651A (Dow)	87-84-3	Pentabromochlorocyclohexane	10 mg 100 µg/mL	NEAT Toluene	FRS-010N FRS-010S	
FR-1138 (Dow)	3296-90-0	Dibromoneopentyl glycol 85.0%	10 mg 100 µg/mL	NEAT Toluene	FRS-011N FRS-011S	
HBCD SP-75C (Great Lakes)	3194-55-6-GL	1,2,5,6,9,10-Hexabromocyclododecane	10 mg 100 µg/mL	NEAT Toluene	FRS-028N FRS-028S	
Hexabromobenzene (Michigan Chemical)	87-82-1	Hexabromobenzene	10 mg 100 µg/mL	NEAT Toluene	FRS-012N FRS-012S	
Hexabromobenzene (White Chemical)	87-82-1	Hexabromobenzene	10 mg 100 µg/mL	NEAT Toluene	FRS-013N FRS-013S	
Hexabromobenzene (Hummel)	87-82-1	Hexabromobenzene	10 mg 100 µg/mL	NEAT Toluene	FRS-014N FRS-014S	
Pentabromotoluene (White Chemical)	87-83-2	Pentabromotoluene	10 mg 100 µg/mL	NEAT Toluene	FRS-018N 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'-Hydroxyethoxy) ethyl, 2-hydroxypropyl-tetrabromophthalate	10 mg 100 µg/mL	NEAT Toluene	FRS-054N FRS-054S	
Tetrabromo-o-chlorotoluene (White Chemical)		Tetrabromo-o-chlorotoluene (98%)	10 mg 100 µg/mL	NEAT Toluene	FRS-021N FRS-021S	
TP-69 (Great Lakes)	126-72-7	Tris(2,3-dibromopropyl)phosphate	10 mg 100 µg/mL	NEAT Toluene	FRS-023N FRS-023S	

Registered Trademarks

Chlorafin Hercules Powder Company Corp.
Chlorowax Dover Chemical Corp.

Firemaster Great Lakes Chemical Corp.
Paroil Dover Chemical Corp.

Phosgard Solutia Inc.
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 100 µg/mL	NEAT Toluene	FRS-063N FRS-063S	
3-Bromostyrene	2039-86-3	10 mg 100 µg/mL	NEAT Toluene	FRS-050N FRS-050S	
4-Bromostyrene	2039-82-9	10 mg 100 µg/mL	NEAT Toluene	FRS-051N 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 100 µg/mL	NEAT Toluene	FRS-073N FRS-073S	
Tetrabromobisphenol S bisglycidyl ether NEW		10 mg 100 µg/mL	NEAT Toluene	FRS-072N FRS-072S	
Tetrabromobisphenol S bismethyl ether NEW	70156-79-5	10 mg 100 µg/mL	NEAT Toluene	FRS-071N 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.

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) phosphate	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)dichloroisopentylidiphosphate (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	
			100 µg/mL	Toluene	FRS-024S	
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.

Purity 98+%,
except where
indicated

PAHs in Bulk
Quantities Available



PAHs

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	<i>Tetraphene</i>	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	<i>Benzantraquinone</i>	2498-66-0	H-111N	10 mg	H-111S	
Benzo[b]chrysene		214-17-5	H-183N	5 mg	H-183S	
Benzo[b]fluoranthene	<i>Benz[e]acephenanthrylene</i>	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	<i>1,12-Benzoperylene</i>	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)	<i>3,4-Benzopyrene</i>	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	<i>Benzo[f]quinoline</i>	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	<i>Benzo[a]phenanthrene</i>	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	<i>Dibenz[a,c]anthracene</i>	215-58-7	H-134N	10 mg	H-134S	
1,2:5,6-Dibenzanthracene	<i>Dibenz[a,h]anthracene</i>	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	<i>Dibenzo[a,e]pyrene</i>	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	<i>Dibenzothiophene</i>	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	<i>Periflanthene</i>	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

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

Z-013N-SET	16 x 10 mg	
	(set includes, 16 individual neat analytes)	
Acenaphthene	Chrysene	
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benzo[a]anthracene	Fluorene	
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	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 ₂ Cl ₂	Z-013-04
Benzo[a]pyrene	CH ₂ Cl ₂	Z-013-05
Benzo[b]fluoranthene	MeOH	Z-013-06
Benzo[g,h,i]perylene	CH ₂ Cl ₂	Z-013-07
Benzo[k]fluoranthene	CH ₂ Cl ₂	Z-013-08
Chrysene	CH ₂ Cl ₂	Z-013-09
Dibenz[a,h]anthracene	CH ₂ Cl ₂	Z-013-10
Fluoranthene	CH ₂ Cl 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 ₂ Cl ₂	Z-013-15
Pyrene	CH ₂ Cl ₂	Z-013-16
Mixture of the above 16 analytes, at 0.2 mg/mL in MeOH:CH₂Cl₂ (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 CH₂Cl₂:Benzene (50:50) 24 comps.

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





Nitro-Polynuclear Aromatic Hydrocarbons

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

Scientists have found Nitro-PAHs in diesel particulates², carbon black^{3,4} and ambient air particulates⁵. 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) Nitroated PAHs. Edited by C.M. White. Published by Huethig 1985.
- (2) Analysis of Nitroated 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		100 µg/mL in Toluene SOLUTION	
		Cat. No.	Unit	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		100 µg/mL in Toluene SOLUTION	
		Cat. No.	Unit	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		100 µg/mL in Toluene SOLUTION	
		Cat. No.	Unit	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

Polynuclear Aromatic Hydrocarbons Derivatives



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

Nitrogen Containing Compounds

Nitrogen Containing Compounds

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Azobenzene	103-33-3	2 mg/mL	CH ₂ Cl 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
		100 mg	NEAT	R-050N	100 mg
2,6-Dinitrotoluene	606-20-2	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
		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

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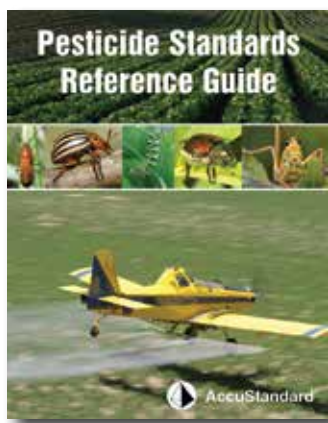
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Pesticides, their by-products, metabolites and degradates

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



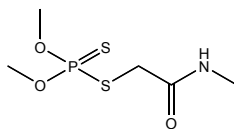
Pesticide Standards Reference Guide

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 C₅H₁₂NO₃PS₂ 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
MF	Molecular Formula	CN	Acetonitrile (AcCN)
MW	Molecular Weight	D	Methylene chloride
PS	Physical State (Solid, Liquid)	DMSO	Dimethyl sulfoxide
SOL	Solubility	EA	Ethyl acetate
SG	Specific Gravity (g/cm ³)	H	Hexane
MP	Melting Point (°C)	IPA	Isopropanol
BP	Boiling Point (°C)	MeOH	Methanol
FP	Flash Point (°C)	MC	Methyl cellosolve
		T	Toluene
		TP	Isooctane
		W	Water

Includes formulations for over 50 EPA and international pesticide methods.

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

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.



Analytical Capabilities

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 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.





Pesticide Standards

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

* V-Rated packaging surcharge applies for international shipments

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

▶ 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



Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Bromoxynil octanoate	1689-99-2	NEAT	P-550N	Chloramben methyl ester	7286-84-2	NEAT	P-272N
		MeOH	P-550S			MeOH	P-272S
Bromuconazol	116255-48-2	NEAT	P-843N	Chlorantraniliprole	500008-45-7	NEAT	P-952N
		AcCN	P-843S-CN			MeOH	P-952S
Bueno	2163-80-6	NEAT	P-279N	Chlorbenside	103-17-3	NEAT	P-107N
		MeOH	P-279S			MeOH	P-107S
Bupirimate	41483-43-6	NEAT	P-672N	Chlorbromuron	13360-45-7	NEAT	P-520N
		MeOH	P-672S			MeOH	P-520S
Buprofezin	69327-76-0	NEAT	P-595N	Chlorbufam	1967-16-4	NEAT	P-558N
		MeOH	P-595S			MeOH	P-558S
Busan	21564-17-0	AcCN	P-072S-CN	Chlordane (Tech)	12789-03-6	NEAT	P-017N
Butachlor	23184-66-9	NEAT	P-191N			MeOH	P-017S
		MeOH	P-191S	α -Chlordane	5103-71-9	NEAT	P-134N
Butafenacil	134605-64-4	NEAT	P-940N			MeOH	P-134S
		MeOH	P-940S	γ -Chlordane	5103-74-2	Hexane	P-134S-H
Butisan S	see Metazachlor					NEAT	P-135N
Butocarboxim	34681-10-2	NEAT	P-518N	<i>cis</i> -Chlordane	see a-Chlordane	MeOH	P-135S
		MeOH	P-518S	<i>trans</i> -Chlordane	see g-Chlordane		
Butocarboxim sulfoxide	34681-24-8	NEAT	P-701N	Chlordecone	see Kepone		
		MeOH	P-701S	Chlordene	3734-48-3	NEAT	P-136N
Butoflin	see Deltamethrin					MeOH	P-136S
Butox	see Deltamethrin			Chlordimeform	6164-98-3	NEAT	P-333N
Butoxycarboxim	34681-23-7	NEAT	P-822N			MeOH	P-333S
		AcCN	P-822S-CN	Chlorethoxyfos	54593-83-8	NEAT	P-1017N
Butralin	33629-47-9	NEAT	P-574N			AcCN	P-1017S-CN
		MeOH	P-574S	<i>Chlorfenac</i>	see Fenatrol		
Buturon	3766-60-7	NEAT	P-301N	<i>Chlorfenson</i>	see Ovex		
		MeOH	P-301S	Chlorfenapyr	122453-73-0	NEAT	P-807N
Butylate	2008-41-5	NEAT	P-088N			MeOH	P-807S
		MeOH	P-088S	Chlorfenvinphos	470-90-6	NEAT	P-139N *
Cadusafos	95465-99-9	NEAT	P-794N *			MeOH	P-139S
		MeOH	P-794S	Chlorfluazuron NEW	71422-67-8	AcCN	P-771S-CN *
Calcium arsenate NEW	7778-44-1	NEAT	P-1076N	Chlorfluorecol-methyl ester	2536-31-4	NEAT	P-401N
		MeOH	P-1076S			MeOH	P-401S
Calixin	see Tridemorph			<i>Chlorflurenol</i>	see Chlorfluorecol-methyl ester		
Camphechlor	see Toxaphene			<i>Chloridazon</i>	see Pyrazon		
Caparol	see Prometryne			Chlorimuron-ethyl	90982-32-4	AcCN	P-284S-CN
Captafol	2425-06-1	NEAT	P-254N	Chlormephos	24934-91-6	NEAT	P-329N
		MeOH	P-254S			MeOH	P-329S
Captan	133-06-2	NEAT	P-182N	Chlormequat chloride	999-81-5	NEAT	P-338N
		MeOH	P-182S *			MeOH	P-338S
Capture	see Bifenthrin			Chlorobenzilate	510-15-6	NEAT	P-133N
Carbamult	see Promecarb					AcCN	P-133S-CN
Carbaryl	63-25-2	NEAT	P-083N	<i>Chloroea</i>	see Monuron		
		MeOH	P-083S	2-Chloro-2',6'-diethylacetanilide	6967-29-9	NEAT	P-620N
Carbendazim	10605-21-7	NEAT	P-278N			MeOH	P-620S
		MeOH	P-278S	2-Chloro-4-ethylamino-6-methylethylamino-s-triazine		NEAT	P-539N
Carbetamide	16118-49-3	NEAT	P-562N			Methyl cellosolve	P-539S-MC
		MeOH	P-562S	2-Chloro-4-ethylamino-6-propylamino-s-triazine		NEAT	P-537N
Carbexsin	see Oxycarboxin					Methyl cellosolve	P-537S-MC
Carbicron	see Dicrotophos			2-Chloro-4-methylamino-6-diethylamino-s-triazine	90952-64-0	NEAT	P-541N
Carbofuran	1563-66-2	NEAT	P-106N			Methyl cellosolve	P-541S-MC
		MeOH	P-106S	2-Chloro-4-methylamino-6-sec-butylamino-s-triazine		NEAT	P-540N
Carbofuran phenol-3-ketone	17781-16-7	MeOH	P-630S			Methyl cellosolve	P-540S-MC
Carbophenothion	786-19-6	NEAT	P-095N	Chloroneb	2675-77-6	NEAT	P-212N
		MeOH	P-095S			MeOH	P-212S
Carbophenothion methyl-o-analog		10 µg/mL in EtOAc	P-637S-EA-0.1X	Chlorophacinone	3691-35-8	NEAT	P-314N
Carbosulfan	55285-14-8	NEAT	P-446N			MeOH	P-314S
		MeOH	P-446S	<i>[3(2-Chlorophenyl)]-1,1-dimethylurea</i>	see 2-Monuron		
Carboxin	5234-68-4	NEAT	P-216N	<i>4-Chlorophenoxyacetic acid</i>	see 4-CPA		
		MeOH	P-216S	Chloropicrin	76-06-2	NEAT	P-398N **
Carbyne	see Barbamate					MeOH	P-398S
Carfentrazone-ethyl NEW	128639-02-1	AcCN	P-957S-CN *	4-Chloro-2-methylphenol	1570-64-5	NEAT	P-1026N
Carpropamid NEW	104030-54-8	AcCN	P-1162S-CN			MeOH	P-1026S
Cartap	15263-53-3	MeOH	P-577S	3-Chloro-1,2-propanediol	96-24-2	NEAT	P-408N
Cartap hydrochloride	22042-59-7	NEAT	P-949N			MeOH	P-408S
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				

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

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Pesticide Standards

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

▶ 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.

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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.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Dichlorophen	97-23-4	NEAT	P-232N	Dimethyl phosphate	813-78-5	NEAT	P-442N
		MeOH	P-232S			MeOH	P-442S
1-(3,4-Dichlorophenyl)-3-methylurea NEW		NEAT	P-1038N	N-(2,4-Dimethylphenyl)formamide	60397-77-5	AcCN	P-1100S-CN *
3567-62-2		MeOH	P-1038S	NEW			
2,4-Dichlorophenylacetic acid Me see Methyl-2,4-dichlorophenylacetate				Dimetilan NEW	644-64-4	AcCN	P-905S-CN
Dichlorprop ▶	120-36-5	NEAT	P-143N	Dimoxystrobin	149961-52-4	AcCN	P-844S-CN
		MeOH	P-143S	Dinex	131-89-5	NEAT	P-427N
		AcCN	P-143S-CN			MeOH	P-427S
Dichlorprop methyl ester	57153-17-0	NEAT	P-229N	Diniconazol	83657-24-3	NEAT	P-845N
		MeOH	P-229S			AcCN	P-845S-CN
Dichlorvos	62-73-7	NEAT	P-036N	Dinitramine	29091-05-2	NEAT	P-575N
		MeOH	P-036S			MeOH	P-575S
Diclobutrazol	75736-33-3	NEAT	P-641N	4,6-Dinitro-o-cresol	534-52-1	NEAT	P-384N
		AcCN	P-641S-CN			MeOH	P-384S
Diclofop	40843-25-2	NEAT	P-514N	Dinocap	39300-45-3	NEAT	P-288N
		MeOH	P-514S			MeOH	P-288S
Diclofop methyl	51338-27-3	NEAT	P-303N	Dinoseb ▶	88-85-7	NEAT	P-144N
		MeOH	P-303S			MeOH	P-144S
Diclosulam NEW	145701-21-9	NEAT	P-904N	Dinoseb acetate	2813-95-8	NEAT	P-779N
		MeOH	P-904S			MeOH	P-779S
o,p'-Dicofol	10606-46-9	NEAT	P-606N	Dinoseb methyl ether	6099-79-2	NEAT	P-230N
		MeOH	P-606S			MeOH	P-230S
Dicofol	see Kelthane			Dinoterb	1420-07-1	NEAT	P-524N
Dicrotophos	141-66-2	NEAT	P-178N			MeOH	P-524S
		MeOH	P-178S	Dioxcarb	6988-21-2	NEAT	P-264N
Dieldrin	60-57-1	NEAT	P-037N *			MeOH	P-264S
		MeOH	P-037S	Dioxathion	78-34-2	NEAT	P-219N
Dieltamid	see Deet					MeOH	P-219S
Diethyl ethyl	38727-55-8	NEAT	P-599N	Diphacinone	82-66-6	NEAT	P-315N
		MeOH	P-599S			MeOH	P-315S *
Diethofencarb	87130-20-9	NEAT	P-744N	Diphenamid	957-51-7	NEAT	P-173N
		MeOH	P-744S			MeOH	P-173S
Diethylphosphate	598-02-7	NEAT	P-534N	Dipropetryn	4147-51-7	NEAT	P-580N
		MeOH	P-534S			MeOH	P-580S
Diethyl phosphate (mono- & di-)	598-02-7	NEAT	P-443N	Diquat dibromide monohydrate	6385-62-2	NEAT	P-231N
		MeOH	P-443S			MeOH	P-231S
Difenacoum NEW	56073-07-5	AcCN	P-1151S-CN	Disul-sodium salt	136-78-7	NEAT	P-513N
Difenoconazole	119446-68-3	NEAT	P-447N			MeOH	P-513S
		MeOH	P-447S	Disulfoton	298-04-4	NEAT	P-042N *
Difenoxyuron	14214-32-5	NEAT	P-604N			MeOH	P-042S
		MeOH	P-604S	Disulfoton sulfone	2497-06-5	NEAT	P-582N
Diflubenzuron	35367-38-5	NEAT	P-377N			MeOH	P-582S
		MeOH	P-377S	Disulfoton sulfoxide	2497-07-6	NEAT	P-593N
Diflufenican	83164-33-4	NEAT	P-722N			MeOH	P-593S
		MeOH	P-722S	Disyston	see Disulfoton		
2,3-Dihydro-2,2-dimethylbenzofuran-7-ol		NEAT	P-628N	Ditalimfos	5131-24-8	NEAT	P-546N
1563-38-8		MeOH	P-628S			MeOH	P-546S
Dimecron	see Phosphamidon			Dithane D-14	see Nabam		
Dimefox	115-26-4	NEAT	P-299N	Dithianon	3347-22-6	NEAT	P-725N
		MeOH	P-299S			Acetone	P-725S-A
Dimefuron	34205-21-5	NEAT	P-565N	Dithiopyr	97886-45-8	NEAT	P-741N
		MeOH	P-565S			MeOH	P-741S
Dimepax	22936-75-0	NEAT	P-643N	Diuron	see Karmex		
		MeOH	P-643S	2,3-Diuron	10290-37-6	NEAT	P-632N
Dimepiperate	61432-55-1	50 µg/mL Acetone	P-1020S-A-0.5X			MeOH	P-632S
Dimetate	see Dimethoate			DMST	66840-71-9	MeOH	P-572S
Dimethachlor	50563-36-5	NEAT	P-642N	DNBP	see Dinoseb		
		MeOH	P-642S	DNOC	see 4,6-Dinitro-o-cresol		
Dimethenamid	87674-68-8	NEAT	P-747N	DNTP	see Parathion		
		MeOH	P-747S	Dodemorph acetate	31717-87-0	NEAT	P-385N
Dimethenamide-P	163515-14-8	NEAT	P-934S			MeOH	P-385S
		MeOH	P-934S	Dodine	2439-10-3	NEAT	P-386N
Dimethipin	55290-64-7	NEAT	P-483N			MeOH	P-386S
		MeOH	P-483S	Doguidine	see Dodine		
Dimethoate	60-51-5	NEAT	P-039N	Doramectin NEW	117704-25-3	NEAT	P-935N
		MeOH	P-039S			AcCN	P-935S-CN
Dimethomorph	110488-70-5	NEAT	P-713N	Dowpon	see Dalapon acid		
		MeOH	P-713S	Dozer	see Fenuron-TCA		
Dimethylarsinic acid NEW	75-60-5	NEAT	P-1075N	2,4-DP ethyl hexyl	79270-78-3	NEAT	P-429N
		MeOH	P-1075S			MeOH	P-429S
Dimethylvinphos (Z type) NEW	67628-93-7	Acetone	P-1057S-A				

* V-Rated packaging surcharge applies for international shipments

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Pesticide Standards

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

▶ 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.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Fenothiocarb	62850-32-2	MeOH	P-1021S	Flufenacet NEW	142459-58-3	AcCN	P-902S-CN
		50 µg/mL MeOH	P-1021S-0.5X	Flufenoxuron	101463-69-8	NEAT	P-687N
Fenoxanil	115852-48-7	NEAT	P-997N	Flumetralin	62924-70-3	NEAT	P-491N
		MeOH	P-997S			MeOH	P-491S
Fenoxaprop	95617-09-7	NEAT	P-884N	Flumetsulam	98967-40-9	NEAT	P-659N
		MeOH	P-884S			MeOH	P-659S
Fenoxaprop-ethyl	66441-23-4	NEAT	P-365N	Flumiclorac-pentyl	87546-18-7	NEAT	P-993N
		MeOH	P-365S			MeOH	P-993S
Fenoxaprop-p-ethyl	71283-80-2	NEAT	P-694N	Flumioxazin	103361-09-7	CH ₂ Cl ₂	P-992S-D
		MeOH	P-694S	Fluometuron	2164-17-2	NEAT	P-014N
Fenoxycarb	79127-80-3	NEAT	P-686N	Fluopicolide	239110-15-7	MeOH	P-014S
		MeOH	P-686S			NEAT	P-1024N
Fenpropathrin	see Danitol			Acetone			P-1024S-A
Fenpropidin	67306-00-7	NEAT	P-802N	Fluopyram NEW	658066-35-4	MeOH	P-1094S
		MeOH	P-802S	Fluoxastrobin NEW	361377-29-9	AcCN	P-963S-CN *
Fenpropimorph	67564-91-4	NEAT	P-705N	Fluquinconazole NEW	136426-54-5	NEAT	P-878N
		MeOH	P-705S			AcCN	P-878S-CN
Fenpyroximate	111812-58-9	NEAT	P-724N	Flurenol methyl ester	1216-44-0	NEAT	P-412N
		MeOH	P-724S			MeOH	P-412S
Fenson	80-38-6	NEAT	P-551N	Fluridone	59756-60-4	NEAT	P-193N
		MeOH	P-551S			MeOH	P-193S
Fensulfthion	see Dasanit			Flurochloridon	61213-25-0	NEAT	P-647N
Fenthion	55-38-9	NEAT	P-148N	Flurodifen	15457-05-3	MeOH	P-647S
		MeOH	P-148S			NEAT	P-676N
Fenthion-sulfone NEW	3761-42-0	AcCN	P-953S-CN	Fluroxypyr	69377-81-7	MeOH	P-676S
Fenthion sulfoxide NEW	3761-41-9	NEAT	P-1052N			Fluroxypyr-1-methylheptyl ester	81406-37-3
Fentin acetate	900-95-8	CH ₂ Cl ₂	P-1052S-D	NEAT		NEAT	P-927N
		NEAT	P-680N	MeOH		MeOH	P-927S
Fentin chloride	see Triphenyltin chloride			Flurprimidol NEW	56425-91-3	NEAT	P-1155N
Fentin hydroxide NEW	76-87-9	MeOH	P-680S	Flusilazole	85509-19-9	NEAT	P-578N
		NEAT	P-1042N			MeOH	P-578S
Fenuron	101-42-8	AcCN	P-1042S-CN	Fluthiacet-methyl NEW	117337-19-6	AcCN	P-1095S-CN *
		NEAT	P-004N	Flutolanil	66332-96-5	NEAT	P-587N
Fenuron-TCA	4482-55-7	MeOH	P-004S	Flutriafol	76674-21-0	MeOH	P-587S
		NEAT	P-006N			NEAT	P-699N
Fenvalerate	51630-58-1	MeOH	P-006S	Tau-Fluvalinate	102851-06-9	MeOH	P-699S
		NEAT	P-194N			NEAT	P-356N
Ferbam	14484-64-1	MeOH	P-194S *	Fluxapyroxad NEW	907204-31-3	MeOH	P-356S
		NEAT	P-110N			AcCN	P-356S-CN
Ferber K	see Ferbam			AcCN		AcCN	P-1150S-CN
Ficam	see Bendiocarb			Folbex	see Chlorobenzilate		
Fipronil	120068-37-3	NEAT	P-738N	Folex	see Merphos		
		MeOH	P-738S *	Folosan	see Pentachloronitrobenzene		
Fipronil desulfinyl	120067-83-6	Acetone	P-738S-A	Folpet	133-07-3	NEAT	P-258N
		Acetone	P-782S-A	Fomesafen	72178-02-0	MeOH	P-258S
Fipronil sulfide	120068-36-2	Acetone	P-781S-A	Fonofos	see Dyfonate	NEAT	P-907N
		5 mg	P-781N-5MG			MeOH	P-907S
Fipronil sulfone	120068-36-2	Acetone	P-780S-A	Foramsulfuron	173159-57-4	NEAT	P-852N
Flamprop-methyl	52756-25-9	NEAT	P-366N	Forchlorfenuron NEW	68157-60-8	AcCN	P-852S-CN
		MeOH	P-366S			NEAT	P-753N
Flazasulfuron	104040-78-0	AcCN	P-826S-CN	Formetanate HCl	23422-53-9	MeOH	P-753S
Flonicamid	158062-67-0	NEAT	P-926N			NEAT	P-431N
Florasulam	145701-23-1	MeOH	P-926S	Formothion	2540-82-1	MeOH	P-431S
		AcCN	P-827S-CN-0.1X			NEAT	P-149N
Fluacrypyrim NEW	229977-93-9	MeOH	P-1056S	Fosetyl aluminum	39148-24-8	AcCN	P-149S-CN
Fluazifop-butyl	69806-50-4	NEAT	P-310N			NEAT	P-532N
Fluazifop-p-butyl	79241-46-6	MeOH	P-310S	Fosthiazate NEW	98886-44-3	MeOH	P-532S
		NEAT	P-601N			AcCN	P-828S-CN
Fluazinam	79622-59-6	MeOH	P-601S	Frescon	see Trifenmorph		
		NEAT	P-586N	Frumidor	see Thiophanate-methyl		
Flubendiamide	272451-65-7	MeOH	P-586S	Fuberidazole NEW	3878-19-1	AcCN	P-789S-CN *
		NEAT	P-1025N	Fumazone	96-12-8	NEAT	P-341N
Flucarbazone-sodium NEW	181274-17-9	AcCN	P-1025S-CN	Furadan	see Carbofuran	MeOH	P-341S
		NEAT	P-1124N			Furalaxyl	57646-30-7
Fluchloralin	33245-39-5	AcCN	P-1124S-CN	Furathiocarb	65907-30-4	MeOH	P-605S
		NEAT	P-270N			NEAT	P-569N
Flucythrinate	70124-77-5	MeOH	P-270S	Furilazole NEW	121776-33-8	MeOH	P-569S
		NEAT	P-378S *			AcCN	P-810S-CN
Fluidioxonil	131341-86-1	NEAT	P-698N	Furmecyclox	60568-05-0	MeOH	P-607S
		MeOH	P-698S				

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Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>Furore</i>	see Fenoxaprop-ethyl			<i>Hoxan</i>	see Dichlofop methyl		
<i>Fusilade</i>	see Fluazifop-butyl			Hydramethylnon	67485-29-4	NEAT	P-403N
<i>Galtak</i>	see Benazolin					MeOH	P-403S
<i>Gardona</i>	see Tetrachlorvinphos			2-Hydroxyatrazine	2163-68-0	MeOH	P-326S
<i>Gardoprim</i>	see Terbutylazine			3-Hydroxycarbofuran	16655-82-6	MeOH	P-186S
<i>Garlon</i>	see Triclopyr			1-Hydroxychlorodene	24009-05-0	MeOH	P-151S
<i>Garrathion</i>	see Carbophenothion			Hymexazol	10004-44-1	MeOH	P-571S
<i>Gesaftram</i>	see Prometon			<i>Hyvar</i>	see Bromacil		
<i>Gesagard</i>	see Prometryne			<i>Illoxan</i>	see Dichlofop methyl		
<i>Gesamil</i>	see Propazine			Imazalil	35554-44-0	NEAT	P-332N
<i>Gesapax</i>	see Ametryn					MeOH	P-332S
<i>Gesaprim</i>	see Atrazine			Imazamethabenz methyl	81405-85-8	NEAT	P-414N
Gesatamine	1610-17-9	NEAT	P-189N			MeOH	P-414S
		MeOH	P-189S	Imamazox NEW	114311-32-9	NEAT	P-806N
<i>Gesatop</i>	see Simazine					AcCN	P-806S-CN
<i>Gexane</i>	see Lindane			Imazapic NEW	104098-48-8	NEAT	P-1063N
Glufosinate, ammonium salt	77182-82-2	NEAT	P-475N			MeOH	P-1063S
		MeOH	P-475S	Imazapyr ▶	81334-34-1	NEAT	P-589N
Glyodin	556-22-9	NEAT	P-528N			MeOH	P-589S
		MeOH	P-528S	Imazaquin	81335-37-7	AcCN	P-589S-CN
Glyphosate	1071-83-6	NEAT	P-015N			NEAT	P-283N
		H2O	P-015S-W			MeOH	P-283S *
<i>Goal</i>	see Oxyfluorfen			Imazethapyr	81335-77-5	MeOH	P-285S
<i>Goltix</i>	see Metamitron			Imazosulfuron	122548-33-8	AcCN	P-853S-CN-0.1X
<i>Grasidin</i>	see Sethoxydim					10 µg	
<i>Grasp</i>	see Tralkoxydim			Imibenconazole	86598-92-7	AcCN	P-1019S-CN-0.5X
Guazatine acetate	115044-19-4	MeOH	P-612S			50 µg	
<i>Gusathion M</i>	see Azinphos-methyl			Imidacloprid	138261-41-3	NEAT	P-596N
<i>Guthion</i>	see Azinphos-methyl					MeOH	P-596S
<i>Gy-bon</i>	see Simetryn			Imidan	732-11-6	NEAT	P-055N
Halfenprox NEW	111872-58-3	10 µg/mL	P-1050S-0.1X			MeOH	P-055S
		MeOH		Imiprothrin NEW	72963-72-5	AcCN	P-983S-CN *
Halofenozide NEW	112226-61-6	AcCN	P-804S-CN *	Indalone	532-34-3	NEAT	P-648N
Halosulfuron methyl NEW	100784-20-1	AcCN	P-1089S-CN *			MeOH	P-648S
Haloxypop ▶	69806-34-4	NEAT	P-496N	Indanofan	133220-30-1	NEAT	P-988N
		MeOH	P-496S			MeOH	P-988S
		AcCN	P-496S-CN	Indaziflam NEW	950782-86-2	AcCN	P-1168S-CN
Haloxypop-methyl	69806-40-2	NEAT	P-497N	Indoxacarb	144171-61-9	NEAT	P-829N
		MeOH	P-497S			AcCN	P-829S-CN
<i>Hanane</i>	see Dimefox			<i>Ingran 80W</i>	see Prebane		
<i>Hedonal</i>	see MCPP acid			<i>INPC</i>	see Propham		
<i>Helothion</i>	see Bolstar			Iodofenphos	18181-70-9	NEAT	P-379N
<i>HEOD</i>	see Dieldrin					MeOH	P-379S
Heptachlor	76-44-8	NEAT	P-053N	Iodosulfuron-methyl-sodium	144550-36-7	NEAT	P-830N
		MeOH	P-053S			AcCN	P-830S-CN
Heptachlor epoxide [Isomer A]	28044-83-9	MeOH	P-294S	Ioynil	1689-83-4	NEAT	P-522N
Heptachlor epoxide [Isomer B]	1024-57-3	NEAT	P-054N			MeOH	P-522S
		MeOH	P-054S	<i>IPB</i>	see Iprobenfos		
<i>2-Hepta-decyl-2-imidazoline</i>	see Glyodin			<i>IPC</i>	see Propham		
<i>Heptamul</i>	see Heptachlor			Ipconazole NEW	125225-28-7	AcCN	P-958S-CN *
Heptenophos	23560-59-0	NEAT	P-547N	Iprobenfos	26087-47-8	NEAT	P-609N
		MeOH	P-547S			MeOH	P-609S
<i>Heptox</i>	see Heptachlor			Iprodione	36734-19-7	NEAT	P-016N
<i>Herald</i>	see Danitol					Acetone	P-016S-A
<i>Herb-All</i>	see MSMA					AcCN	P-016S-CN
<i>Herkol</i>	see Dichlorvos			Iprovalicarb	140923-17-7	NEAT	P-831N
Hexaconazole	79983-71-4	NEAT	P-500N			AcCN	P-831S-CN
		MeOH	P-500S	Irgarol	28159-98-0	NEAT	P-746N
Hexaflumuron	86479-06-3	NEAT	P-697N			MeOH	P-746S
		MeOH	P-697S *	Isazophos	42509-80-8	NEAT	P-449N
Hexamethylphosphoramide	680-31-9	NEAT	P-205N			MeOH	P-449S
		MeOH	P-205S	Isobenzan	297-78-9	MeOH	P-323S
Hexazinone	51235-04-2	NEAT	P-123N	Isobenzofuranone	87-41-2	NEAT	P-1022N
		MeOH	P-123S			MeOH	P-1022S
<i>Hexylthiocarbam</i>	see Cycloate			Isocarbamid NEW	30979-48-7	AcCN	P-880S-CN
Hexythiazox	78587-05-0	NEAT	P-658N	Isocarbophos NEW	24353-61-5	NEAT	P-893N
		MeOH	P-658S			AcCN	P-893S-CN
<i>Hoe 2810</i>	see Linuron			Isodrin	465-73-6	NEAT	P-471N
<i>Hoelon</i>	see Dichlofop methyl					MeOH	P-471S
<i>Horbadox</i>	see Pendimethalin			Isufenphos	25311-71-1	NEAT	P-018N
<i>Hostathion</i>	see Triazophos					MeOH	P-018S

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

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.

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



Pesticide Standards

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

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Pesticides

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Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Nitenpyram	120738-89-8	NEAT	P-858N	Oxycarboxin	5259-88-1	NEAT	P-391N
		AcCN	P-858S-CN			MeOH	P-391S
Nitralin	4726-14-1	NEAT	P-583N	Oxychlorthane Isomer	27304-13-8	MeOH	P-331S
		MeOH	P-583S		10 µg/mL in	MeOH	P-331S-0.1X
Nitrapyrin	1929-82-4	NEAT	P-489N	Oxydemeton-methyl	301-12-2	Hexane	P-331S-H
		MeOH	P-489S	Oxyfluorfen	42874-03-3	MeOH	P-290S
4-Nitroanisole	100-17-4	NEAT	P-273N			NEAT	P-277N
		MeOH	P-273S			MeOH	P-277S
Nitrofen	1836-75-5	NEAT	P-363N	Oxythioquinox	see Chinomethionate		
		MeOH	P-363S	Paarlan	see Isopropalin		
Nitrothal-isopropyl	10552-74-6	NEAT	P-695N	Paraoxon	311-45-5	NEAT	P-453N
		MeOH	P-695S			MeOH	P-453S
Nix-Scald	see Ethoxyquin			Paraquat dichloride tetrahydrate	1910-42-5	NEAT	P-051N *
Nomersan	see TEPP					MeOH	P-051S
cis-Nonachlor	5103-73-1	NEAT	P-297N	Parathion	56-38-2	NEAT	P-070N
		MeOH	P-297S			MeOH	P-070S
trans-Nonachlor	39765-80-5	NEAT	P-184N	Paridol	see Methyl parathion		
		MeOH	P-184S	PCA	see Pyrazon		
Norflurazon	27314-13-2	NEAT	P-217N	PCNB	see Pentachloronitrobenzene		
		MeOH	P-217S	PCP methyl ether	see Pentachloroanisole		
Norflurazon-desmethyl NEW	23576-24-1	AcCN	P-1129S-CN *	PDU	see Fenuron		
Novaluron	116714-46-6	5 mg	P-966N-5MG	PEBC	see Tillam		
		MeOH	P-966S	Pebulate	see Tillam		
Noviflumuron NEW	121451-02-3	AcCN	P-967S-CN *	Penconazole	66246-88-6	NEAT	P-450N
Nuarimol	see Trimidal					MeOH	P-450S
Nucidol	see Diazinon			Pencycuron	66063-05-6	NEAT	P-358N
Nuvacron	see Monocrotophos					MeOH	P-358S
Nuvanol	see Iodofenphos			Pendimethalin	40487-42-1	NEAT	P-097N
Octachlor	see Chlordane					MeOH	P-097S
Octacide 264	see MGK 264			Penoxalin	see Pendimethalin		
Octalox	see Dieldrin			Penoxsulam NEW	219714-96-2	MeOH	P-1046S
Octamethylpyrophosphoramidate	see Schradan			Pentachloroaniline	527-20-8	NEAT	P-875N
Ochthilione NEW	26530-20-1	NEAT	P-788N			AcCN	P-875S-CN
		AcCN	P-788S-CN	Pentachloroanisole	1825-21-4	NEAT	P-199N
OFF	see Deet					MeOH	P-199S
Oftanol	see Isofenphos			Pentachloronitrobenzene	82-68-8	NEAT	P-113N
Ofurace	58810-48-3	10 µg/mL	P-653S-TP-0.1X			MeOH	P-113S
		Isooctane		Pentanochlor NEW	2307-68-8	NEAT	P-1067N
Omethoate	1113-02-6	NEAT	P-121N			MeOH	P-1067S
		MeOH	P-121S	Penthiopyrad NEW	183675-82-3	AcCN	P-1131S-CN *
Omite	see Propargite			Pentoxazone NEW	110956-75-7	MeOH	P-1051S-0.1X
OMPA	see Schradan			Permethrin (cis/trans)	52645-53-1	NEAT	P-128N
Omtan	see Isobenzan					MeOH	P-128S
Option	see Fenoxaprop-ethyl			Perthane	72-56-0	NEAT	P-162N
Orbencarb	34622-58-7	NEAT	P-433N			MeOH	P-162S
		MeOH	P-433S	Peropal	see Azocyclotin		
Orbit	see Tilt			Pestox III	see Schradan		
Ordram	see Molinate			Pethoxamid NEW	106700-29-2	NEAT	P-1047N
Ornamec	see Fluazifop-p-butyl					MeOH	P-1047S
Orthene	see Acephate			Phenacide	see Toxaphene		
Orthocide	see Captan			Phenamiphos	see Fenamiphos		
Orthosulfamuron NEW	213464-77-8	Acetone	P-1045S-A	Phenmedipham	13684-63-4	NEAT	P-392N
Oryzalin	19044-88-3	NEAT	P-043N			MeOH	P-392S
		MeOH	P-043S	Phenothiazine	92-84-2	NEAT	P-579N
Outfox	see Cyprazine					MeOH	P-579S
Ovex	80-33-1	NEAT	P-425N	Phenothrin	see Sumithrin		
		MeOH	P-425S	Phenthoate	2597-03-7	NEAT	P-476N
Ovochlor	see Ovex					MeOH	P-476S
Oxabetrinil	74782-23-3	NEAT	P-995N	Phenyl mercury acetate	62-38-4	NEAT	P-393N
		MeOH	P-995S			MeOH	P-393S
Oxadiargyl	39807-15-3	NEAT	P-1031N	o-Phenylphenol	90-43-7	NEAT	P-460N
		AcCN	P-1031S-CN			MeOH	P-460S
Oxadiazon	19666-30-9	NEAT	P-236N	Phenyl valerate	20115-23-5	NEAT	P-734N
		MeOH	P-236S			MeOH	P-734S
Oxadixyl	77732-09-3	NEAT	P-560N	Phorate	298-02-2	NEAT	P-170N *
		MeOH	P-560S			MeOH	P-170S
Oxamyl	23135-22-0	NEAT	P-161N	Phorate-oxon	2600-69-3	10 µg/mL	P-1018S-F0.1X
		MeOH	P-161S			Toluene	
Oxamyl oxime NEW	30558-43-1	AcCN	P-1138S-CN	Phorate-oxon sulfone NEW	2588-06-9	AcCN	P-1161S-CN
Oxasulfuron	144651-06-9	NEAT	P-859N	Phorate-oxon sulfoxide NEW	2588-05-8	AcCN	P-1153S-CN
		AcCN	P-859S-CN	Phorate sulfone	2588-04-7	Hexane	P-655S-H
Oxaziclomefone NEW	153197-14-9	MeOH	P-1066S				

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

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Phorate sulfoxide	2588-03-6	NEAT	P-732N	Prodiamine	29091-21-2	NEAT	P-739N
		MeOH	P-732S			MeOH	P-739S
Phosalone	2310-17-0	NEAT	P-163N	Profenofos	41198-08-7	NEAT	P-260N
		MeOH	P-163S			MeOH	P-260S
<i>Phosdrin</i>	see Mevinphos			Profluoralin	26399-36-0	NEAT	P-099N
<i>Phosethoprop</i>	see Ethoprop					MeOH	P-099S
Phosfolan	947-02-4	NEAT	P-234N	Prohexadione-calcium NEW	127277-53-6	NEAT	P-1068N
		MeOH	P-234S			Water	P-1068S-W
<i>Phosmet</i>	see Imidan			<i>Prolate</i>	see Imidan		
Phosmet oxon	3735-33-9	Toluene	P-733S-T	Promecarb	2631-37-0	NEAT	P-265N
		NEAT	P-075N			MeOH	P-265S
Phosphamidon	13171-21-6	MeOH	P-075S	Prometon	1610-18-0	NEAT	P-077N
						MeOH	P-077S
<i>Phosphothion</i>	see Malathion			Prometryne	7287-19-6	NEAT	P-078N
<i>Phosvel</i>	see Leptophos					MeOH	P-078S
Phoxim	14816-18-3	NEAT	P-357N	Pronamide	23950-58-5	NEAT	P-164N
		MeOH	P-357S			MeOH	P-164S
<i>Phthalide</i>	see 1-Isobenzofuranone			Propachlor	1918-16-7	NEAT	P-215N
<i>Phthalthrin</i>	see Tetramethrin					MeOH	P-215S
Picloram	1918-02-1	NEAT	P-047N	Propamacarb	24579-73-5	NEAT	P-312N
		MeOH	P-047S			MeOH	P-312S
Picloram methyl ester	14143-55-6	NEAT	P-198N	Propamacarb hydrochloride NEW	25606-41-1	AcCN	P-1137S-CN *
		MeOH	P-198S			NEAT	P-049N
Picolinafen NEW	137641-05-5	NEAT	P-1061N	Propanil	709-98-8	MeOH	P-049S
		MeOH	P-1061S			NEAT	P-908N
<i>4-Picoline</i>	see 4-Aminopyridine			Propaquizafop	111479-05-1	MeOH	P-908S
Picoxystrobin	117428-22-5	NEAT	P-860N			Propargite	2312-35-8
		AcCN	P-860S-CN	MeOH	P-251S		
Pindone	83-26-1	NEAT	P-394N	Propazine	139-40-2	NEAT	P-079N
		MeOH	P-394S			MeOH	P-079S
Pinoxaden NEW	243973-20-8	NEAT	P-1154N	Propetamphos	31218-83-4	NEAT	P-417N
		AcCN	P-1154S-CN			MeOH	P-417S
Piperalin	3478-94-2	NEAT	P-663N	Propham	122-42-9	NEAT	P-052N
		MeOH	P-663S			MeOH	P-052S
Piperonyl butoxide	51-03-6	NEAT	P-348N	<i>Prophos</i>	see Ethoprop		
		MeOH	P-348S	<i>Propiconazole</i>	see Tilt		
Piperophos	24151-93-7	NEAT	P-656N	Propineb	12071-83-9	NEAT	P-608N
Pirimicarb	23103-98-2	NEAT	P-304N	<i>Propoxur</i>	see Baygon		
		MeOH	P-304S	Propoxycarbazone-sodium	181274-15-7	NEAT	P-1014N
Pirimicarb-desmethyl NEW	30614-22-3	AcCN	P-1139S-CN			Propylenethiourea (PTU)	2055-46-1
		NEAT	P-328N	NEAT	P-861N		
Pirimiphos-ethyl	23505-41-1	MeOH	P-328S	AcCN	P-861S-CN		
		NEAT	P-305N				
Pirimiphos-methyl	29232-93-7	NEAT	P-305N	<i>Propyzamide</i>	see Pronamide		
		MeOH	P-305S	Proquinazid NEW	189278-12-4	AcCN	P-1156S-CN
<i>Pirimor</i>	see Pirimicarb			Prosulfocarb	52888-80-9	NEAT	P-742N
<i>Pival</i>	see Pindone			MeOH	P-742S		
<i>PMA</i>	see Phenyl mercury acetate			Prosulfuron	94125-34-5	NEAT	P-834N
<i>Polytrin</i>	see Cypermethrin					AcCN	P-834S-CN
Potassium dimethyl dithiocarbamate	128-03-0	AcCN	P-714S-CN *	<i>Protector 3L</i>	see Busan		
Potassium n-hydroxymethyl-n-methyl dithiocarbamate	51026-28-9	AcCN	P-715S-CN *	<i>Protex</i>	see Rotenone		
Prallethrin	23031-36-9	MeOH	P-667S	Prothioconazole NEW	178928-70-6	AcCN	P-965S-CN
				<i>Prothiophos</i>	see Tokuthion		
<i>Pramitol</i>	see Prometon			<i>Prowl</i>	see Pendimethalin		
Prebane	886-50-0	NEAT	P-119N	Proximpam NEW	2828-42-4	NEAT	P-1081N
		MeOH	P-119S			MeOH	P-1081S
<i>Preeglone</i>	see Paraquat CL			<i>Pursuit</i>	see Imazethapyr		
<i>Prefar</i>	see Bensulide			Pymetrozin	123312-89-0	NEAT	P-835N
<i>Premerg</i>	see Trichlorfon			AcCN	P-835S-CN		
Pretilachlor	51218-49-6	NEAT	P-485N	<i>Pynamin</i>	see Allethrin		
		MeOH	P-485S	Pyracarbolid NEW	24691-76-7	AcCN	P-792S-CN *
<i>Primatol P</i>	see Propazine			Pyraclifos	77458-01-6	MeOH	P-716S
<i>Primatol Q</i>	see Prometryne			Pyraclostrobin	175013-18-0	NEAT	P-863N
<i>Primatol S</i>	see Simazine					AcCN	P-863S-CN
<i>Primaze</i>	see Prometryne			Pyraflufen-ethyl	129630-19-9	NEAT	P-1015N
<i>Primicid</i>	see Pirimiphos-ethyl					Acetone	P-1015S-A
Primisulfuron-methyl	86209-51-0	NEAT	P-833N	Pyrasulfotole NEW	365400-11-9	AcCN	P-1144S-CN
		AcCN	P-833S-CN			NEAT	P-395N
<i>Princep</i>	see Simazine			Pyrazon	1698-60-8	MeOH	P-395S
Probenazole	27605-76-1	NEAT	P-710N	Pyrazophos	13457-18-6	NEAT	P-359N
		Acetone	P-710S-A			MeOH	P-359S
Prochloraz	67747-09-5	NEAT	P-549N	Pyrazoxyfen	71561-11-0	NEAT	P-618N
		MeOH	P-549S			MeOH	P-618S
Procymidone	32809-16-8	NEAT	P-430N	Pyrethrins	8003-34-7	NEAT	P-187N
		MeOH	P-430S			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.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Pyrethrum	see Pyrethrins			Schradan	152-16-9	NEAT	P-418N
Pyributicarb	88678-67-5	MeOH	P-987S			MeOH	P-418S
Pyridaben	96489-71-3	NEAT	P-693N	Sebuthylazine	7286-69-3	NEAT	P-432N
		MeOH	P-693S			MeOH	P-432S
Pyridalyl	179101-81-6	NEAT	P-990N	Secbumeton	26259-45-0	NEAT	P-165N
		MeOH	P-990S			MeOH	P-165S
Pyridaphenthion	119-12-0	MeOH	P-610S	Select	see Clethodim		
Pyridate	55512-33-9	NEAT	P-404N	Sencor	see Metribuzin		
		MeOH	P-404S	Sethoxydim	74051-80-2	NEAT	P-306N
Pyrifluquinazon NEW	337458-27-2	AcCN	P-1093S-CN			AcCN	P-306S-CN *
Pyrimethanil	53112-28-0	NEAT	P-723N	Sevin	see Carbaryl		
		MeOH	P-723S	Siduron	1982-49-6	NEAT	P-063N
Pyrimidifen	105779-78-0	MeOH	P-989S			MeOH	P-063S
Pyriminil	see Vacor			Silafluofen	105024-66-6	NEAT	P-717N
(E)-Pyriminobac-methyl	147411-69-6 50 µg/mL	MeOH	P-1030S-0.5X			MeOH	P-717S
Pyriphenox	88283-41-4	MeOH	P-668S	Silmurix	see Schradan		
Pyriproxyfen	95737-68-1	NEAT	P-795N	Silvex ▶	93-72-1	NEAT	P-084N
		AcCN	P-795S-CN			MeOH	P-084S
Pyron	see Pyridate					AcCN	P-084S-CN
Pyroquilon	57369-32-1	NEAT	P-696N	Silvex 2-ethylhexyl ester	53404-76-5	NEAT	P-728N
		MeOH	P-696S			MeOH	P-728S
Pyroxsulam NEW	422556-08-9	NEAT	P-1060N	Silvex methyl ester	4841-20-7	NEAT	P-115N
		MeOH	P-1060S			MeOH	P-115S
Queletox	see Fenthion			Simazine	122-34-9	NEAT	P-085N
Quinalphos	13593-03-8	NEAT	P-462N			MeOH	P-085S
		MeOH	P-462S	Simeton	673-04-1	NEAT	P-501N
Quinclorac ▶	84087-01-4	NEAT	P-692N			MeOH	P-501S
		MeOH	P-692S	Simetryn	1014-70-6	NEAT	P-166N
		AcCN	P-692S-CN			MeOH	P-166S
Quinmerac	90717-03-6	NEAT	P-836N	Sinbar	see Terbacil		
		AcCN	P-836S-CN	Siperin	see Cypermethrin		
Quinoclamine	2797-51-5	NEAT	P-985N	Sipscasan	see Thiophanate-methyl		
		MeOH	P-985S	Sodium diethyldithiocarbamate trihydrate	20624-25-3	NEAT	P-505N
Quinoxifen	124495-18-7	5 mg	P-882N-5MG			H ₂ O	P-505S-W
		MeOH	P-882S	Solfac	see Cyfluthrin		
Quintozene	see Pentachloronitrobenzene			Sonalan	see Ethalfuralin		
Quizalofop ethyl	76578-14-8	NEAT	P-293N	Sonar	see Fluridone		
		AcCN	P-293S-CN	Spike	see Tebuthiuron		
Racumin	see Coumatetralyl			Spinetoram NEW	187166-40-1 / 187166-15-0 / mix of isomers J & L	AcCN	P-1083S-CN
Radapon	see Dalapon acid						
Ramrod	see Propachlor			Spirodiclofen	148477-71-8	NEAT	P-938N
Reglone	see Diquat dibromide					MeOH	P-938S
Resmethrin	10453-86-8	NEAT	P-325N	Spiromesifen	283594-90-1	AcCN	P-960S-CN
		MeOH	P-325S	Spirotetramat NEW	203313-25-1	NEAT	P-1077N
Rezifilm	see Thiram					AcCN	P-1077S-CN
Rimsulfuron	122931-48-0	NEAT	P-837N	Spinosad	168316-95-8	NEAT	P-864N
		AcCN	P-837S-CN *			AcCN	P-864S-CN
Rogor	see Dimethoate			Spiroxamine	118134-30-8	NEAT	P-869N
Rogue	see Propanil					AcCN	P-869S-CN
Ronilan	see Vinclozolin			Stam F-34	see Propanil		
Ronnel	299-84-3	NEAT	P-080N	Stirofos	see Tetrachlorvinphos		
		MeOH	P-080S	Stomp	see Pendimethalin		
Ronstar	see Oxadiazon			Strobane	8001-50-1	NEAT	P-339N
Rospin	see Chloropropylate					MeOH	P-339S
Rotenone	83-79-4	NEAT	P-056N	Suffix	see Benzoylprop ethyl		
		MeOH	P-056S *	Sulcontrione	99105-77-8	NEAT	P-951N
Roundup	see Glyphosate					MeOH	P-951S
Rovral	see Iprodione			Sulfallate	95-06-7	NEAT	P-327N
Roxion	see Dimethoate					MeOH	P-327S
Rubigan	see Bloc			Sulfentrazone NEW	122836-35-5	NEAT	P-798N
Ruelene	see Crufomate					AcCN	P-798S-CN
S421	127-90-2	NEAT	P-749N	Sulfometuron methyl ester	74222-97-2	NEAT	P-336N
		MeOH	P-749S	Sulfaquinoxaline	59-40-5	MeOH	P-681S
SADH	see Alar			Sulfosulfuron	141776-32-1	10 µg/mL	P-865S-CN-0.1X
Saflufenacil NEW	372137-35-4	NEAT	P-1078N			AcCN	
		MeOH	P-1078S	Sulfotep	3689-24-5	NEAT	P-167N
Safrotin	see Propetamphos					MeOH	P-167S
Sancap	see Dipropetryn			Sulfox-cide	see Sulfoxide		
Sanmarton	see Fenvalerate			Sulfoxide	120-62-7	NEAT	P-396N
Scepter	see Imazaquin					MeOH	P-396S

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Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>Sulfoxyl</i>	see Sulfoxide			Terbufos	13071-79-9	NEAT MeOH	P-208N P-208S
<i>Sulprofos</i>	see Bolstar			Terbufos sulfone	56070-16-7	MeOH	P-729S
<i>Sumicidin</i>	see Fenvalerate			Terbufos sulfoxide	10548-10-4	NEAT MeOH	P-730N P-730S
<i>Sumifyl</i>	see Fenvalerate			Terbumeton	33693-04-8	NEAT MeOH	P-504N P-504S
<i>Sumipower</i>	see Fenvalerate			Terbuthylazine	5915-41-3	NEAT MeOH	P-169N P-169S
Sumithrin	26002-80-2	NEAT MeOH	P-050N P-050S	Terbuthylazine desethyl	30125-63-4	NEAT MeOH	P-613N P-613S
<i>Sumitol</i>	see Secbumeton			Terbutol	1918-11-2	NEAT MeOH	P-464N P-464S
<i>Summit</i>	see Triadimenol			<i>Terbutryn</i>	see Prebane		
<i>Super X</i>	see Terrazole			<i>Terpene polychlorinates</i>	see Strobane		
<i>Supracide</i>	see Methidathion			<i>Terraclor</i>	see Pentachloronitrobenzene		
<i>Surcopur</i>	see Propanil			<i>Terracur P</i>	see Dasanit		
<i>Surflan</i>	see Oryzalin			Terrazole	2593-15-9	NEAT MeOH	P-190N P-190S
<i>Sutan</i>	see Butylate			<i>Terre-Sytam</i>	see Dimefox		
<i>Swebate</i>	see Abate			<i>Tersan</i>	see Thiram		
Sweep	1918-18-9	NEAT MeOH	P-061N P-061S	<i>Tersan SP</i>	see Chloroneb		
<i>Systhane</i>	see Myclobutanil			1,2,3,4-Tetrachlorobenzene	634-66-2	NEAT MeOH	P-999N P-999S
<i>Systox</i>	see Demeton			1,2,3,5-Tetrachlorobenzene	634-90-2	NEAT Isooctane	P-1001N P-1001S-TP
2,4,5-T acid ▶	93-76-5	NEAT MeOH AcCN	P-168N P-168S P-168S-CN	1,2,4,5-Tetrachlorobenzene	95-94-3	NEAT MeOH	P-1003N P-1003S
2,4,5-T butoxyethyl ester	2545-59-7	NEAT AcCN	P-441N P-441S-CN	1,2,3,4-Tetrachloro-5-nitrobenzene	879-39-0	NEAT MeOH	P-1000N P-1000S
2,4,5-T n-butyl ester	93-79-8	NEAT AcCN	P-440N P-440S-CN	2,3,5,6-Tetrachloronitrobenzene	117-18-0	NEAT MeOH	P-467N P-467S
2,4,5-T methyl ester	1928-37-6	NEAT MeOH	P-067N P-067S	Tetrachlorvinphos	961-11-5	NEAT MeOH	P-125N P-125S
2,4,6-T ▶	575-89-3	NEAT MeOH AcCN	P-523N P-523S P-523S-CN	Tetraconazole	112281-77-3	NEAT MeOH	P-721N P-721S
<i>Talstar</i>	see Bifenthrin			Tetradifon	116-29-0	NEAT MeOH	P-261N P-261S
<i>Tame</i>	see Danitol			cis-d4-Tetrahydrophthalimide	1469-48-3	MeOH	P-116S
<i>Tamaron</i>	see Monitor			1,2,3,6-Tetrahydrophthalimide	85-40-5	NEAT MeOH	P-621N P-621S
<i>Tamogan</i>	see Bromadiolone			Tetramethrin	7696-12-0	NEAT MeOH	P-406N P-406S
<i>Target</i>	see MSMA			Tetrasul	2227-13-6	NEAT MeOH	P-552N P-552S
<i>TCA</i>	see Trichloroacetic acid			<i>Tetron</i>	see TEPP		
<i>TCMTB</i>	see Busan			Thiabendazole	148-79-8	NEAT MeOH	P-068N P-068S
<i>TCNB</i>	see Tecnazene			Thiacloprid	11988-49-9	NEAT AcCN	P-838N P-838S-CN
Tebuconazol	107534-96-3	NEAT MeOH	P-451N P-451S	Thiamethoxam	153719-23-4	NEAT AcCN	P-866N P-866S-CN
Tebufenozide	112410-23-8	NEAT MeOH	P-726N P-726S	Thiazopyr NEW	117718-60-2	NEAT MeOH	P-808N P-808S
Tebufenpyrad	119168-77-3	NEAT MeOH	P-877N P-877S	Thidiazuron	51707-55-2	NEAT MeOH	P-369N P-369S
Tebupirimfos	96182-53-5	NEAT MeOH	P-727N P-727S	Thifensulfuron methyl	79277-27-3	NEAT MeOH	P-468N P-468S
Tebutam	35256-85-0	MeOH	P-879S	Thifluzamide NEW	130000-40-7	NEAT MeOH	P-1055N P-1055S
Tebuthiuron	34014-18-1	NEAT MeOH	P-188N P-188S	<i>Thimet</i>	see Phorate		
<i>Tecto</i>	see Thiabendazole			Thiobencarb	28249-77-6	NEAT MeOH	P-180N P-180S
<i>Tecnazene</i>	see 2,3,5,6-Tetrachloronitrobenzene			Thiocyclam hydrogen oxalate	31895-22-4	MeOH	P-688S
<i>Tedion</i>	see Tetradifon						
Teflubenzuron	83121-18-0	NEAT MeOH	P-452N P-452S				
Tefluthrin	79538-32-2	MeOH	P-568S *				
<i>Telodrin</i>	see Isobenzan						
Tembotrione NEW	335104-84-2	NEAT AcCN	P-1109N P-1109S-CN				
<i>Temephos</i>	see Abate						
<i>Temik</i>	see Aldicarb						
<i>Temus</i>	see Bromadiolone						
<i>Tenoran</i>	see Chloroxuron						
TEPP	107-49-3	NEAT	P-207N				
Terbacil	5902-51-2	NEAT MeOH	P-096N P-096S				

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

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



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

Pesticide Standards

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

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

Pesticide (Solid Waste) Kit

Z-017-SET

set of 6 x 10 mg

2,4-Dichlorophenoxyacetic acid (2,4-D acid)	Methoxychlor
Endrin	Silvex
Lindane	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 (0.080 µg/mL)
p,p'-DDE (0.100 µg/mL)	(Isomer B)
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

0.1 mg/mL in MeOH

set of 15 x 1 mL

Individual Standards

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

* in Acetone

Herbicide Mix #1

M-HERB-1

0.1 mg/mL each in EtOAc

Atrazine
Bromacil
Cycloate
Eptam
Isopropalin
Hexazinone
Molinate

1 x 1 mL

13 comps.

Oxyfluorfen
Sencor
Sutan
Terbacil
Tillam
Trifluralin

Herbicide Mix #2

M-HERB-2

0.1 mg/mL each in EtOAc

Benfluralin
Metolachlor
Oxadiazon
Propachlor
Propazine

1 x 1 mL

9 comps.

Prowl
Simazine
Tolban
Vernam

Pesticides

Triazines & Metabolites, Phenylureas



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	
Terbutylazine	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.

Difflubenzuron Propanil
 Diuron Siduron
 Fluometuron Tebuthiuron
 Linuron 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.



Pesticides

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
Imidacloprid	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 * P-738S-A *	MeOH Acetone	1 mL 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 * 4 x 1 mL
P-738S-A, P-782S-A, P-781S-A, P-780S-A



* 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)

VOC

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

Neats are as stated, Solutions are 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.	
Acetonitrile 75-05-8	100 µg/mL	MeOH	APP-9-005	Bromotrichloromethane 75-62-7	100 mg	NEAT	K-009N	
	10 mg/mL	Water	M-8015B/5031-02		1,3-Butadiene 106-99-0	0.2 mg/mL	MeOH	S-406A
	1 mg/mL	Water	M-8033	2 mg/mL		MeOH	S-406A-10X	
	1 mg/mL	MeOH	APP-9-005-10X	n-Butylbenzene 104-51-8		100 mg	NEAT	V-002
	5 mg/mL	MeOH	APP-9-005-50X		1 gram	NEAT	M-502-07N	
5 mg/mL	IPA	AS-E0473	5 mg/mL		MeOH	AS-E1105		
1 mg/mL	MeOH	M-8032	0.2 mg/mL		MeOH	M-502-07		
Acrylamide 79-06-1	1 mg/mL	MeOH	M-8032	2 mg/mL	MeOH	M-502-07-10X		
Acrylonitrile 107-13-1	100 µg/mL	MeOH	APP-9-008	iso-Butylbenzene 538-93-2	100 mg	NEAT	V-003	
	10 mg/mL	Water	M-8015B/5031-04		sec-Butylbenzene 135-98-8	100 mg	NEAT	V-004
	1 mg/mL	MeOH	APP-9-008-10X	1 gram		NEAT	M-502-08N	
	10 mg/mL	MeOH	AS-E0003	5 mg/mL		MeOH	AS-E1104	
100 µg/mL	MeOH	APP-9-010	0.2 mg/mL	MeOH		M-502-08		
Allyl chloride 107-05-1	2 mg/mL	MeOH	APP-9-010-20X	2 mg/mL	MeOH	M-502-08-10X		
	1 mg/mL	MeOH	AS-E0476	tert-Butylbenzene 98-06-6	1 gram	NEAT	M-502-09N	
	100 mg	NEAT	V-001		5 mg/mL	MeOH	AS-E1106	
n-Amylbenzene 538-68-1	2 mg/mL	CH ₂ Cl ₂	Z-014B-1		0.2 mg/mL	MeOH	M-502-09	
	2 mg/mL	MeOH	M-502-01		2 mg/mL	MeOH	M-502-09-10X	
Azobenzene 103-33-3	1 gram	NEAT	M-502-01N	Carbon disulfide 75-15-0	100 µg/mL	MeOH	APP-9-035	
	100 µg/mL	MeOH	APP-9-015		2 mg/mL	MeOH	APP-9-035-20X	
	1 mg/mL	MeOH	AS-E0004		5 mg/mL	MeOH	AS-E0363	
	Benzene 71-43-2	0.2 mg/mL	MeOH	M-502-01	Carbon tetrabromide 558-13-4	100 mg	NEAT	K-006N
2 mg/mL		MeOH	M-502-01-10X	Carbon tetrachloride 56-23-5		100 mg	NEAT	K-003N
0.2 mg/mL		MeOH	M-624-SS-01		1 gram	NEAT	M-502-10N	
2 mg/mL	MeOH	M-624-SS-01-10X	100 µg/mL		MeOH	APP-9-036		
Benzene-d₆ 1076-43-3	0.2 mg/mL	MeOH	M-8010-01		5 mg/mL	MeOH	AS-E0360	
	2 mg/mL	MeOH	M-8010-01	0.2 mg/mL	MeOH	M-502-10		
Benzyl chloride 100-44-7	5 mg/mL	AcCN	AS-E0169	2 mg/mL	MeOH	M-502-10-10X		
	20 mg/mL	MeOH	M-001R-3	Chloral hydrate 302-17-0	1 mg/mL	MeOH	M-E-1179-M *	
0.2 mg/mL	MeOH	M-624-SS-04	1 mg/mL		Acetone	AS-E1179		
1 mg/mL	Acetone	M-8081-IS-DC	5 mg/mL		Acetone	M-551B-2		
1-Bromo-2-nitrobenzene 577-19-5	1 gram	NEAT	M-502-02N	1-Chloro-2-fluorobenzene 348-51-6	2 mg/mL	MeOH	S-163	
	5 mg/mL	MeOH	AS-E0406		1-Chloro-3-nitrobenzene 121-73-3	1 mg/mL	Acetone	M-8091-SS-100X
	0.2 mg/mL	MeOH	M-502-02	1-Chloro-4-fluorobenzene 352-33-0		0.2 mg/mL	MeOH	M-624-SS-13
2 mg/mL	MeOH	M-502-02-10X	Chlorobenzene 108-90-7		100 mg	NEAT	A-001	
Bromochloroacetonitrile 83463-62-1	1 mg/mL	Acetone		AS-E1186	1 gram	NEAT	M-502-11N	
	5 mg/mL	Acetone		M-551B-1	100 µg/mL	MeOH	APP-9-039	
2-Bromochlorobenzene 694-80-4	0.2 mg/mL	MeOH		M-624-SS-12	1 mg/mL	MeOH	AS-E0006	
	0.2 mg/mL	MeOH		M-624-SS-1	0.2 mg/mL	MeOH	M-502-11	
4-Bromochlorobenzene 106-39-8	2 mg/mL	MeOH	M-8020-SS-1	2 mg/mL	MeOH	M-502-11-10X		
	100 mg	NEAT	K-007N	5 mg/mL	MeOH	CLP-PI-3-5X		
	1 gram	NEAT	M-502-03N	Chlorobenzene-d₅ 3114-55-4	Chloroethane 75-00-3	100 µg/mL	MeOH	APP-9-042
	10 mg/mL	MeOH	AS-E0136			1 mg/mL	MeOH	AS-E0015
p-Bromofluorobenzene 460-00-4	0.2 mg/mL	MeOH	M-502-03	0.2 mg/mL	MeOH	M-502-12		
	2 mg/mL	MeOH	M-502-03-10X	2 mg/mL	MeOH	M-502-12-10X		
	25 µg/mL	MeOH	CLP-004	bis(2-Chloroethoxy)methane 111-91-1	100 µg/mL	CH ₂ Cl ₂	APP-9-026	
	250 µg/mL	MeOH	CLP-004-10X		1 mg/mL	MeOH	APP-9-026-M-10X	
	0.15 mg/mL	MeOH	AS-E0233		5 mg/mL	MeOH	AS-E0041	
	25 mg/mL	MeOH	CLP-004-1000X		Chloroform 67-66-3	1 gram	NEAT	M-502-13N
	2.5 mg/mL	MeOH	CLP-004-100X	0.2 mg/mL		MeOH	M-502-13	
	2 mg/mL	MeOH	CLP-004-80X	2 mg/mL		MeOH	M-502-13-10X	
	0.2 mg/mL	MeOH	M-624-SS-03	100 µg/mL	Acetone	M-551.1-IS		
	2 mg/mL	MeOH	M-624-SS-03-10X	10 mg/mL	Acetone	M-551.1-IS-100X		
Bromoform 75-25-2	1 gram	NEAT	M-502-05N	1-Chlorohexane 544-10-5	0.2 mg/mL	MeOH	M-8010R-1-04	
	0.2 mg/mL	MeOH	M-502-05		2 mg/mL	MeOH	M-8010R-1-04-10X	
	2 mg/mL	MeOH	M-502-05-10X	Chloromethane 74-87-3	100 µg/mL	MeOH	APP-9-044	
	5 mg/mL	MeOH	AS-E0212		0.2 mg/mL	MeOH	M-502-14	
Bromomethane 74-83-9	100 µg/mL	MeOH	APP-9-032	2 mg/mL	MeOH	M-502-14-10X		
	0.2 mg/mL	MeOH	M-502-06					
2 mg/mL	MeOH	M-502-06-10X						

* ColdPAK required to maintain integrity of product.

Neats are as stated, Solutions are 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.
Chloroprene 126-99-8	100 µg/mL	MeOH	APP-9-048-R1	1,4-Dichlorobenzene 106-46-7	100 mg	NEAT	A-004
	200 µg/mL	MeOH	APP-9-048-R1-2X		1 gram	NEAT	M-502-23N
	1 mg/mL	MeOH	APP-9-048-R1-10X		100 µg/mL	MeOH	APP-9-066
	2.0 mg/mL	MeOH	APP-9-048-R1-20X		0.2 mg/mL	MeOH	M-502-23
3-Chloropropionitrile 542-76-7	1 mg/mL	MeOH	AS-E0375		2 mg/mL	MeOH	M-502-23-10X
2-Chlorotoluene 95-49-8	1 gram	NEAT	M-502-15N		5 mg/mL	MeOH	AS-E0025
	0.2 mg/mL	MeOH	M-502-15		0.2 mg/mL	Acetone	M-8151-IS-2
	2 mg/mL	MeOH	M-502-15-10X		2.0 mg/mL	Hexane	M-8120-04
	5 mg/mL	MeOH	AS-E0150		2 mg/mL	MeOH	Z-014J-3-M-0.5X
3-Chlorotoluene 108-41-8	5 mg/mL	MeOH	AS-E0151		4 mg/mL	CH ₂ Cl ₂	Z-014J-3
4-Chlorotoluene 106-43-4	1 gram	NEAT	M-502-16N	Dichlorobromomethane 75-27-4	100 mg	NEAT	M-502-04N
	0.2 mg/mL	MeOH	M-502-16	0.2 mg/mL	MeOH	M-502-04	
	2 mg/mL	MeOH	M-502-16-10X	2 mg/mL	MeOH	M-502-04-10X	
Cyclohexane 110-82-7	1 gram	NEAT	TK-102-08N	5 mg/mL	MeOH	AS-E0046	
	2 mg/mL	MeOH	TK-102-08S-10X	0.2 mg/mL	MeOH	M-624-SS-05	
Decylbenzene 104-72-3	100 mg	NEAT	V-005	1,4-Dichlorobutane 110-56-5	20 mg/mL	MeOH	M-001R-2
Diallate 2303-16-4	1 mg/mL	AcCN	AS-E0623	1,4-Dichlorobutane-d₈ 83547-96-0	0.15 mg/mL	MeOH	AS-E0196
1,2-Dibromochloromethane 124-48-1	1 gram	NEAT	M-502-17N	Dichlorodifluoromethane 75-71-8	100 µg/mL	MeOH	APP-9-069
	0.2 mg/mL	MeOH	M-502-17	5000 µg/mL	MeOH	AS-E0346	
	2 mg/mL	MeOH	M-502-17-10X	0.2 mg/mL	MeOH	M-502-24	
1,2-Dibromo-3-chloropropane 96-12-8	1 gram	NEAT	M-502-18N	2 mg/mL	MeOH	M-502-24-10X	
	0.2 mg/mL	MeOH	M-502-18	1,1-Dichloroethane 75-34-3	1 gram	NEAT	M-502-25N
	2 mg/mL	MeOH	M-502-18-10X	100 µg/mL	MeOH	APP-9-070	
	5 mg/mL	MeOH	AS-E0993	0.2 mg/mL	MeOH	M-502-25	
	5 mg/mL	Acetone	M-551B-4	1 mg/mL	MeOH	AS-E0012	
Dibromoacetone 3252-43-5	1 gram	NEAT	M-502-19N **	2 mg/mL	MeOH	M-502-25-10X	
1,2-Dibromoethane 106-93-4	100 µg/mL	MeOH	APP-9-214	1 gram	NEAT	M-502-26N	
	0.2 mg/mL	MeOH	M-502-19	100 µg/mL	MeOH	APP-9-071	
	2 mg/mL	MeOH	M-502-19-10X	1 mg/mL	MeOH	AS-E0009	
	5 mg/mL	MeOH	AS-E0171	0.2 mg/mL	MeOH	M-502-26	
	5 mg/mL	Acetone	M-551B-4	2 mg/mL	MeOH	M-502-26-10X	
Dibromofluoromethane 1868-53-7	0.2 mg/mL	MeOH	M-8260-SS-2	1,2-Dichloroethane-d₄ 17060-07-0	0.2 mg/mL	MeOH	M-624-SS-06
	2 mg/mL	MeOH	M-8260-SS-2-10X	2.0 mg/mL	MeOH	M-624-SS-06-10X	
Dibromomethane 74-95-3	100 mg	NEAT	K-004N	1,1-Dichloroethene 75-35-4	1 gram	NEAT	M-502-27N
	1 gram	NEAT	M-502-20N	100 µg/mL	MeOH	APP-9-072	
	100 µg/mL	MeOH	APP-9-062	0.2 mg/mL	MeOH	M-502-27	
	0.2 mg/mL	MeOH	M-502-20	2 mg/mL	MeOH	M-502-27-10X	
	2 mg/mL	MeOH	M-502-20-10X	cis-1,2-Dichloroethene 156-59-2	1 gram	NEAT	M-502-28N
a,a-Dibromo-m-xylene 626-15-3	5 mg/mL	MeOH	M-552-IS	0.2 mg/mL	MeOH	M-502-28	
	10 mg/mL	Hexane	M-556-IS	2 mg/mL	MeOH	M-502-28-10X	
	1000 µg/mL	MeOH	AS-E0463	10 mg/mL	MeOH	AS-E0173	
	1 mg/mL	Acetone	M-8081-IS-X	trans-1,2-Dichloroethene 156-60-5	1 gram	NEAT	M-502-29N
1,2-Dibromopropane 78-75-1	5 mg/mL	MeOH	M-552-IS	100 µg/mL	MeOH	APP-9-073	
	10 mg/mL	Hexane	M-556-IS	0.2 mg/mL	MeOH	M-502-29	
1,2-Dibromo-1,1,2,2-tetrafluoroethane 124-73-2	1000 µg/mL	MeOH	AS-E0463	1 mg/mL	MeOH	AS-E0028	
	4.2 mg/mL	MeOH	AS-E0170	2 mg/mL	MeOH	M-502-29-10X	
2,3-Dichloro-1-propene 78-88-6	4.2 mg/mL	MeOH	AS-E0170	Dichlorofluoromethane 75-43-4	0.2 mg/mL	MeOH	M-502-61
trans-1,4-Dichloro-2-butene 110-57-6	100 µg/mL	MeOH	APP-9-068	2 mg/mL	MeOH	M-502-61-10X	
	2 mg/mL	MeOH	APP-9-068-20X	Dichloromethane 75-09-2	100 mg	NEAT	K-001N
Dichloroacetone 3018-12-0	5 mg/mL	Acetone	M-551B-5	1 gram	NEAT	M-502-39N	
1,2-Dichlorobenzene 95-50-1	100 mg	NEAT	A-002	100 µg/mL	MeOH	APP-9-074	
	1 gram	NEAT	M-502-21N	0.2 mg/mL	MeOH	M-502-39	
	100 µg/mL	MeOH	APP-9-064	2 mg/mL	MeOH	M-502-39-10X	
	0.2 mg/mL	MeOH	M-502-21	1 gram	NEAT	M-502-30N	
	2 mg/mL	MeOH	M-502-21-10X	100 µg/mL	MeOH	APP-9-077	
	5 mg/mL	MeOH	AS-E0023	0.2 mg/mL	MeOH	M-502-30	
	2.0 mg/mL	Hexane	M-8120-02	1 mg/mL	MeOH	AS-E0030	
1,2-Dichlorobenzene-d₄ 2199-69-1	0.15 mg/mL	MeOH	AS-E0776	2 mg/mL	MeOH	M-502-30-10X	
	0.2 mg/mL	MeOH	M-624-SS-11	1 gram	NEAT	M-502-31N	
	2 mg/mL	MeOH	M-624-SS-11-10X	0.2 mg/mL	MeOH	M-502-31	
1,3-Dichlorobenzene 541-73-1	100 mg	NEAT	A-003	2 mg/mL	MeOH	M-502-31-10X	
	1 gram	NEAT	M-502-22N	5 mg/mL	MeOH	AS-E1109	
	100 µg/mL	MeOH	APP-9-065	1,2-Dichloropropane 78-87-5	1 gram	NEAT	M-502-32N
	0.2 mg/mL	MeOH	M-502-22	100 µg/mL	MeOH	APP-9-077	
	1 mg/mL	MeOH	AS-E0214	0.2 mg/mL	MeOH	M-502-32	
	2 mg/mL	MeOH	M-502-22-10X	2 mg/mL	MeOH	M-502-32-10X	
1,3-Dichlorobenzene 541-73-1	2.0 mg/mL	Hexane	M-8120-03	5 mg/mL	MeOH	AS-E1167	
	100 mg	NEAT	A-003	1,3-Dichloropropane 142-28-9	1 gram	NEAT	M-502-31N
	1 gram	NEAT	M-502-22N	0.2 mg/mL	MeOH	M-502-31	
	100 µg/mL	MeOH	APP-9-065	2 mg/mL	MeOH	M-502-31-10X	
	0.2 mg/mL	MeOH	M-502-22	5 mg/mL	MeOH	AS-E1109	
	1 mg/mL	MeOH	AS-E0214	2,2-Dichloropropane 594-20-7	1 gram	NEAT	M-502-32N
	2 mg/mL	MeOH	M-502-22-10X	0.2 mg/mL	MeOH	M-502-32	
	2.0 mg/mL	Hexane	M-8120-03	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)

VOC

Neats are as stated, Solutions are 1 mL

VOCs

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

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VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.	
n-Propylbenzene (1-Phenylpropane) 103-65-1	100 mg	NEAT	V-022	1,1,2-Trichloroethane 79-00-5	1 gram	NEAT	M-502-50N	
	1 gram	NEAT	M-502-41N		100 µg/mL	MeOH	APP-9-203	
	0.2 mg/mL	MeOH	M-502-41		0.2 mg/mL	MeOH	M-502-50	
	2 mg/mL	MeOH	M-502-41-10X		1 mg/mL	MeOH	AS-E0013	
	5 mg/mL	MeOH	AS-E1112		2 mg/mL	MeOH	M-502-50-10X	
Styrene 100-42-5	1 gram	NEAT	M-502-42N	Trichloroethene 79-01-6	1 gram	NEAT	M-502-51N	
	100 µg/mL	MeOH	APP-9-189		100 µg/mL	MeOH	APP-9-204	
	0.2 mg/mL	MeOH	M-502-42		0.2 mg/mL	MeOH	M-502-51	
	2 mg/mL	MeOH	M-502-42-10X		1 mg/mL	MeOH	AS-E0085	
	5 mg/mL	MeOH	AS-E0257		2 mg/mL	MeOH	M-502-51-10X	
TCMX 877-09-8	100 µg/mL	Hexane	M-8082-SS	Trichlorofluoromethane 75-69-4	100 µg/mL	MeOH	APP-9-205	
	1 mg/mL	Hexane	M-8082-SS-10X		0.2 mg/mL	MeOH	M-502-52	
1,2,3,4-Tetrachlorobenzene 634-66-2	100 mg	NEAT	A-008	1,1,2-Trichloropropane 598-77-6	2 mg/mL	MeOH	M-502-52-10X	
	1 mg/mL	MeOH	AS-E0225		200 µg/mL	MeOH	S-1321B	
1,2,3,5-Tetrachlorobenzene 634-90-2	100 mg	NEAT	A-009	1,2,3-Trichloropropane 96-18-4	1 gram	NEAT	M-502-53N	
1,2,4,5-Tetrachlorobenzene 95-94-3	100 mg	NEAT	A-010		100 µg/mL	MeOH	APP-9-208	
	100 µg/mL	MeOH	APP-9-191		0.2 mg/mL	MeOH	M-502-53	
	1.0 mg/mL	MeOH	APP-9-191-10X		1 mg/mL	MeOH	APP-9-208-10X	
	2.0 mg/mL	Hexane	M-8120-09		2 mg/mL	MeOH	M-502-53-10X	
	2.5 mg/mL	AcCN	AS-E0177	5 mg/mL	MeOH	AS-E0368		
1,1,1,2-Tetrachloroethane 630-20-6	1 gram	NEAT	M-502-43N	a,a,a-Trichlorotoluene 98-07-7	0.2 mg/mL	MeOH	M-624-SS-14	
	100 µg/mL	MeOH	APP-9-192		Tridecylbenzene 123-02-4	100 mg	NEAT	V-027
	0.2 mg/mL	MeOH	M-502-43	1,2,3-Trimethylbenzene 526-73-8		100 mg	NEAT	V-028
	1 mg/mL	MeOH	AS-E0335			1,2,4-Trimethylbenzene 95-63-6	100 mg	NEAT
	2 mg/mL	MeOH	M-502-43-10X	1 gram	NEAT		M-502-54N	
1,1,1,2-Tetrachloroethane 79-34-5	1 gram	NEAT	M-502-44N	0.2 mg/mL	MeOH		M-502-54	
	100 µg/mL	MeOH	APP-9-193	2 mg/mL	MeOH		M-502-54-10X	
	0.2 mg/mL	MeOH	M-502-44	5 mg/mL	MeOH		AS-E1107	
	2 mg/mL	MeOH	M-502-44-10X	100 mg	NEAT	V-016		
	5 mg/mL	MeOH	AS-E0014	1 gram	NEAT	M-502-55N		
Tetrachloroethene 127-18-4	1 gram	NEAT	M-502-45N	1,3,5-Trimethylbenzene 108-67-8	0.2 mg/mL	MeOH	M-502-55	
	100 µg/mL	MeOH	APP-9-194		2 mg/mL	MeOH	M-502-55-10X	
	0.2 mg/mL	MeOH	M-502-45		5 mg/mL	MeOH	AS-E1103	
	2 mg/mL	MeOH	M-502-45-10X		3 % w/w	Isooctane	M-GRA-FP	
	5 mg/mL	MeOH	AS-E0083		1,2,3-Trimethylbenzene 526-73-8	100 µg/mL	MeOH	APP-9-210
Tetrachloro-m-xylene 877-09-8	0.2 mg/mL	MeOH	S-279	2 mg/mL		MeOH	M-8270-10	
	1 mg/mL	MeOH	S-279-5X	2.0 mg/mL		CH ₂ Cl ₂	APP-9-210-D-20X	
Tetradecylbenzene 1459-10-5	100 mg	NEAT	V-023	Undecylbenzene 6742-54-7	100 mg	NEAT	V-030	
Tetrahydrofuran 109-99-9	0.2 mg/mL	MeOH	S-457S		Vinyl acetate 108-05-4	100 µg/mL	MeOH	APP-9-211 *
	2 mg/mL	MeOH	S-457S-10X	2 mg/mL		MeOH	APP-9-211-20X *	
	1 mg/mL	Water	M-1671A-IS	1 mg/mL		AcCN	AS-E0327	
1,2,3,4-Tetramethylbenzene 488-23-3	100 mg	NEAT	V-024	Vinyl chloride 75-01-4	100 µg/mL	MeOH	APP-9-212	
1,2,3,5-Tetramethylbenzene 527-53-7	100 mg	NEAT	V-025		0.2 mg/mL	MeOH	M-502-56	
1,2,4,5-Tetramethylbenzene 95-93-2	100 mg	NEAT	V-026		1 mg/mL	MeOH	AS-E0536	
	Toluene 108-88-3	1 gram	NEAT		M-502-46N	2 mg/mL	MeOH	M-502-56-10X
100 µg/mL		MeOH	APP-9-198		100 µg/mL	MeOH	APP-9-213	
0.2 mg/mL		MeOH	M-502-46	1 gram	NEAT	M-502-58N		
1 mg/mL		MeOH	AS-E0084	0.2 mg/mL	MeOH	M-502-58		
	2 mg/mL	MeOH	M-502-46-10X	1 mg/mL	MeOH	AS-E0202		
Toluene-d₈ 2037-26-5	0.25 mg/mL	MeOH	CLP-PS-3	m-Xylene 108-38-3	2 mg/mL	MeOH	M-502-58-10X	
	2.5 mg/mL	MeOH	CLP-PS-3-10X		1 gram	NEAT	M-502-57N	
1,3,5-Tribromobenzene 626-39-1	50 µg/mL	Acetone	M-8121-IS		0.2 mg/mL	MeOH	M-502-57	
Trichloroacetonitrile 545-06-2	5 mg/mL	Acetone	M-551B-7	1 mg/mL	MeOH	AS-E0201		
1,2,3-Trichlorobenzene 87-61-6	100 mg	NEAT	A-005	o-Xylene 95-47-6	2 mg/mL	MeOH	M-502-57-10X	
	1 gram	NEAT	M-502-47N		1 gram	NEAT	M-502-59N	
	0.2 mg/mL	MeOH	M-502-47		0.2 mg/mL	MeOH	M-502-59	
	2 mg/mL	MeOH	M-502-47-10X		1 mg/mL	MeOH	AS-E0203	
	5 mg/mL	MeOH	AS-E0175		2 mg/mL	MeOH	M-502-59-10X	
1,2,4-Trichlorobenzene 120-82-1	100 mg	NEAT	A-006	p-Xylene 106-42-3	1 gram	NEAT	M-502-59N	
	1 gram	NEAT	M-502-48N		0.2 mg/mL	MeOH	M-502-59	
	100 µg/mL	MeOH	APP-9-201		1 mg/mL	MeOH	AS-E0203	
	0.2 mg/mL	MeOH	M-502-48		2 mg/mL	MeOH	M-502-59-10X	
	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					

* 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

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Alcohols & Aldehydes

Alcohol EPA Methods include: 1673, 8015

Alcohols				
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
1,3-Dichloro-2-propanol	96-23-1	2 mg/mL	MeOH	S-410
		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	Cyclohexanone	AS-E0543

Neats are as stated, Solutions are 1 mL

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 *
		1 mg/mL	MeOH:AcCN	M-554-DNPH-02
Butanal-DNPH	1527-98-6	0.1 mg/mL	AcCN	M-8315-R-DNPH-05
		1 mg/mL	AcCN	AS-E0479
		1 mg/mL	MeOH	M-554-03 *
Crotonaldehyde	123-73-9	10 mg/mL	Water	M-8015B/5031-08
		1 mg/mL	MeOH:AcCN	M-554-DNPH-03
Crotonaldehyde-DNPH	1527-96-4	0.1 mg/mL	AcCN	M-8315-R-DNPH-06
		1 mg/mL	MeOH	M-554-05
Decanal	112-31-2	1 mg/mL	MeOH	M-554-05
		1 mg/mL	MeOH:AcCN	M-554-DNPH-05
Decanal-DNPH		0.1 mg/mL	AcCN	M-8315-R-DNPH-08
		0.1 mg/mL	AcCN	M-8315-R-DNPH-09

* ColdPAK required to maintain integrity of product.

Aldehydes continued on next page

Analytes by Functional Group

Aldehydes and Derivatives & Ketones

Aldehydes and Derivatives (continued)

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
		1.0 mg/mL	AcCN	M-1667A-DNPH-03
Isobutyraldehyde-DNPH		0.1 mg/mL	AcCN	M-8315-R-DNPH-13
		1 mg/mL	MeOH	M-554-09
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

Neats are as stated,
Solutions are 1 mL

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 ₂ Cl ₂	APP-9-004
		2 mg/mL	CH ₂ Cl 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.

Analytes by Functional Group

Phenols



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 (4-Chloro-3-methylphenol)	59-50-7	1.0 mg/mL	MeOH	M-8040-01
		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 ₂ Cl 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-d₄	93951-73-6	0.2 mg/mL	CH ₂ Cl 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 ₂ Cl ₂	APP-9-050
		1 mg/mL	CH ₂ Cl 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 ₂ Cl ₂	APP-9-051
		2 mg/mL	CH ₂ Cl 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 ₂ Cl ₂	APP-9-052
		2 mg/mL	CH ₂ Cl 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 ₂ Cl 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-d₃	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 ₂ Cl ₂	M-625-16
		2 mg/mL	CH ₂ Cl ₂	M-625-16-10X
2-Methyl-4,6-dinitrophenol	534-52-1	1.0 mg/mL	MeOH	M-8040-12
2-Nitrophenol (o-Nitrophenol)	88-75-5	100 mg	NEAT	R-051N
		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 (p-Nitrophenol)	100-02-7	100 µg/mL	MeOH	APP-9-145
		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



Analytes by Functional Group

Phenols, Amines, Anilines and Amino Compounds

Amines, Anilines & Amino Compounds

Phenols (continued)

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 ₂ Cl ₂	APP-9-176-D-20X
		5 mg/mL	MeOH	AS-E0062
		25 µg/mL	CH ₂ Cl ₂	M-625C-2
		0.2 mg/mL	CH ₂ Cl 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 ₂ Cl ₂	M-625-17
Phenol	108-95-2	100 µg/mL	CH ₂ Cl 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 ₂ Cl ₂	M-625-18
		2 mg/mL	CH ₂ Cl 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
		100 mg	NEAT	A-030
2,3,5,6-Tetrachlorophenol	935-95-5	20 µg/mL	MtBE	M-8085-HERB-SS
		0.2 mg/mL	CH ₂ Cl 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
		100 mg	NEAT	A-022
2,3,4-Trichlorophenol	15950-66-0	100 mg	NEAT	A-023
2,3,5-Trichlorophenol	933-78-8	5 mg/mL	MeOH	AS-E0222
		100 mg	NEAT	A-024
2,3,6-Trichlorophenol	933-75-5	1 mg/mL	MeOH	AS-E0181
		100 mg	NEAT	A-025
2,4,5-Trichlorophenol	95-95-4	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
		100 mg	NEAT	A-026
		100 µg/mL	MeOH	APP-9-207
2,4,6-Trichlorophenol	88-06-2	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
		10 mg	NEAT	A-027
		1 mg/mL	MeOH	M-1653-IS
3,4,5-Trichlorophenol	609-19-8	1 mg/mL	Acetone	M-1653-IS-R

Neats are as stated,
Solutions are 1 mL

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 ₂ Cl 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
		0.2 mg/mL	CH ₂ Cl ₂	M-625-01
Aniline-d ₅	4165-61-1	2 mg/mL	CH ₂ Cl ₂	M-625-01-10X
		100 µg/mL	AcCN	RAC-23
o-Anisidine	90-04-0	100 µg/mL	AcCN	RAC-23-10X

Analytes by Functional Group

Amines, Anilines and other Amino Compounds



Amines, Anilines and other Amino Compounds (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.
Benzidine	92-87-5	50 µg/mL	CH ₂ Cl ₂	M-625C-1
		2 mg/mL	CH ₂ Cl 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
3-Chloro-o-toluidine	87-60-5	5 mg/mL	MeOH	AS-E0305
		100 µg/mL	AcCN	RAC-24
4-Chloro-o-toluidine	95-69-2	1000 µg/mL	AcCN	RAC-24-10X
		100 µg/mL	AcCN	RAC-06
p-Cresidine	120-71-8	1 mg/mL	AcCN	RAC-06-10X
		100 µg/mL	AcCN	RAC-07
2,4-Diaminoaniline sulfate hydrate	123333-56-2	1.0 mg/mL	AcCN	RAC-07-10X
		100 µg/mL	Pyridine	RAC-08
3,3'-Diaminobenzidine	91-95-2	1 mg/mL	Pyridine	RAC-08-10X
		50 mg	NEAT	R-074N
4,4'-Diaminodiphenylmethane (4,4'-Methylenedianiline)	101-77-9	100 µg/mL	Toluene	R-074S
		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
		50 mg	NEAT	R-076N
3,3'-Dimethoxybenzidine	119-90-4	100 µg/mL	Toluene	R-076S
		100 µg/mL	AcCN	RAC-12
		1 mg/mL	AcCN	RAC-12-10X
		100 µg/mL	AcCN	RAC-14
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	1 mg/mL	AcCN	RAC-14-10X
		10 mg	NEAT	R-079N
4-Dimethylaminoazobenzene	60-11-7	100 µg/mL	Toluene	R-079S
		100 mg	NEAT	L-018N
2,6-Dimethylaniline	87-62-7	100 µg/mL	AcCN	L-018S-CN
		100 µg/mL	CH ₂ Cl ₂	APP-9-085
3,3'-Dimethylbenzidine	119-93-7	2.0 mg/mL	CH ₂ Cl ₂	APP-9-085-20X
		100 µg/mL	AcCN	RAC-13
		1 mg/mL	AcCN	RAC-13-10X
		100 µg/mL	CH ₂ Cl ₂	APP-9-086
a,a-Dimethylphenethylamine	122-09-8	2.0 mg/mL	CH ₂ Cl ₂	APP-9-086-20X
2,4-Dinitroaniline	97-02-9	100 mg	NEAT	L-011N
Diphenylamine	122-39-4	100 µg/mL	CH ₂ Cl 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 ₂ Cl ₂	M-625-08
		2 mg/mL	CH ₂ Cl 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

Neats are as stated,
Solutions are 1 mL

Amines, Anilines and
other Amino compounds
continued on next page

Analytes by Functional Group

Amines, Anilines and other Amino Compounds

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 ₂ Cl ₂	APP-9-141
o-Nitroaniline	88-74-4	100 µg/mL	CH ₂ Cl ₂	APP-9-140
		5 mg/mL	MeOH	AS-E0324
p-Nitroaniline	100-01-6	100 µg/mL	CH ₂ Cl 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 ₂ Cl ₂	APP-9-156
		5 mg/mL	MeOH	AS-E0344
N-Nitrosodiethylamine	55-18-5	100 µg/mL	CH ₂ Cl ₂	APP-9-148
		2 mg/mL	CH ₂ Cl ₂	APP-9-148-20X
		5 mg/mL	MeOH	AS-E0334
N-Nitrosodimethylamine	62-75-9	100 µg/mL	CH ₂ Cl 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 ₂ Cl ₂	APP-9-147
		2 mg/mL	CH ₂ Cl 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 ₂ Cl ₂	APP-9-151
		2.5 mg/mL	CH ₂ Cl ₂	APP-9-151-25X
		5 mg/mL	MeOH	AS-E0061
N-Nitrosodiphenylamine	86-30-6	100 µg/mL	CH ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂	M-625-15
		2.0 mg/mL	CH ₂ Cl ₂	M-625-15-10X
3,3',5,5'-Tetramethylbenzidine	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



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Analytes by Functional Group

Ethers, Halo Ethers & Haloacetic Acids



Ether EPA Methods: 601, 8150

Ethers

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

Neats are as stated,
Solutions are 1 mL

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.

Ethers, Halo Ethers & Haloacetic Acids

Analytes by Functional Group

Phthalates



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



Phthalates

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
		100 mg	NEAT	J-104
Dibenzyl phthalate	523-31-9	100 mg	NEAT	J-003
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

Phthalate Standards Reference Guide



Guide includes added
technical & physical
information

Request or download
Reference Guide at
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Analytes by Functional Group

Phthalates



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 Mixture of C9 Isomers		100 mg	NEAT	ALR-142N
		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

Phthalates continued on
next page

Analytes by Functional Group

Phthalates

Phthalates (continued)

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
Diisoheptyl 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

Neats are as stated,
Solutions are 1 mL



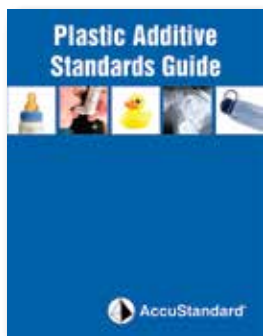


Search by

- 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.



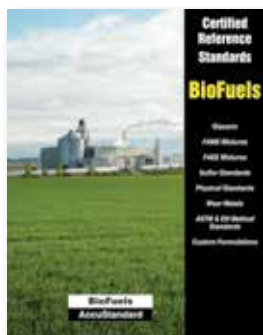
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Explosives

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.

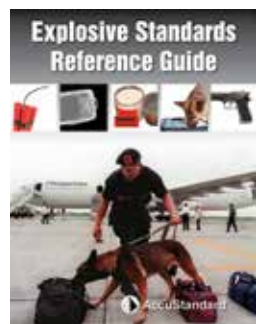
Widest selection of Explosives and their Metabolites

EXCLUSIVELY from AccuStandard



Matrix Key

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



Guide includes added technical & physical information Available on website.

♦ TNT Metabolites

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

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

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

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

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

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

Surrogate Standard

M-8330-SS	1 x 1 mL
1.0 mg/mL in MeOH	
1,2-Dinitrobenzene	

Internal Standard

M-8330-IS	1 x 1 mL
M-8330-IS-PAK	5 x 1 mL
1.0 mg/mL in MeOH	
3,4-Dinitrotoluene	

SAVE

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

* ColdPAK required to maintain integrity of product.



Explosives

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

Surrogate Analyte Stock Solutions

M-529-SS1 1 x 1 mL
 M-529-SS1-PAK 5 x 1 mL
 1000 µg/mL each in MeOH
 1,3,5-Trimethyl-2-nitrobenzene 1,2,4-Trimethyl-5-nitrobenzene
 SAVE 2 comps.

Internal Standard Fortification Solution

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

M-529-SS2 1 x 1 mL
 M-529-SS2-PAK 5 x 1 mL
 1000 µg/mL each in CH₂Cl₂
 Nitrobenzene-d₅
 SAVE

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 Fortification Solution

M-529-SAFS 1 x 1 mL
 100 µg/mL each in MeOH 3 comps.
 1,3,5-Trimethyl-2-nitrobenzene Nitrobenzene-d₅
 1,2,4-Trimethyl-5-nitrobenzene

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 5 x 1 mL
 100 µg/mL each in AcCN:MeOH (50:50) SAVE 10 comps.
 2-Amino-4,6-dinitrotoluene 1,3,5-Trinitrobenzene
 4-Amino-2,6-dinitrotoluene TNT
 1,3-Dinitrobenzene RDX
 2,6-Dinitrotoluene Tetryl
 2,4-Dinitrotoluene HMX

Explosive Stock Solution B

M-8095-SSB-100X 1 x 1 mL
 M-8095-SSB-100X-PAK 5 x 1 mL
 At stated conc. in AcCN:MeOH (50:50) SAVE 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 5 x 1 mL
 100 µg/mL in AcCN SAVE
 3,4-Dinitrotoluene

M-8095-SS-03 1 x 1 mL
 M-8095-SS-03-PAK 5 x 1 mL
 100 µg/mL in AcCN SAVE
 2,5-Dinitrotoluene

M-8095-SS-02 1 x 1 mL
 M-8095-SS-02-PAK 5 x 1 mL
 100 µg/mL in AcCN SAVE
 2-Methyl-4-nitroaniline



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



Starting Material	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

Gun Surveillance Standard

EXP-GSS

At stated conc. (µg/mL) in AcCN

1 x 1 mL
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

Organic Compounds for Firearm Discharge Analysis



Compound	Conc.	Matrix	Cat. No.	1 mL
2,4-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-02-0.1X	
C ₇ H ₆ N ₂ O ₄	1000 µg/mL	AcCN:MeOH	M-8330-02	
2,6-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-03-0.1X	
C ₇ H ₆ N ₂ O ₄	1000 µg/mL	AcCN:MeOH	M-8330-03	
3,4-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-04-0.1X	
C ₇ H ₆ N ₂ O 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 ₂ O				
Methylcentralite NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-49	
C ₁₅ H ₁₈ N ₂ O				
2-Nitrodiphenylamine NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-51	
C ₁₂ H ₁₀ N ₂ O ₂				
4-Nitrodiphenylamine NEW	100 µg/mL	AcCN:MeOH	M-8330-ADD-52	
C ₁₂ H ₁₀ N ₂ O ₂				
1-Nitroglycerine ▶	100 µg/mL	AcCN:MeOH	M-8330-ADD-31	
C ₃ H ₅ N ₃ O ₉				
2-Nitroglycerine ▶	100 µg/mL	AcCN:MeOH	M-8330-ADD-32	
C ₃ H ₅ N ₃ O ₉				
N-Nitrosodiphenylamine	100 µg/mL	MeOH	APP-9-150	
C ₁₂ H ₁₀ N ₂ O				
2-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-07	
C ₇ H ₇ NO ₃				
3-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-08	
C ₇ H ₇ NO ₃				
4-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-09	
C ₇ H ₇ NO ₃				

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.

Any compound without ▶ could contain possible isomers



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:

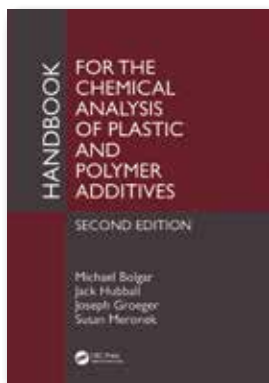
- EU Directives 2002/96/EC and 2002/95/EC WEEE (Waste Electrical and Electronic Equipment) that establishes limits for the content of a product that must be recyclable or reusable.
- EU Directive 2003/11/EC RoHS (restriction of the use of certain hazardous substances) restricting the use of six toxins 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.

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Processing Aids	90
Retarders	90
Stearates	91
UV Stabilizers	91
Vegetable Oils	91
Deuterated Phthalates	91

PolyAdd Check™

The perfect companion for your analysis!

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



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

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

Plastic Additive Standards Guide



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.

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



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 thiazolesulfenamido	95-31-8	PLAS-AC-003N	PLAS-AC-003S
Accelerator CBTS	N-cyclohexyl-2-benzothiazole sulfenamido	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-diy]l[(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



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

Antioxidants (Continued)

Trade Name	Chemical Name	CAS No.	Neat (50 mg)	Solution (1 mL)
Ethinox® 702	4,4'-Methylenebis(2,6-di-tert-butylphenol)	118-82-1	PLAS-AX-025N	PLAS-AX-025S
Ethinox® 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-Hexanediy 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 ₂)		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	-----
Ultrinox® 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	Carbamoyliminoureia	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-(Triethoxysilylpropyl)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	Vinylmethyl dimethoxysilane	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 50 mg	C-216S-H-10X C-216N-50MG
Aroclor 1221 (Tech Mix)	11104-28-2	1000 µg/mL in Hexane 50 mg	C-221S-H-10X 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 50 mg	C-242S-H-10X C-242N-50MG
Aroclor 1248 (Tech Mix)	12672-29-6	1000 µg/mL in Hexane 50 mg	C-248S-H-10X C-248N-50MG
Aroclor 1254 (Tech Mix)	11097-69-1	1000 µg/mL in Hexane 50 mg	C-254S-H-10X C-254N-50MG
Aroclor 1260 (Tech Mix)	11096-82-5	1000 µg/mL in Hexane 50 mg	C-260S-H-10X C-260N-50MG
Aroclor 1262 (Tech Mix)	37324-23-5	1000 µg/mL in Hexane 50 mg	C-262S-H-10X 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
<i>m</i> -Terphenyl	92-06-8	100 mg	T-002N
<i>o</i> -Terphenyl	84-15-1	100 mg	T-001N
<i>p</i> -Terphenyl	92-94-4	100 mg	T-003N
Tetradecachloro- <i>m</i> -terphenyl	42429-88-9	35 µg/mL in Toluene	T-005S
Tetradecachloro- <i>o</i> -terphenyl		35 µg/mL in Toluene	T-004S
Tetradecachloro- <i>p</i> -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	-----
Diocetyl 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-ethanediy)bis(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	Diisooheptyl 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 DTD	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: isodecyl diphenyl 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 trithiocarbamate		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-003S
Cyanomethyl dodecyl trithiocarbonate		796045-97-1	PLAS-RT-006N	PLAS-RT-006S
Cyanomethyl methyl(phenyl)carbamo-dithioate		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



Bisphenol Analog, Imidazole, Melamine, EFSA

Bisphenol Analog Standards



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 Cat. No.	10 µg/mL in MeOH 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)



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 Cat. No.	100 µg/mL in Toluene 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	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

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

Column Clean-up Check

FDA-PROP-001-CHK 1 x 5 mL

Sylon BFT 50 vol/vol%
Pyridine 50

EFSA for Isopropylthioxanthone (ITX)

Responding to the hazard found in Italy, France, Spain, and Portugal, we have formulated Isopropylthioxanth-9-one (a photographic 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.



Food Analysis Contents	92-97
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Saturated Methyl Esters	94
Saturated Glycerides	94
Unsaturated Glycerides	94
AOCS, Method Ce1-62	95
NIH Profiling Mixes	95
FAME Mixes	96
Vitamins	97
Preservatives and Antimicrobials	107

Food Standards

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

- Certificate of Analysis

Unsaturated Methyl Esters

99% minimum purity Compound	(Storage: -20°C, protect from light) CAS No.	Neat 100 mg	Each 10 mg/mL in Heptane Solution 1 mL
Methyl cis-9-hexadecenoate (<i>Palmitoleate</i>) 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 (<i>Petroselinic acid</i>) C18:1	2777-58-4	UFA-003N	UFA-003S
Methyl trans-6-octadecenoate (<i>Petroselinic acid</i>) C18:1		UFA-004N	UFA-004S
Methyl cis-9-octadecenoate (<i>Oleic acid</i>) C18:1	112-62-9	UFA-005N	UFA-005S
Methyl trans-9-octadecenoate (<i>Elaidic acid</i>) C18:1	2462-84-2	UFA-006N	UFA-006S
Methyl cis-11-octadecenoate (<i>Vaccenic acid</i>) C18:1	1937-63-9	UFA-007N	UFA-007S
Methyl 12-hydroxy-cis-9-octadecenoate (<i>Ricinoleic acid</i>) C18:1	141-24-2	UFA-008N	UFA-008S
Methyl linoleate (<i>Linoleic acid</i>) C18:2	112-63-0	UFA-010N	UFA-010S
Methyl linolelaidate (<i>Linolelaidic acid</i>) C18:2	2566-97-4	UFA-011N	UFA-011S
Methyl octadecadienoate (<i>Conjugated</i>) C18:2		UFA-012N *	UFA-012S
Methyl linolenate (<i>Linolenic acid</i>) C18:3	301-00-8	UFA-014N *	UFA-014S
Methyl g-linolenate (<i>Gamma Linolenic acid</i>) 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 (<i>Homogamma linolenic acid</i>) 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 (<i>Arachidonic acid</i>) 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 (<i>Erucic acid</i>) C22:1	1120-34-9	UFA-027N	UFA-027S
Methyl trans-13-docosenoate (<i>Brassicidic acid</i>) 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 (<i>Nervonic acid</i>) 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.



Food Analysis

Lipid Standards

Saturated Methyl Esters

Compound	CAS No.	Neat 100 mg	10 mg/mL in Hexane Solution	1 mL
Methyloctanoate (<i>Caprylate</i>) C8:0	111-11-5	SFA-001N	SFA-001S	
Methylnonoate (<i>Pelargonate</i>) C9:0	1731-84-6	SFA-002N	SFA-002S	
Methyldecanoate (<i>Caprate</i>) C10:0	110-42-9	SFA-003N	SFA-003S	
Methylundecanoate C11:0	1731-86-8	SFA-004N	SFA-004S	
Methyldodecanoate (<i>Laurate</i>) C12:0	111-82-0	SFA-005N	SFA-005S	
Methyltridecanoate C13:0	1731-88-0	SFA-006N	SFA-006S	
Methyltetradecanoate (<i>Myristate</i>) C14:0	124-10-7	SFA-007N	SFA-007S	
Methylpentadecanoate C15:0	7132-64-1	SFA-008N	SFA-008S	
Methylhexadecanoate (<i>Palmitate</i>) C16:0	112-39-0	SFA-009N	SFA-009S	
Methylheptadecanoate (<i>Margarate</i>) C17:0	1731-92-6	SFA-010N	SFA-010S	
Methyloctadecanoate (<i>Stearate</i>) 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 (<i>Arachidate</i>) C20:0	1120-28-1	SFA-014N	SFA-014S	
Methylheneicosanoate C21:0	6064-90-0	SFA-015N	SFA-015S	
Methyldocosanoate (<i>Behenate</i>) C22:0	929-77-1	SFA-016N	SFA-016S	
Methyltricosanoate C23:0	2433-97-8	SFA-017N	SFA-017S	
Methyltetracosanoate (<i>Lignocerate</i>) 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 (<i>Caprylin</i>) C8:0	538-23-8	GS-001N
Dicaprylin C8:0	36354-80-0	GS-002N
Monocaprylin C8:0	19670-49-6	GS-003N
Tridecanoin (<i>Caprin</i>) C10:0	621-71-6	GS-004N
Dicaprin C10:0	53988-07-1	GS-005N
Monocaprin C10:0	26402-22-2	GS-006N
Tridodecanoin (<i>Laurin</i>) C12:0	538-24-9	GS-007N
Dilaurin C12:0	27638-00-2	GS-008N
Monolaurin C12:0	142-18-7	GS-009N
Tritetradecanoin (<i>Myristin</i>) C14:0	555-45-3	GS-010N
Dimyristin C14:0	53563-63-6	GS-011N
Monomyristin C14:0	589-68-4	GS-012N
Trihexadecanoin (<i>Palmitin</i>) C16:0	555-44-2	GS-013N
Dipalmitin C16:0	26657-95-4	GS-014N
Monopalmitin C16:0	542-44-9	GS-015N
Trioctadecanoin (<i>Stearin</i>) C18:0	555-43-1	GS-016N
Distearin C18:0	1323-83-7	GS-017N
Monostearin C18:0	22610-63-5	GS-018N
Trieicosanoin (<i>Arachidin</i>) C20:0	620-64-4	GS-019N
Diarachidin C20:0	60586-60-9	GS-020N
Monoarachidin C20:0		GS-021N
Tridocosanoin (<i>Behenin</i>) 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
Diiolein 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 *
Dilinenin 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 *
Triecosenoin C20:1 cis	80380-39-8	UG-028N
Dieicosenoin C20:1	102783-82-4	UG-029N
Monoeicosenoin C20:1		UG-030N
11-14 cis Triecosadienoin 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

		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
AOCS Reference Mix	Cat. No.															
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.

		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	C20:0 Arachidate	C22:0 Behenate	C24:0 Lignocerate	
NHI/NIH Reference Mix	Cat. No.	100 mg											
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.



Food Analysis

FAMES

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)

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)

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)

Methyl Ester Mix #1

FAMQ-001 * 40 mg
Storage: -20°C, Protect from light
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
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-Eicosatrienoic 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
10mM of each component in deionized H₂O.

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

Standards of Interest

For FAME standards refer to BioFuels in the Petrochemical section.

FAME Quantitative Standard Mix

FAMQ-005 * 1 x 1 mL
Storage: -20°C, Protect from light
At stated conc. in CH₂Cl₂ (total of 10 mg/mL) 37 comps.

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				Fat Soluble			
	CAS No.	Unit	Cat. No.				
Thiamine • HCL	B1 67-03-8	1 gram	VIT-001N	dl-alpha-Tocopherol	E 10191-41-0	100 mg	VIT-012N
Riboflavin	B2 83-88-5	1 gram	VIT-002N	Cholecalciferol	D3 67-97-0	100 mg	VIT-013N
Pyridoxine • HCL	B6 58-56-0	1 gram	VIT-003N	Retinol Palmitate	A, Palmitate 79-81-2	100 mg	VIT-014N
L-Ascorbic acid	C 50-81-7	1 gram	VIT-004N	dl-alpha-Tocopherol acetate	7695-91-2	100 mg	VIT-015N
Nicotinic acid	Niacin 59-67-6	1 gram	VIT-005N	Phylloquinone	K1 84-80-0	100 mg	VIT-016N
Nicotinamide	98-92-0	1 gram	VIT-006N	Menaquinone	K2 11032-49-8	100 mg	VIT-017N
Folic Acid	M 59-30-3	1 gram	VIT-007N	Menadione	K3 58-27-5	100 mg	VIT-018N
Calcium-D-pantothenate	B5 137-08-6	100 mg	VIT-008N	β-Carotene (Substantially free of alpha Carotene)	7235-40-7	10 mg	VIT-019N
d-Biotin	H 58-85-5	100 mg	VIT-009N-R1	d-alpha-Tocopherol succinate	E 4345-03-3	100 mg	VIT-020N
Cyanocobalamin	B12 68-19-9	25 mg	VIT-010N-R1	Ergocalciferol	D2 50-14-6	100 mg	VIT-022N
Water Soluble Vitamin Set	VIT-WSK-R1-SET		10 units	Fat Soluble Vitamin Set	VIT-FSK-R2-SET		10 units
	Includes: VIT-001N to VIT-010N			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
Allylthiocyanate	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
		100 mg	Neat	ALR-087N
Butylated hydroxyanisole (BHA)	25013-16-5	100 µg/mL	MeOH	ALR-087S
		100 mg	Neat	ALR-088N
Butylated hydroxytoluene (BHT & 2,6-DBPC)	128-37-0	100 µg/mL	MeOH	ALR-088S
		100 mg	Neat	ALR-089N
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
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-Diaminoanisoole 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

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-butenate	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
Polyvinylpyrrolidone 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) (Tetramethylthiouam 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	
Allylthiocyanate	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-butenolate	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	

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	

Metals

Set of 8 Metals Solutions ALR-MET-SET 8 x 100 mL
Each at 1000 µg/mL 2-5% HNO₃ 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 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.

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 Cat. No.	100 mg	Solution Cat. No.	1 mL
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	<i>Ponceau Xylidine</i>	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	
<i>Basic Blue 26</i>	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	
<i>Congo Red</i>	see Direct Red 28					
Crocein Scarlet 3b		5413-75-2	DYE-115N		DYE-115S	
<i>Crystal Violet</i>	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	<i>Congo Red</i>	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 Cat. No.	100 mg	Solution Cat. No.	1 mL
Food Yellow 3	<i>Sunset Yellow FCF</i>	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	
<i>Ponceau Xylidine</i>	see Acid Red 26					
Rhodamine B		81-88-9	-----		DYE-118S	
Solvent Orange 7	Sudan II	3118-97-6	DYE-021N		DYE-021S	
<i>Solvent Orange R</i>	see Solvent Yellow 14					
Solvent Red 19	<i>Sudan Red 7B</i>	6368-72-5	DYE-025N		DYE-025S	
Solvent Red 23	<i>Sudan III</i>	85-86-9	DYE-022N		DYE-022S	
Solvent Red 24	<i>Sudan IV</i>	85-83-6	DYE-023N		DYE-023S	
Solvent Yellow 1		3457-98-5	-----		DYE-029S	
Solvent Yellow 14	<i>Sudan I, Solvent Orange R</i>	842-07-9	DYE-020N		DYE-020S	
<i>Sudan I</i>	see Solvent Yellow 14					
Sudan II	Solvent Orange 7	3115-97-6	DYE-045N		DYE-045S	
<i>Sudan III</i>	see Solvent Red 23					
Sudan IV	see Solvent Red 24					
<i>Sudan Red 7B</i>	see Solvent Red 19					
Sunfast D & C Red 34		569-61-9	DYE-061N		DYE-061S	
<i>Sunset Yellow FCF</i>	see Food Yellow 3					
Timbasol Brown trans oxide		569-61-9	DYE-055N		DYE-055S	
Victoria Blue	<i>Basic Blue 26</i>	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 Cat. No.	100 mg	100 µg/ml in MeOH Cat. No.	1 mL
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
Perfluorooctanoic 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



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

Japan Drinking Water Odor Standard

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

(+/-) Geosmin
2-methylisoborneol

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

Each at 0.2 mg/mL in MeOH

15 x 1 mL

(below 15 comps.)

Multi-Component Solution

M-REF

0.2 mg/mL each in MeOH

1 x 1 mL

(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

Each at 0.2 mg/mL in MeOH

set of 9 x 1 mL

(below 9 comps.)

Multi-Component Solution

M-REF-X

0.2 mg/mL each in MeOH

1 x 1 mL

(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

C₁-C₅ 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

C₆-C₈ 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

nC₆-C₂₂ 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 C₆-C₁₆

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

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-Trihydroxybutylophenone)
- (05) Ethoxyquin (1,2-Dihydro-6-ethoxy-2,2,4-trimethyl quinoline)
- (06) *tert*-Butyl hydroquinone
- (07) DLTPD (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

Aromatics C₆-C₉

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-Trimethylbenzene
- (10) 1,2,3-Trimethylbenzene
- (11) 1-Ethyl-2-Methylbenzene
- (12) 1-Ethyl-3-Methylbenzene
- (13) 1-Ethyl-4-Methylbenzene
- (14) Benzene

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 C₈-C₁₂ Mixture

PS-CP-02-1ML 1 mL

0.5 mg/mL each in *n*-Hexane

5 comps.

- | | |
|--------|----------|
| Octane | Undecane |
| Nonane | Dodecane |
| Decane | |

Alkane C₈-C₄₀ 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 | Tetracontane |
| Hexadecane | Hexatriacontane |
| Heptadecane | Octatriacontane |
| Octadecane | Tetracontane |
| Nonadecane | |

Alkane C₂₂-C₃₂

Even Number Mixture

PS-CP-04-1ML 1 mL

0.5 mg/mL each in *n*-Hexane

6 comps.

- | | |
|-------------|---------------|
| Docosane | Octacosane |
| Tetracosane | Triaccontane |
| Hexacosane | Dotriacontane |

Alkane C₃₄-C₄₄

Even Number Mixture

PS-CP-05A-1ML 1 mL

0.5 mg/mL each in *n*-Hexane

4 comps.

- | | |
|-----------------|-----------------|
| Tetracontane | Octatriacontane |
| Hexatriacontane | Tetracontane |

Non-Polar Columns

Test Mix

PS-CP-01-1ML 1 mL

At the stated conc. in CH₂Cl₂

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.

Alkane C₁₃-C₂₀ 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 |



Qualitative Analysis Kits

PolyStandard™

Hydrocarbons

Alkanes nC₆-nC₁₉

PS-211C-R1-SET

14 ampules

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

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

Alkenes C₈-C₂₂

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 (<i>cis</i> , <i>trans</i>)	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 nC₁₉-nC₄₀

PS-261C-R1-SET

14 ampules

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

(01) <i>n</i> -Nonadecane	10%
(02) <i>n</i> -Eicosane	10%
(03) <i>n</i> -Heneicosane	10%
(04) <i>n</i> -Docosane	10%
(05) <i>n</i> -tricosane	10%
(06) <i>n</i> -Tetracosane	10%
(07) <i>n</i> -Pentacosane	10%
(08) <i>n</i> -Hexacosane	10%
(09) <i>n</i> -Octacosane	10%
(10) <i>n</i> -triacontane	1%
(11) <i>n</i> -Dotriacontane	1%
(12) <i>n</i> -Hexatriacontane	1%
(13) <i>n</i> -Octatriacontane	1%
(14) <i>n</i> -Tetracontane	1%

Naphthenes C₅-C₁₀

PS-281C-R1-SET

14 ampules

Neats at 1 mL each.

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

Sugars & Sugar Alcohols

Alkenes C₆-C₁₀

PS-231C-R1-SET

14 ampules

Neats at the stated quantities.

(01) Hexene-1	1 mL
(02) Hexene-2 (<i>cis</i> , <i>trans</i>)	0.5 mL
(03) 2-Methylpentene-1	1 mL
(04) 4-Methylpentene-1	1 mL
(05) 4-Methylpentene-2 (<i>cis</i> , <i>trans</i>)	0.5 mL
(06) 2-Ethylbutene-1	0.5 mL
(07) Heptene-1	1 mL
(08) Heptene-2 (<i>cis</i> , <i>trans</i>)	0.5 mL
(09) Heptene-3 (<i>cis</i> , <i>trans</i>)	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

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

Glycols & Glycol Ethers

Glycols C₃-C₁₂

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 C₃-C₁₀

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 <i>n</i> -butyl ether (2- <i>n</i> -Butoxyethanol)
(04) Ethylene glycol <i>n</i> -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 <i>n</i> -butyl ether [2-(2- <i>n</i> -Butoxyethoxy)-ethanol]
(09) Diethylene glycol <i>n</i> -hexyl ether [2-(2- <i>n</i> -Hexoxyethoxy)-ethanol]
(10) Propylene glycol methyl ether (1-Methoxy-isopropanol)
(11) Propylene glycol <i>n</i> -propyl ether (1-Propoxy-isopropanol)
(12) Propylene glycol <i>n</i> -butyl ether (1- <i>n</i> -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%

Aldehydes

Aldehydes

PS-450E-R2-SET

15 ampules

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

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

Qualitative Analysis Kits

PolyStandard™



Acids & Esters

Saturated Fatty Acids

Methyl Ester

SFA-N-SET 18 vials

Neats at 100 mg each.

- (01) Methyl octanoate (*Caprylate*) C8:0
- (02) Methyl nonanoate (*Pelargonate*) C9:0
- (03) Methyl decanoate (*Caprate*) C10:0
- (04) Methyl undecanoate C11:0
- (05) Methyl dodecanoate (*Laurate*) C12:0
- (06) Methyl tridecanoate C13:0
- (07) Methyl tetradecanoate (*Myristate*) C14:0
- (08) Methyl pentadecanoate C15:0
- (09) Methyl hexadecanoate (*Palmitate*) C16:0
- (10) Methyl heptadecanoate (*Margarate*) C17:0
- (11) Methyl octadecanoate (*Stearate*) C18:0
- (12) Methyl 12-hydroxystearate C18:0
- (13) Methyl nonadecanoate C19:0
- (14) Methyl eicosanoate (*Arachidate*) C20:0
- (15) Methyl heneicosanoate C21:0
- (16) Methyl docosanoate (*Behenate*) C22:0
- (17) Methyl tricosanoate C23:0
- (18) Methyl tetracosanoate (*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 C₃-C₁₈

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) <i>o</i> -Cresol | 1 mL/Neat |
| (03) <i>m</i> -Cresol | 1 mL/Neat |
| (04) <i>p</i> -Cresol | 1 mL/Neat |
| (05) <i>o</i> -Ethylphenol | 1 mL/10% |
| (06) <i>p</i> -Ethylphenol | 1 mL/10% |
| (07) 2- <i>iso</i> -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 (*Thimeth*)

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 CH₂Cl₂ 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

- | | |
|-----------------------------|-------|
| <i>Ethyl mercaptan</i> | 13.4% |
| <i>n</i> -Propyl mercaptan | 22.4% |
| <i>iso</i> -Butyl mercaptan | 28.6% |
| <i>n</i> -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 %
- | | |
|------------------------------|-------|
| <i>Dimethyl phthalate</i> | 16.7% |
| <i>Diethyl phthalate</i> | 16.7% |
| <i>Di-n-propyl phthalate</i> | 33.3% |
| <i>Di-n-butyl phthalate</i> | 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

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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	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Acenaphthene 83-32-9	100	M	APP-9-001		4-Aminobiphenyl 92-67-1	100	D	APP-9-011	
Acenaphthene-d₁₀ 15067-26-2	500	M	M-548.1-IS		Aminocarb 2032-59-9	100	CN	M-632-01	
Acenaphthylene 208-96-8	100	M	APP-9-002		2-Amino-4,6-dinitrotoluene 35572-78-2	100	M:CN	M-8330-13-0.1X	
Acephate 30560-19-1	1,000	A	P-200S-A		4-Amino-2,6-dinitrotoluene 19406-51-0	1,000	M:CN	M-8330-14-0.1X	
Acetaldehyde 75-07-0	1,000	W	M-8315-01		4-Aminopyridine 504-24-5	100	M	P-407S	
Acetaldehyde-DNPH 1019-57-4	1,000	M	M-554-01 *		Anilazine 101-05-3	100	H:A	P-287S-H	
Acetochlor 34256-82-1	100	CN	M-8315-R-DNPH-01		Aniline 62-53-3	100	M	APP-9-012	
Acetone 67-64	100	M	P-465S		Aniline-d₆ 4165-61-1	1,000	M	APP-9-012-10X	
Acetone-DNPH 1567-89-1	100	W	M-8015B/5031-01		Anthracene 120-12-7	200	D	M-625-01	
Acetonitrile 75-05-8	100	CN	M-8315-R2-DNPH-02		Anthracene-d₁₀ 1719-06-8	2,000	D	M-625-01-10X	
Acetophenone 98-86-2	100	M	APP-9-005		Aramite 140-57-8	100	M	P-132S	
2-Acetylaminofluorene 53-96-3	1,000	D	APP-9-005-10X		Asulam 3337-71-1	100	M	P-276S	
Acifluorfen 50594-66-6	100	D	APP-9-004		Atrazine 1912-24-9	100	M	P-005S	
Acifluorfen methyl ester 50594-67-7	2000	D	APP-9-004-20X		Atrazine desethyl 6190-65-4	1,000	M	P-005S-10X	
Acrolein 107-02-8	100	D	APP-9-006		Atrazine-desisopropyl 1007-28-9	100	M	P-343S	
Acrolein-DNPH 888-54-0	100	M:W	APP-9-007 *		Azamethiphos 35575-96-3	100	M	P-345S	
Acrylamide 79-06-1	1,000	M:W	APP-9-007-10X *		Azinphos-ethyl 2642-71-9	100	M	P-352S	
Acrylonitrile 107-13-1	100	CN	M-8315-R-DNPH-03		Azinphos-methyl 86-50-0	100	M	P-201S	
Alachlor 15972-60-8	1,000	CN	M-8315-R-DNPH-03-10X		Azobenzene 103-33-3	1,000	H	M-8141A-1-01	
Alanap 132-66-1	100	M	M-8032		Barbamate (Barban) 101-27-9	100	M	P-007S	
Aldicarb 116-06-3	100	D	P-102S		Baycarb 3766-81-2	1,000	H	M-8140-01	
Aldicarb sulfone 1646-88-4	1,000	M	P-102S-10X		Baygon 114-26-1	2,000	D	Z-014B-1	
Aldicarb sulfoxide 1646-87-3	100	M	P-274S		Benazolin 3813-05-6	100	M	P-202S	
Aldrin 309-00-2	100	CN	M-531-02		Bendiocarb 22781-23-3	100	M	P-202S	
Allethrin 584-79-2	100	M	M-531-01		Benfluralin 1861-40-1	100	CN	M-632-02	
Allyl alcohol 107-18-6	100	M	P-131S		Benfuracarb 82560-54-1	100	M	P-347S	
Allyl chloride 107-05-1	100	CN	M-531-01		Benomyl 17804-35-2	100	M	P-009S	
Ametryn 834-12-8	100	M	P-002S		Bensulfuron-methyl 83055-99-6	100	CN	M-531-07	
	1,000	M	P-002S-10X			100	M	P-397S	
	100	M	P-003S			100	M	P-203S	
	1,000	M	P-003S-10X			100	CN	M-639	
						100	M	P-237S	
						100	M	P-454S	
						1000	M	P-454S-10X	
						100	CN	P-104S-CN *	
						100	M	P-597S	

Analytes in EPA Methods



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Bensulide 741-58-2	100	CN	M-636		Bromochlorodifluoromethane 353-59-3	200	M	M-REF-X-01	
Bentazon 25057-89-0	100	CN	P-204S		Bromochloromethane 74-97-5	200	M	M-502-03	
Bentazon methyl 61592-45-8	100	A	M-643			2,000	M	M-502-03-10X	
Benz[a]anthracene 56-55-3	100	M	P-177S-A		2-Bromo-1-chloropropane 3017-95-6	200	M	M-624-SS-04	
Benz[a]anthracene-d₁₂ 1718-53-2	200	M	P-241S		Bromodichloroacetic acid 71133-14-7	20,000	M	M-001R-3	
Benzaldehyde-DNPH 1157-84-2	1,000	M	APP-9-016		Bromodichloromethane 75-27-4	40	MT	M-552.2A-02	
Benzene 71-43-2	200	D	APP-9-016-10X		4-Bromo-3,5-dimethylphenyl-N-methylcarbamate 672-99-1	200	M	M-502-04	
Benzene-d₆ 1076-43-3	2,000	D	M-625-03		p-Bromofluorobenzene 460-00-4	2,000	M	M-502-04-10X	
Benzidine 92-87-5	50	D	M-625-03-10X		Bromoform 75-25-2	200	M	M-502-05	
Benzo[a]pyrene 50-32-8	200	M	M-625C-1		Bromomethane 74-83-9	2,000	M	M-502-05-10X	
Benzo[b]fluoranthene 205-99-2	500	D	M-625C-1-40X		1-Bromo-2-nitrobenzene 577-19-5	200	M	M-502-06	
Benzo[g,h,i]perylene 191-24-2	100	CN	APP-9-020		4-Bromophenyl phenyl ether 101-55-3	1,000	A	M-8081-IS-DC	
Benzo[k]fluoranthene 207-08-9	100	M	APP-9-017		Bromophos-ethyl 4824-78-6	100	M	APP-9-033	
Benzoic acid 65-85-0	1,000	D	APP-9-017-10X		2-Bromopropanoic acid 598-72-1	100	M	P-372S	
Benzyl alcohol 100-51-6	100	M	APP-9-019		Bromotrifluoromethane (Freon #13b1)	1,000	M	P-372S-10X	
Benzyl benzoate 120-51-4	500	CN	M-8310-FL-05		Bueno 2163-80-6	1,000	MT	M-552.1-SS	
Benzyl butyl phthalate 85-68-7	2,000	D	Z-014D-1		Butachlor 23184-66-9	200	M	M-REF-01	
Benzyl chloride 100-44-7	100	M	APP-9-021		1,3-Butadiene 106-99-0	100	M	P-279S	
α-BHC 319-84-6	5,000	M	APP-9-021-50X		Butanal 123-72-8	100	M	P-191S	
β-BHC 319-85-7	5,000	H	M-8061-IS		Butanal-DNPH 1527-98-6	1,000	M	P-191S-10X	
δ-BHC 319-86-8	100	M	APP-9-034		1-Butanol 71-36-3	200	M	S-406A	
BHC Tech 608-73-1	100	M	P-010S		t-Butanol 75-65-0	2,000	M	S-406A-10X	
BifenoX 42576-02-3	1,000	M	P-010S-10X		Butylate 2008-41-5	1,000	M	M-554-02 *	
Bifenthrin 82657-04-3	100	M	P-011S		n-Butylbenzene 104-51-8	100	CN	M-8315-R-DNPH-05	
Bitertanol 55179-31-2	100	M	P-012S		sec-Butylbenzene 135-98-8	1,000	M:CN	M-554-DNPH-02	
Bloc 60168-88-9	100	M	P-012S-10X		tert-Butylbenzene 98-06-6	10,000	W	M-8015B/5031-06	
Bolstar 35400-43-2	100	M	P-081S		Captafol 2425-06-1	100	M	P-254S	
Botran 99-30-9	100	M	P-257S		Captan 133-06-2	100	M	P-182S *	
Bromacil 314-40-9	100	M	P-445S		Carbaryl 63-25-2	100	M	P-083S	
Brominal 1689-84-5	100	M	P-445S-10X		Carbazole 86-74-8	1,000	M	P-083S-10X	
Bromoacetic acid 79-08-3	1,000	MT	M-552A-1		Carbendazim 10605-21-7	100	M	M-634-IS	
4-Bromoanisole 108-86-1	50	M	BAN-03		Carbofuran 1563-66-2	100	CN	M-631	
2-Bromobiphenyl 2052-07-5	200	M	M-502-02		Carbon disulfide 75-15-0	100	M	P-278S	
Bromochloroacetic acid 5589-96-8	2,000	M	M-502-02-10X		Carbon tetrachloride 56-23-5	200	M	M-531-08	
Bromochloroacetonitrile 83463-62-1	5,000	A	M-8081-SS-X		Carbophenothion 786-19-6	100	M	P-106S	
2-Bromochlorobenzene 694-80-4	200	M	M-624-SS-12		Carbosulfan 55285-14-8	100	H	M-8141A-1-02	
4-Bromochlorobenzene 106-39-8	2,000	M	M-8020-SS-1		Carboxin 5234-68-4	100	M	P-446S	
					Chloral hydrate 302-17-0	5,000	A	P-216S	
						1,000	M	M-551B-2	
								M-E-1179-M	

* ColdPAK required to maintain integrity of product.

Analytes in EPA Methods continued on next page



Analytes in EPA Methods

Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Chloramben 133-90-4	100	M	P-243S		3-Chloro-1,2-propanediol 96-24-2	100	M	P-408S	
Chloramben methyl ester 7286-84-2	100	M	P-272S		Chloropropylate 5836-10-2	100	M	P-213S	
Chlorbenside 103-17-3	100	M	P-107S		2-Chloro-1,1,1,2-tetrafluoroethane (Freon #124)	200	M	M-REF-X-02	
	1,000	M	P-107S-10X		Chlorothalonil 1897-45-6	100	M	P-222S	
α-Chlordane 5103-71-9	100	M	P-134S			1,000	M	P-222S-10X	
	100	H	P-134S-H		2-Chlorotoluene 95-49-8	200	M	M-502-15	
Chlordane 57-74-9	100	M	P-017S			2,000	M	M-502-15-10X	
	1,000	M	P-017S-10X		4-Chlorotoluene 106-43-4	200	M	M-502-16	
γ-Chlordane 5103-74-2	100	M	P-135S			2,000	M	M-502-16-10X	
	1,000	M	P-135S-10X		Chlorotrifluoromethane (Freon #13)	200	M	M-REF-07	
Chlordene 3734-48-3	100	M	P-136S		Chlorpropham 101-21-3	100	CN	M-632-05	
Chlorfenvinphos 470-90-6	100	M	P-139S			1,000	H	M-8140-03	
	1,000	H	M-8141A-1-03		Chlorpyrifos 2921-88-2	100	M	P-223S	
Chlorfluorecol-methyl ester 2536-31-4	100	M	P-401S			5598-13-0			
	100	M	P-401S-10X		Chlorpyrifos-methyl				
Chlorimuron-ethyl 90982-32-4	100	CN	P-284S-CN		Chlorsulfuron 64902-72-3	100	CN	P-262S-CN	
bis(2-Chloro-1-methylethyl)ether 108-60-1	100	D	APP-9-028		Chrysene 218-01-9	100	M	APP-9-049	
Chloroacetic acid 79-11-8	1,000	MT	M-552A-2			500	CN	M-8310-FL-09	
p-Chloroaniline 106-47-8	100	M	APP-9-038		Chrysene-d₁₂ 1719-03-5	2,500	T	M-680B	
Chlorobenzene 108-90-7	200	M	M-502-11			4,000	D	Z-014J-2	
	2,000	M	M-502-11-10X		Clethodim 99129-21-2	100	CN	P-602S-CN	
Chlorobenzilate 510-15-6	100	CN	P-133S-CN			1,000	CN	P-602S-CN-10X	
	1,000	CN	P-133S-CN-10X		Clopyralid methyl ester 1532-24-7	100	M	P-488S	
Chlorodibromoacetic acid 5278-95-5	100	MT	M-552.2A-03		Coumaphos 56-72-4	100	M	P-019S	
1-Chloro-1,1-difluoroethane (Freon #142b)	200	M	M-REF-02			1,000	H	M-8140-04	
Chlorodifluoromethane (Freon #22)	200	M	M-REF-03		4-CPA 122-88-3	100	M	P-373S	
Chloroethane 75-00-3	200	M	M-502-12		m-Cresol 108-39-4	100	D	APP-9-050	
	2,000	M	M-502-12-10X			1,000	D	APP-9-050-10X	
Chloroethane (Freon #160)	200	M	M-REF-04		o-Cresol 108-39-4	100	D	APP-9-051	
bis(2-Chloroethoxy)methane 111-91-1	100	D	APP-9-026			2,000	D	APP-9-051-20X	
	1,000	M	APP-9-026-M-10X		p-Cresol 106-44-5	100	D	APP-9-052	
bis(2-Chloroethyl)ether 111-44-4	100	M	APP-9-027		Crotonaldehyde 123-73-9	1,000	M	M-554-03 *	
	400	M	APP-9-027-40X		Crotonaldehyde-DNPH	100	CN	M-8315-R-DNPH-06	
2-Chloroethylvinyl ether 110-75-8	200	M	M-601C *			1,000	M:CN	M-554-DNPH-03	
	2,000	M	M-601C-10X *		Cruformate 299-86-5	100	M	P-292S	
1-Chloro-2-fluorobenzene 348-51-6	2,000	M	S-163		Cyanazine 21725-46-2	100	CN	M-629	
1-Chloro-4-fluorobenzene 352-33-0	200	M	M-624-SS-13			100	M	P-175S	
Chloroform 67-66-3	200	M	M-502-13		Cycloate 1134-23-2	100	M	P-248S	
	2,000	M	M-502-13-10X		Cyclohexanone 108-94-1	1,000	M	M-554-04 *	
1-Chlorohexane 544-10-5	200	M	M-8010R-1-04		Cyclohexanone-DNPH 1589-62-4	100	CN	M-8315-R-DNPH-07	
	2,000	M	M-8010R-1-04-10X		Cypermethrin 52315-07-8	100	M	P-225S	
Chloromethane 74-87-3	200	M	M-502-14			1,000	M	P-225S-10X *	
	2,000	M	M-502-14-10X		Cyprazine 22936-86-3	100	M	P-420S	
bis(Chloromethyl)ether 542-88-1	100	H	S-006			100	H	P-420S-H	
	2,000	H	S-006-20X		Cyromazine 66215-27-8	100	M	P-296S	
4-Chloro-3-methylphenol 59-50-7	100	M	APP-9-041		2,4-D 94-75-7	100	M	P-020S	
2-Chloronaphthalene 91-58-7	100	M	APP-9-045			200	M	M-8150S-A-01	
	2000	H	M-8120-01		2,6-D acid 575-90-6	100	M	P-690S	
4-Chloro-3-nitrobenzotrifluoride 121-17-5	1,000	A	M-8081-SS-DC			100	CN	P-690S-CN	
Chloropentafluoroethane 76-15-3	200	M	M-REF-06		2,4-D butoxyethyl ester 1929-73-3	10	mg	P-438N	
2-Chlorophenol 95-57-8	100	M	APP-9-046		2,4-D ethyl ester 533-23-3	100	M	P-636S	
	2000	D	APP-9-046-D-20X		2,4-D ethylhexyl ester 1928-43-4	100	H	P-439S-H	
2-Chlorophenol-d₄ 93951-73-6	200	D	M-625-20		2,4-D methyl ester 1928-38-7	100	M	P-021S	
4-Chlorophenyl phenyl ether 7005-72-3	100	M	APP-9-047			200	H	M-8150-01	
Chloropicrin 76-06-2	5,000	A	M-551B-3		Dacthal 1861-32-1	100	M	P-196S	
	100	M	P-398S		Dalapon acid 75-99-0	40	MT	M-552.2A-04	
Chloroprene 126-99-8	100	M	APP-9-048-R1			200	CN	M-8150S-A-05 *	
	1,000	M	APP-9-048-R1-10X						

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	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Dalapon methyl ester 17640-02-7	200	M	M-552.1-01		Dibromoacetic acid 631-64-1	20	MT	M-552.2A-05	
Danitol 39515-41-8	100	M	P-263S		Dibromoacetonitrile 3252-43-5	1,000	MT	M-552A-5	
Dasanit 115-90-2	1,000	M	P-263S-10X		4,4'-Dibromobiphenyl 92-86-4	5,000	A	M-551B-4	
Dazomet 533-74-4	100	M	P-235S		2,000	D	M-625-05		
2,4-D-PFB	1000	H	P-235S-H-10X		Dibromochloromethane 124-48-1	2,000	M	M-625-05-10X	
2,4-DB acid 94-82-6	25	A	M-1659-MS		1,2-Dibromo-3-chloropropane 96-12-8	200	M	M-502-17	
2,4-DB methyl ester 18625-12-2	100	M	P-465S		1,2-Dibromoethane 106-93-4	2,000	M	M-502-17-10X	
DCPA diacid 2136-79-0	100	MT	M-8150-02-PFB		Dibromofluoromethane 1868-53-7	200	M	M-502-18	
p,p'-DDA 83-05-6	200	M	P-141S		Dibromomethane 74-95-3	2,000	M	M-502-18-10X	
o,p'-DDD 53-19-0	100	M	P-228S		a,a-Dibromo-m-xylene 626-15-3	200	M	M-502-19	
p,p'-DDD 72-54-8	100	M	M-8150-A-02		4,4'-Dibromo-octafluorobiphenyl 10386-84-2	200	D	M-502-19-10X	
o,p'-DDE 3424-82-6	100	M	P-444S		1,2-Dibromopropane 78-75-1	200	M	M-8260-SS-2	
p,p'-DDE 72-55-9	1000	M	P-444S-10X		2,3-Dibromopropionic acid 600-05-5	2,000	M	M-8260-SS-2-10X	
4,4'-DDMU 1022-22-6	100	M	P-024S		1,2-Dibromotetrafluoroethane 124-73-2	1,000	MT	M-552-SS	
o,p'-DDT 789-02-6	100	M	P-026S		Dibutylchloroendate 1770-80-5	20,000	MT	M-REF-X-03	
p,p'-DDT 50-29-3	100	M	P-027S		100	A	M-1618-SS		
DDT, Tech 50-29-3	100	M	P-027S-10X		100	M	P-109S		
Decachlorobiphenyl 2051-24-3	100	M	P-424S		100	M	P-008S		
Decafluorobiphenyl 434-90-2	100	M	P-028S		200	M	M-8150S-A-06		
Decafluorotriphenylphosphine 5074-71-5	100	M	P-029S		100	M	P-071S		
Decanal 112-31-2	100	M	P-346S		200	H	M-8150-06		
Decanal-DNPH 1527-95-3	100	M	P-346S-CN		100	M	P-035S		
Deet (Off®) 134-62-3	100	M	P-255S		1,000	M	P-035S-10X		
DEF 6 78-48-8	200	A	CLP-032-R-01		100	M	P-275S		
Deltamethrin 52918-63-5	500	MT	M-508-SS-2		Dichlobenil 1194-65-6	100	M	P-211S	
Demeton-S 126-75-0	200	D	M-625-04		Dichlofenthion 97-17-6	100	M	P-253S	
Demeton-S-methyl 919-86-8	2,000	D	M-625-04-10X		Dichlone 117-80-6	100	M	P-675S	
DFTPP 5074-71-5	10	D	M-680-TS		Dichloramid 37764-25-3	100	M	P-675S	
DFTPPO	25	D	M-625C-3		Dichloroacetic acid 79-43-6	60	MT	M-552.2A-06	
Diallate 2303-16-4	1,000	M	M-554-05		1,000	MT	M-552A-3 *		
2,6-Diamino-4-nitrotoluene 59229-75-3	100	M	P-150S		Dichloroacetonitrile 3018-12-0	5,000	A	M-551B-5	
2,4-Diamino-6-nitrotoluene 6629-29-4	100	M	P-355S		1,2-Dichlorobenzene 95-50-1	200	M	M-502-21	
Diazinon 333-41-5	100	M	P-271S		2,000	M	M-502-21-10X		
Dibenz[a,h]anthracene 53-70-3	100	M	P-482S		1,3-Dichlorobenzene 541-73-1	200	M	M-502-22	
Dibenzofuran 132-64-9	100	M	P-033S		2,000	M	M-502-22-10X		
	1,000	H	M-622-06		1,4-Dichlorobenzene 106-46-7	200	M	M-502-23	
	100	M	APP-9-058		2,000	M	M-502-23-10X		
	500	CN	M-8310-FL-10		1,2-Dichlorobenzene-d, 2199-69-1	200	M	M-624-SS-11	
	100	M	APP-9-059		2,000	M	M-624-SS-11-10X		
	100	M	P-033S		1,4-Dichlorobenzene-d, 3855-82-1	2,000	M	Z-014J-3-M-0.5X	
	1,000	H	M-622-06		4,000	D	Z-014J-3		
	100	M	APP-9-058		100	M	APP-9-067		
	500	CN	M-8310-FL-10		2,000	M	Z-014F-2		
	100	M	APP-9-059		100	M	P-242S		
	100	M	P-142S		1,000	M	P-242S-10X		
	100	CN	M-8330-ADD-13		100	M	P-295S		
	100	CN	M-8330-ADD-12		1,000	M	P-295S-10X		
	100	M	P-033S		4,4'-Dichlorobiphenyl 2050-68-2	500	MT	M-508-SS	
	1,000	H	M-622-06		1,4-Dichlorobutane 110-56-5	200	M	M-624-SS-05	
	100	M	APP-9-058		trans-1,4-Dichloro-2-butene 110-57-6	100	M	APP-9-068	
	500	CN	M-8310-FL-10		Dichlorodifluoromethane 75-71-8	200	M	M-502-24	
	100	M	APP-9-059		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

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Dichlorodifluoromethane (Freon #12)	200	M	M-REF-08		1,1-Difluoroethane (Freon 152a)	200	M	M-REF-11	
1,1-Dichloroethane 75-34-3	200 2,000	M M	M-502-25 M-502-25-10X		Dimethox 115-26-4	100	M	P-299S	
1,2-Dichloroethane 107-06-2	200 2,000	M M	M-502-26 M-502-26-10X		Dimethoate 60-51-5	1,000 1,000	H:A M	M-8141-01 P-039S-10X	
cis-1,2-Dichloroethene 156-59-2	200 2,000	M M	M-502-28 M-502-28-10X		Dimethyl phosphate 813-78-5	100	M	P-442S	
1,2-Dichloroethane-d ₂ 17060-07-0	200 2,000	M M	M-624-SS-06 M-624-SS-06-10X		Dimethyl phthalate 131-11-3	100 1,000	M M	APP-9-088 APP-9-088-10X	
1,1-Dichloroethene 75-35-4	200 2,000	M M	M-502-27 M-502-27-10X		2,3-Dimethyl-2,3-dinitrobutane (DMNB) 3964-18-9	100	CN	M-8330-ADD-21	
trans-1,2-Dichloroethene 156-60-5	200 2,000	M M	M-502-29 M-502-29-10X		1,3-Dimethyl-2-nitrobenzene 81-20-9	250 1,000	MT MT	M-507-SS M-507-SS-4X	
1,1-Dichloro-1-fluoroethane (Freon #141B)	200	M	M-REF-X-04		4-Dimethylaminoazobenzene 60-11-7	100	D	APP-9-083	
Dichlorofluoromethane 75-43-4	200 2,000	M M	M-502-61 M-502-61-10X		7,12-Dimethylbenz[a]anthracene 57-97-6	100	D	APP-9-084	
Dichlorofluoromethane (Freon #21)	200	M	M-REF-09		2,5-Dimethylbenzaldehyde-DNPH 152477-96-8	100	CN	M-8315-R-DNPH-09	
Dichloromethane 75-09-2	200 2,000	M M	M-502-39 M-502-39-10X		3,3'-Dimethylbenzidine 119-93-7	100	D	APP-9-085	
Dichlorophen 97-23-4	100	M	P-232S		a,a-Dimethylphenethylamine 122-09-8	100 100	D D	APP-9-086 APP-9-086-20X	
2,4-Dichlorophenol 120-83-2	1,000 1,000	MT M	M-552A-6 M-8040-07		2,4-Dimethylphenol 105-67-9	100 1,000	M M	APP-9-087 M-8040-09	
2,6-Dichlorophenol 87-65-0	100 1,000	D M	APP-9-076 M-8040-08		Di-n-butyl phthalate 84-74-2	100 1,000	M M	APP-9-063 APP-9-063-10X	
2,3-Dichlorophenoxyacetic acid 2976-74-1	100 100	M CN	P-470S P-470S-CN		Dinex 131-89-5	100 1,000	M M	P-427S P-427S-10X	
2,4-Dichlorophenylacetic acid 19719-28-9	100 1,000	A A	M-8150B-SS M-8150B-SS-10X		3,5-Dinitroaniline 618-87-1	100	CN:M	M-8330-ADD-4	
1,2-Dichloropropane 78-87-5	200 2,000	M M	M-502-30 M-502-30-10X		1,2-Dinitrobenzene 528-29-0	1,000	M	M-8330-SS	
1,3-Dichloropropane 142-28-9	200 2,000	M M	M-502-31 M-502-31-10X		1,3-Dinitrobenzene 99-65-0	100 1,000	M:CN M:CN	M-8330-01-0.1X M-8330-01	
2,2-Dichloropropane 594-20-7	200 2,000	M M	M-502-32 M-502-32-10X		4,6-Dinitro-o-cresol 534-52-1	100 1,000	M M	P-384S P-384S-10X	
1,1-Dichloro-2-propanone 513-88-2	5,000	A	M-551B-6		2,4-Dinitrophenol 51-28-5	100 1,000	M M	APP-9-091 M-8040-10	
1,1-Dichloropropene 563-58-6	200 2,000	M M	M-502-33 M-502-33-10X		2,4-Dinitrophenylhydrazine 119-26-6	1,000	CN	M-1667A-DERIV-10ML in 10 mL	
trans-1,3-Dichloropropene 10061-02-6	100	M	APP-9-079		2,4-Dinitrotoluene 121-14-2	100 1,000	M:CN M:CN	M-8330-02-0.1X M-8330-02	
1,3-Dichloropropene (cis/trans) 542-75-6	400 4,000	M M	M-502-34-R M-502-34-R-10X		2,5-Dinitrotoluene 619-15-8	100	CN	M-8095-SS-03	
cis-1,3-Dichloropropene 10061-01-5	100	M	APP-9-078		2,6-Dinitrotoluene 606-20-2	100 1,000	M:CN M:CN	M-8330-03-0.1X M-8330-03	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon #114)	200	M	M-REF-10		3,4-Dinitrotoluene 610-39-9	100 1,000	CN M	M-8095-SS-01 M-8330-IS	
2,2-Dichloro-1,1,1-trifluoroethane (Freon #123)	200	M	M-REF-X-05		Dinocap 39300-45-3	100	M	P-288S	
Dichlorprop 120-36-5	100 200	M M	P-143S M-8150S-A-07		Di-n-octyl phthalate 117-84-0	100	M	APP-9-095	
Dichlorprop methyl ester 57153-17-0	100 200	M H	P-229S M-8150-07		Dinoseb 88-85-7	100 1,000	M M	P-144S M-8040-11	
Dichlorvos 62-73-7	100 1,000	M H	P-036S M-8140-07		Dinoseb methyl ether 6099-79-2	100 200	M H	P-230S M-8150-08	
Diclofop methyl 51338-27-3	100	M	P-303S		Dioxacarb 6988-21-2	100	M	M-8318-05	
Dicrotophos 141-66-2	100	M	P-178S		p-Dioxane 123-91-1	100 1,000	M M	APP-9-096 APP-9-096-10X	
Dieldrin 60-57-1	100 1,000	M M	P-037S P-037S-10X		Dioxathion 78-34-2	100 1,000	M H	P-219S M-8141A-1-04	
Diethyl ether 60-29-7	10,000	W	M-8015B/5031-09		Diphenamid 957-51-7	100	M	P-173S	
Diethyl phosphate (mono- & di-) 598-02-7	100	M	P-443S		Diphenylamine 122-39-4	100 1,000	D M	APP-9-097 M-620	
Diethyl phthalate 84-66-2	100 1,000	M M	APP-9-081 APP-9-081-10X		Diquat dibromide monohydrate (as Diquat)	100 1,000	M M	P-231S P-231S-10X	
1,4-Difluorobenzene 540-36-3	200 2,000	M M	M-624-SS-07 M-624-SS-07-10X		Disulfoton 298-04-4	100 1,000	M H	P-042S M-8140-08	
2,2'-Difluorobiphenyl 388-82-9	200 2,000	D D	M-625-07 M-625-07-10X		Disulfoton sulfone 2497-06-5	100	M	P-582S	
4,4'-Difluorobiphenyl 398-23-2	100	CN	M-550-IS		2,4-DP ethyl hexyl 79270-78-3	100	M	P-429S	

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

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Dursban	100	M	P-094S		Fenthion	100	M	P-148S	
2921-88-2	1,000	M	P-094S-10X		55-38-9	1,000	H	M-8140-11	
Dyfonate	100	M	P-087S		Fenuron	100	M	P-004S	
944-22-9	100	H	P-087S-H		101-42-8	100	CN	M-632-07	
EGDN	100	CN	M-8330-ADD-5		Fenuron TCA	100	M	P-006S	
628-96-6					4482-55-7	100	CN	M-632-08	
Endosulfan I	100	M	P-091S		Fenvalerate *	100	M	P-194S	
959-98-8	10	MT	M-548-IS		51630-58-1				
Endosulfan II	100	M	P-092S		Ferbam	100	M	P-110S	
33213-65-9	1,000	M	P-092S-10X		14484-64-1				
Endosulfan sulfate	100	M	P-145S		Fipronil	100	A	P-738S-A	
1031-07-8	1,000	M	P-145S-10X		120068-37-3	100	M	P-738S	
Endothall	100	M	P-183S		Fipronil sulfide	100	A	P-781S-A	
145-73-3	1,000	M	P-183S-10X		120067-83-6				
Endothall dimethyl ester	100	M	M-548.1-ME		Fipronil sulfone	100	A	P-780S-A	
					120068-36-2				
Endothall pentafluorophenyl hydrazine derivative	100	MT	M-548-CAL		Flamprop-methyl	100	M	P-366S	
					52756-25-9				
Endrin	100	M	P-045S		Fluazifop butyl	100	M	P-310S	
72-20-8	1,000	M	P-045S-10X		69806-50-4				
Endrin aldehyde	100	M	P-046S		Fluazifop-p-butyl	100	M	P-601S	
7421-93-4	1,000	M	P-046S-10X		79241-46-6				
Endrin ketone	100	M	P-146S		Fluchloralin	100	M	P-270S	
53494-70-5					33245-39-5				
EPN	100	A	P-220S-A		Fluometuron	100	M	P-014S	
2104-64-5	1,000	H	M-8141-02		2164-17-2	100	CN	M-632-09	
Ethalfuralin	100	M	P-269S		Fluoranthene	100	M	APP-9-108	
55283-68-6					206-44-0	500	CN	M-8310-FL-11	
Ethanol	10,000	W	M-8015B/5031-11		Fluorene	100	M	APP-9-109	
64-17-5					86-73-7	500	M	M-8310-FL-12	
Ethephon	100	M	P-239S		4-Fluoroaniline	200	D	M-625-08	
16672-87-0					371-40-4	2,000	D	M-625-08-10X	
Ethion	100	M	P-048S		Fluorobenzene	20	M	M-524-IS-2-10X	
563-12-2	1,000	H	M-8141A-1-05		462-06-6	2,000	M	M-524-IS-2	
Ethoprop	100	M	P-129S		2-Fluorobiphenyl	200	D	M-625-09	
13194-48-4	1,000	H	M-8140-09		321-60-8	2,000	D	M-625-09-10X	
Ethyl acetate	10,000	W	M-8015B/5031-12		1-Fluoronaphthalene	200	D	M-625-10	
141-78-6					321-38-0	2,000	D	M-625-10-10X	
Ethyl carbamate	100	M	P-419S		2-Fluoronaphthalene	200	D	M-625-11	
51-79-6					323-09-1				
Ethyl methacrylate	100	M	APP-9-105		2-Fluorophenol	200	D	M-625-16	
97-63-2					367-12-4	2,000	D	M-625-16-10X	
Ethyl methanesulfonate	100	D	APP-9-106		Flurenol methyl ester	100	M	P-412S	
62-50-0					1216-44-0				
Ethylbenzene	200	M	M-502-35		Fluridone	100	M	P-193S	
100-41-4	2,000	M	M-502-35-10X		59756-60-4				
Ethylbenzene-d ₁₀	200	M	M-624-SS-08		Tau-Fluvalinate	100	CN	P-356S-CN	
25837-05-2					102851-06-9				
Ethylene glycol	10,000	W	M-8015B/5031-13		Folpet	100	M	P-258S	
107-21-1					133-07-3				
Ethylene oxide *	5,000	W	M-8015B/5031-14-R1		Formaldehyde	1,000	W	M-8315-02	
75-21-8					50-00-0	1,000	M	M-554-06 *	
bis(2-Ethylhexyl)adipate	100	M	P-233S		Formaldehyde-DNPH	100	CN	M-8315-R-DNPH-10	
103-23-1	1,000	M	P-233S-10X		1081-15-8	1,000	M:CN	M-554-DNPH-06	
bis(2-Ethylhexyl)phthalate	100	M	APP-9-029		Formothion	100	CN	P-149S-CN	
117-81-7	1,000	M	APP-9-029-10X		2540-82-1				
Famphur	100	M	P-147S		Glyphosate	100	W	M-547	
52-85-7	1,000	H	M-8141A-1-06		1071-83-6	1,000	W	P-015S-W-10X	
Fenamiosulf	100	M	P-058S		Guanidine nitrate	100	M	M-8330-ADD-10	
140-56-7	1,000	M	P-058S-10X		506-93-7				
Fenamiphos	100	M	P-114S		Haloxypop	100	M	P-496S	
22224-92-6					69806-34-4	100	CN	P-496S-CN	
Fenitrothion	100	M	P-259S		Haloxypop-methyl	100	M	P-497S	
122-14-5					69806-40-2				
Fenoxaprop-ethyl	100	M	P-365S		Heptachlor	100	M	P-053S	
66441-23-4					76-44-8	1,000	M	P-053S-10X	
Fenoxycarb	100	M	P-686S		Heptachlor epoxide (Isomer A)	100	M	P-294S	
79127-80-3					28044-83-9				
Fensulfthion	1,000	H	M-8140-10		Heptachlor epoxide (Isomer B)	100	M	P-054S	
115-90-2					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

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Heptanal 111-71-7	1,000	M	M-554-07		Linuron 330-55-2	100	M	P-022S	
Heptanal-DNPH 2074-05-7	100	CN	M-8315-R-DNPH-11		Lontrel 1702-17-6	100	CN	M-632-10	
Hexachlorobenzene 118-74-1	1,000	A	M-8091-IS-20X		Malathion 121-75-5	1,000	H	M-8141-03	
Hexachlorobutadiene 87-68-3	2,000	M	M-502-36		MCPA acid 94-74-6	100	M	P-153S	
Hexachlorocyclopentadiene 77-47-4	100	M	APP-9-114		MCPA methyl ester 2436-73-9	2,000	M	M-8150S-A-09	
Hexachloroethane 67-72-1	2,000	H	M-8120-07		MCPB acid 94-81-5	100	M	P-038S	
Hexachlorophene 70-30-4	100	M	APP-9-116		MCPB methyl ester 57153-18-1	2,000	H	M-8150-09	
Hexachloropropene 1888-71-7	2,000	D	APP-9-116-D-20X		MCPP acid 7085-19-0	100	M	P-370S	
Hexanal 66-25-1	100	M	APP-9-117		MCPP methyl ester 2786-19-7	100	CN	P-154S-CN	
Hexanal-DNPH 1527-97-5	1,000	M	M-554-08 *		Mecoprop, 2-Ethylhexyl ester 71526-69-7	2,000	M	M-8150S-A-10	
2-Hexanone 591-78-6	100	M	M-8315-R-DNPH-12		Mercaptobenzothiazole 149-30-4	100	M	P-040S	
Hexazinone 51235-04-2	100	M	M-554-DNPH-08		Merphos 150-50-5	2,000	H	M-8150-10	
HMX 2691-41-0	1,000	M	APP-9-118 *		Metalaxyl 57837-19-1	100	M	P-502S	
Hydrazine 302-01-2	100	M	P-123S		Metaldehyde 9002-91-9	100	CN	M-640	
2-Hydroxyatrazine 2163-68-0	100	M	P-123S-10X		Metamitron 41394-05-2	100	M	M-8140-12	
3-Hydroxycarbofuran 16655-82-6	100	M:C:N	M-8330-04-0.1X		Metazachlor 67129-08-2	100	M	P-120S	
1-Hydroxychlorodene 24009-05-0	100	M	M-8330-04		Methacrylonitrile 126-98-7	100	M	P-600S	
Imidan 732-11-6	100	M	M-8330-ADD-8		Methanol 67-56-1	100	CN	P-600S-CN	
Indeno[1,2,3-cd]pyrene 193-39-5	100	M:A	P-326S		Methapyrilene 91-80-5	100	M	P-252S	
Iodofenphos 18181-70-9	1,000	H	M-8141A-1-08		Methidathion 950-37-8	100	M	P-249S	
Ioxynil 1689-83-4	100	M	APP-9-119		Methiocarb 2032-65-7	100	M	APP-9-125	
Iprodione 36734-19-7	500	CN	M-8310-FL-13		Methomyl 16752-77-5	10,000	W	M-8015B/5031-17	
Isobutyl alcohol 78-83-1	100	M	P-379S		Methoprene 40596-69-8	100	D	APP-9-126	
Isodrin 465-73-6	100	M	P-522S		Methoxychlor 72-43-5	1,000	D	APP-9-126-10X	
Isofenphos 25311-71-1	100	A	P-016S-A		p,p'-Methoxychlor 30667-99-3	100	M	P-195S	
Isophorone 78-59-1	100	CN	P-016S-CN		p,p'-Methoxychlor-olefin 2132-70-9	100	M	M-8318-07	
Isopropalin 33820-53-0	100	M	APP-9-120		Methyl-2,3-dibromopropionate 1729-67-5	100	CN	M-531-11	
Isopropanol 67-63-0	10,000	W	M-8015B/5031-15		Methyl bromoacetate 96-32-2	100	CN	M-531-04	
Isopropylbenzene 98-82-8	1,000	M	APP-9-121-10X		Methyl bromochloroacetate 20428-74-4	1,000	CN	M-531-04-10X	
p-Isopropyltoluene (p-Cymene) 99-87-6	200	M	P-018S		Methyl bromodichloroacetate 40	40	MT	P-157S	
Isosafrole 120-58-1	2,000	M	M-502-37		Methyl 2-bromopropionate 5445-17-0	100	M	P-064S	
Isovaleraldehyde-DNPH 2256-01-1	2,000	M	M-502-37-10X		Methyl chlorodibromoacetate 20428-75-5	1,000	M	P-064S-10X	
Karmex 330-54-1	200	M	M-502-38		3-Methylcholanthrene 56-49-5	100	MT	P-535S	
Kelthane 115-32-2	2,000	M	M-502-38-10X		Methyl dibromoacetate 6482-26-4	20	MT	M-552.1-02	
Kepone 143-50-0	100	D	APP-9-123		Methyl dichloroacetate 116-54-1	100	M	M-552.1-03	
3-Ketocarbofuran 16709-30-1	100	M	P-152S		Methyl-3,5-dichlorobenzoate 2905-67-1	60	MT	M-552.1-05	
Leptophos 21609-90-5	1,000	M	P-152S-10X		Methyl-2,4-Dichlorophenylacetate 55954-23-9	300	M	M-552.1-06	
Lindane (γ-BHC) 58-89-9	100	A	P-298S-A		Methylene chloride-d ₂ 1665-00-5	100	M	P-247S	
	1,000	M	M-8141A-1-07			1,000	M	P-247S-10X	
	100	H	M-8141A-1-07			100	M	P-214S	
	100	M	P-059S			2,000	M	M-502-IS-2-3	
	1,000	M	P-059S-10X						

* ColdPAK required to maintain integrity of product.

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	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Methyl ethyl ketone 78-93-3	1,000	M	APP-9-129-10X *		1-Naphthalene acetamide 86-86-2	100	M	P-512S	
Methyl iodide 74-88-4	100	M	APP-9-130		Naphthalene-d ₈ 1146-65-2	200	D	M-625-12	
Methyl isobutyl ketone 108-10-1	10,000	W	M-8015B/5031-19			4,000	D	Z-014J-4	
Methyl isothiocyanate 556-61-6	25	A	M-1659-RPS		1-Naphthol 90-15-3	100	CN	M-531-10	
Methyl methacrylate 80-62-6	100	M	APP-9-131		1,4-Naphthoquinone 130-15-4	100	D	APP-9-137	
Methyl methanesulfonate 66-27-3	100	D	APP-9-132		1-Naphthylamine 134-32-7	100	D	APP-9-138	
1-Methylnaphthalene 90-12-0	500	CN	M-8310-FL-14		2-Naphthylamine 91-59-8	100	D	APP-9-139	
2-Methylnaphthalene 91-57-6	100	D	APP-9-133		Napropamide 15299-99-7	100	M	P-179S	
2-Methyl-4-nitroaniline 99-52-5	500	CN	M-8310-FL-15			100	CN	M-632-1-3	
3-Methyl-4-nitrophenol 2581-34-2	100	M	P-509S		Neburon 555-37-3	100	M	P-041S	
Methyl nonyl ketone 112-12-9	100	M	P-415S		Niclosamide 50-65-7	100	CN	M-632-16	
	100	CN	P-415S-CN		m-Nitroaniline 99-09-2	100	M	P-160S	
Methyl paraoxon 298-00-0	100	M	P-311S		o-Nitroaniline 88-74-4	100	D	APP-9-141	
Methyl parathion 298-00-0	100	M	P-065S		p-Nitroaniline 100-01-6	100	D	APP-9-142	
4-Methyl-2-pentanone 108-10-1	1,000	H	M-8140-13		4-Nitroanisole 100-17-4	100	M	P-273S	
Methyl tribromoacetate 3222-05-7	100	M	APP-9-135		Nitrobenzene 98-95-3	100	M:CN	M-8330-06-0.1X	
Methyl trichloroacetate 598-99-2	200	MT	M-552.2-09 *			1,000	M:CN	M-8330-06	
Metolachlor 51218-45-2	100	M	M-552.1-07		Nitrobenzene-d ₈ 4165-60-0	200	D	M-625-13	
Metribuzin 21087-64-9	200	MT	M-552.2-10			2000	D	M-625-13-10X	
Metsulfuron methyl 74223-64-6	100	M	P-158S		Nitroguanidine 556-88-7	100	M	M-8330-ADD-6	
Mevinphos 7786-34-7	100	M	P-158S-10X		Nitromethane 75-52-5	100	M	M-8330-ADD-7	
Mexacarbate 315-18-4	100	M	P-089S		5-Nitro-o-toluidine 99-55-8	100	D	APP-9-156	
MGK-264 113-48-4	1,000	M	P-089S-10X		o-Nitrophenol 88-75-5	100	M	APP-9-144	
MGK-326 136-45-8	100	M	P-463S		p-Nitrophenol 100-02-7	100	M	APP-9-145	
Mirex 2385-85-5	100	M	P-074S		4-Nitroquinoline-1-oxide 56-57-5	100	D	APP-9-146	
Molinate 2212-67-1	100	M	M-8140-14		N-Nitrosodiethylamine 55-18-5	100	D	APP-9-148	
Monitor 10265-92-6	100	M	P-030S		N-Nitrosodimethylamine 62-75-9	100	D	APP-9-149	
Monobromoacetic acid 79-08-3	100	CN	M-632-13			1,000	M	APP-9-149-M-10X	
Monochloroacetic acid 79-11-8	60	MT	M-552.2A-08		N-Nitrosodi-n-butylamine 924-16-3	100	D	APP-9-147	
Monocrotophos 6923-22-4	100	M	P-082S			500	W	M-8015B/5031-20	
Monuron 150-68-5	100	M	P-342S		N-Nitrosodi-n-propylamine 621-64-7	100	D	APP-9-151	
Monuron TCA 140-41-0	100	M	P-066S		N-Nitrosodiphenylamine 86-30-6	100	D	APP-9-150	
MtBE 1634-04-4	1,000	H	M-8141-04			1,000	M	APP-9-150-M-10X	
Myclobutanil 88671-89-0	100	M	P-155S		N-Nitrosomethylethylamine 10595-95-6	100	D	APP-9-152	
Nabam 142-59-6	100	M	M-552.2A-08		N-Nitrosomorpholine 59-89-2	100	D	APP-9-153	
Naled 300-76-5	100	M	P-112S		N-Nitrosopiperidine 100-75-4	100	D	APP-9-154	
Naphthalene 91-20-3	1,000	H	M-8141-04		N-Nitrosopyrrolidine 930-55-2	100	D	APP-9-155	
	200	M	M-502-40		2-Nitrotoluene 88-72-2	100	M:CN	M-8330-07-0.1X	
	500	M	M-8310-FL-16			1,000	M:CN	M-8330-07	
					3-Nitrotoluene 99-08-1	100	M:CN	M-8330-08-0.1X	
						1,000	M:CN	M-8330-08	
					4-Nitrotoluene 99-99-0	100	M:CN	M-8330-09-0.1X	
						1,000	M:CN	M-8330-09	
					cis-Nonachlor 5103-73-1	100	M	P-297S	
						1,000	M	P-297S-10X	
					trans-Nonachlor 39765-80-5	100	M	P-184S	

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Analytes in EPA Methods

Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Nonanal 124-19-6	1,000	M	M-554-09		o-Phenylphenol 90-43-7	100	M	P-460S	
Nonanal-DNPH 2348-19-8	100	CN	M-8315-R-DNPH-14		Phorate 298-02-2	100	M	P-170S	
Octanal 124-13-0	1,000	M	M-554-10			1,000	H	M-8140-16	
Octanal-DNPH 1726-77-8	100	CN	M-8315-R-DNPH-15		Phorate sulfone 2588-04-7	100	H	P-655S-H	
	1,000	M:CN	M-554-DNPH-10		Phosalone 2310-17-0	100	M	P-163S	
Omethoate 1113-02-6	100	M	P-121S		Phosfolan 947-02-4	100	M	P-234S	
Oryzalin 19044-88-3	1,000	M	P-121S-10X			1,000	M	P-234S-10X	
	100	CN	M-638		Phosphamidon 13171-21-6	100	M	P-075S	
Oxadiazon 19666-30-9	100	M	P-236S			1,000	H	M-8141A-1-09	
	1,000	M	P-236S-10X		Picloram 1918-02-1	100	M	P-047S	
Oxamyl 23135-22-0	100	M	P-161S			100	CN	M-644	
	100	CN	M-531-03		Picloram methyl ester 14143-55-6	100	M	P-198S	
Oxycarboxin 5259-88-1	100	M	P-391S		2-Picoline 109-06-8	100	M	APP-9-182	
Oxychlorodane Isomer 27304-13-8	100	M	P-331S			10,000	W	M-8015B/5031-23	
	100	H	P-331S-H		Picramic acid 831-52-7	100	M	M-8330-ADD-22	
Oxydemeton-methyl 301-12-2	100	M	P-290S		Picric acid 88-89-1	100	CN:M	M-8330-ADD-3	
Oxyfluorfen 42874-03-3	100	M	P-277S		Pirimicarb 23103-98-2	100	M	P-304S	
Paraldehyde 123-63-7	10,000	W	M-8015B/5031-21		Pirimiphos-methyl 29232-93-7	100	M	P-305S	
Paraoxon 311-45-5	100	M	P-453S		Prebane 886-50-0	100	M	P-119S	
	1,000	M	P-453S-10X		Profenofos 41198-08-7	100	M	P-260S	
Paraquat CL tetrahydrate 1910-42-5 (as Paraquat)	100	M	P-051S		Profluoralin 26399-36-0	100	M	P-099S	
Parathion 56-38-2	100	M	P-070S			1,000	M	P-099S-10X	
	1,000	H	M-622-19		Promecarb 2631-37-0	100	M	M-8318-09	
Pendimethalin 40487-42-1	100	M	P-097S		Prometon 1610-18-0	100	M	M-619-04	
	1,000	M	P-097S-10X		Prometryne 7287-19-6	100	M	M-619-05	
Pentachloroanisole 1825-21-4	100	M	P-199S		Pronamide 23950-58-5	100	M	P-164S	
Pentachlorobenzene 608-93-5	100	M	APP-9-173		Propachlor 1918-16-7	100	M	P-215S	
Pentachloroethane 76-01-7	100	M	APP-9-174			1,000	M	P-215S-10X	
Pentachloronitrobenzene 82-68-8	100	MT	M-508-IS		Propanal 123-38-6	1,000	M	M-554-12 *	
	1,000	MT	M-508-IS-10X		Propanal-DNPH 725-00-8	100	CN	M-8315-R-DNPH-17	
Pentachlorophenol 87-86-5	25	D	M-625C-2			1,000	M:CN	M-554-DNPH-12	
	1,000	M	M-8040-15		Propanil 709-98-8	100	CN	M-632-1-2	
Pentafluorobenzene 363-72-4	200	M	M-624-SS-10		1-Propanol 71-23-8	10,000	W	M-8015B/5031-24	
Pentafluoroethane (Freon #125)	200	M	M-REF-X-06		Propargite 2312-35-8	100	M	P-251S	
Pentafluorophenol 771-61-9	200	D	M-625-17		Propazine 139-40-2	100	M	M-619-06	
Pentanal 110-62-3	1,000	M	M-554-11		Propham 122-42-9	100	CN	M-632-18	
Pentanal-DNPH 2057-84-3	100	CN	M-8315-R-DNPH-16		Propionitrile 107-12-0	100	M	APP-9-184	
	1,000	M:CN	M-554-DNPH-11			10,000	W	M-8015B/5031-25	
2-Pentanone 107-87-9	10,000	W	M-8015B/5031-22		n-Propylbenzene 103-65-1	200	M	M-502-41	
Permethrin 52645-53-1	100	M	P-128S			2,000	M	M-502-41-10X	
Perthane 72-56-0	100	M	P-162S		Propyleneglycol dinitrate 6423-43-4	100	M	M-8330-ADD-35	
PETN 78-11-5	100	M	M-8330-ADD-2		Pyrazon 1698-60-8	100	M	P-395S	
Phenacetin 62-44-2	100	D	APP-9-177			1,000	M	P-395S-10X	
	1,000	D	APP-9-177-10X		Pyrazoxyfen 71561-11-0	100	M	P-618S	
Phenanthrene 85-01-8	100	M	APP-9-178		Pyrene 129-00-0	100	M	APP-9-185	
	200	D	Z-013-15			500	CN	M-8310-FL-18	
Phenanthrene-d₁₀ 1517-22-2	200	D	M-625-14		Pyrene-d₁₀ 1718-52-1	50	A	M-525-SS	
Phenol 108-95-2	100	D	APP-9-179		Pyridine 110-86-1	100	M	APP-9-186-M	
	1,000	M	M-8040-16			10,000	W	M-8015B/5031-26	
Phenol-d₈ 4165-62-2	200	D	M-625-18		Pyridine-d₈ 7291-22-7	200	D	M-625-15	
	2,000	D	M-625-18-10X			2,000	D	M-625-15-10X	
Phenthoate 2597-03-7	100	M	P-476S		PYX 38082-89-2	100	CN	M-8330-ADD-11	
p-Phenylenediamine 106-50-3	100	M	APP-9-180						

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	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Quizalofop ethyl 76578-14-8	100	CN	P-293S-CN		1,1,2,2-Tetrachloroethane 79-34-5	200 2,000	M M	M-502-44 M-502-44-10X	
RDX 121-82-4	100	M:CN	M-8330-05-0.1X		Tetrachloroethene 127-18-4	200 2,000	M M	M-502-45 M-502-45-10X	
Ronnel 299-84-3	100 1,000	M H	P-080S M-8140-17		2,3,5,6-Tetrachloronitrobenzene 117-18-0	100	M	P-467S	
Rotenone 83-79-4	100 100	M CN	P-056S * M-635		2,3,4,6-Tetrachlorophenol 58-90-2	100 1,000	M M	APP-9-195 M-8040-17	
Safrole 94-59-7	100	M	APP-9-187		Tetrachlorvinphos 961-11-5	100 1,000	M CN	P-125S AE-00047	
Secbumeton 26259-45-0	100	M	M-619-07		Tetradifon 116-29-0	100	M	P-261S	
Siduron 1982-49-6	100 100	M CN	P-063S M-632-20		Tetrafluoroethane 811-97-2	200	M	M-REF-12	
Silvex 93-72-1	100 1,000	M M	P-084S P-084S-10X		1,1,2,2-Tetrafluoroethane (Freon #134)	200	M	M-REF-X-07	
Silvex methyl ester 4841-20-7	100	M	P-115S		Tetrahydrofuran 109-99-9	1,000	W	M-1671A-IS	
Simazine 122-34-9	100 1,000	M M	P-085S M-507F		Tetryl 479-45-8	100 1,000	M:CN M:CN	M-8330-10-0.1X M-8330-10	
Simetryn 1014-70-6	100	M	M-619-08		Thiabendazole 148-79-8	100 100	M CN	P-068S M-641	
Stirophos 961-11-5	1,000	H	M-8140-18		Thiobencarb 28249-77-6	100 1,000	M M	P-180S P-180S-10X	
Styrene 100-42-5	200 2,000	M M	M-502-42 M-502-42-10X		4,4'-Thiodiphenol 2664-63-3	100 1,000	M M	P-117S P-117S-10X	
Sulfotep 3689-24-5	100 1,000	M H	P-167S M-8141-06		Thiofanox 39196-18-4	100	M	P-266S	
Sulfoxide 120-62-7	100	M	P-396S		Thionazin 297-97-2	100	M	P-171S	
Sumithrin 26002-80-2	100	M	P-050S		Thiophanate 23564-06-9	100 100	M CN	P-321S P-321S-CN	
Sweep 1918-18-9	100 100	M CN	P-061S M-632-21		Thiram 137-26-8	100 1,000	M M	P-118S P-118S-10X	
2,4,6-T 575-89-3	100	M	P-523S		Tillam 1114-71-2	100 1,000	M M	P-105S P-105S-10X	
2,4,5-T acid 93-76-5	100 1,000	M M	P-168S P-168S-10X		Tilt 60207-90-1	100	M	P-280S	
2,4,5-T butoxyethyl ester 2545-59-7	100	CN	P-441S-CN		TNT 118-96-7	100 1,000	M:CN M:CN	M-8330-11-0.1X M-8330-11	
2,4,5-T methyl ester 1928-37-6	100 200	M H	P-067S M-8150-03		Tokuthion 34643-46-4	100 1,000	M H	P-126S M-8140-19	
2,4,5-T n-butyl ester 93-79-8	100	CN	P-440S-CN		m-Tolualdehyde-DNPH 2880-05-9	100	CN	M-8315-R-DNPH-18	
TAME 994-05-8	200	M	S-1019		o-Tolualdehyde-DNPH 1773-44-0	100	CN	M-8315-R-DNPH-19	
TCMX 877-09-8	100 1,000	H H	M-8082-SS M-8082-SS-10X		p-Tolualdehyde-DNPH 2571-00-8	100	CN	M-8315-R-DNPH-20	
Tebuconazol 107534-96-3	100	M	P-451S		Toluene 108-88-3	200 2,000	M M	M-502-46 M-502-46-10X	
Tebuthiuron 34014-18-1	100	M	P-188S		o-Toluidine 95-53-4	100 10,000	M W	APP-9-199 M-8015B/5031-27	
Tefluthrin 79538-32-2	100	M	P-568S *		Toxaphene 8001-35-2	1,000 2,500	M A	P-093S-10X M-525-5	
TEPP 107-49-3	1,000	H	M-8141-07		2,4,5-TP 93-72-1	200	M	M-8150S-A-04	
Terbacil 5902-51-2	100	M	P-096S		2,4,5-TP methyl ester 4841-20-7	200	H	M-8150-04	
Terbufos 13071-79-9	100 1,000	M H	P-208S M-8141A-1-10		2,4,5-TP-PFB	100	MT	M-8150-04-PFB	
Terbutylazine 5915-41-3	100	M	M-619-10		Triadimefon 43121-43-3	100	M	P-069S	
p-Terphenyl-d ₁₄ 1718-51-0	500	D	M-525-FS-2		Triallate 2303-17-5	100	M	P-268S	
Terrazole 2593-15-9	100	M	P-190S		1,2,4-Triazole 288-88-0	100	M	P-627S	
1,2,4,5-Tetrachlorobenzene 95-94-3	100 2,000	M H	APP-9-191 M-8120-09		Triazophos 24017-47-8	100	M	P-334S	
1,1,1,2-Tetrachloroethane 630-20-6	200 2,000	M M	M-502-43 M-502-43-10X		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	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
1,3,5-Tribromobenzene 626-39-1	50	A	M-8121-IS		Tricyclazole 41814-78-2	100	M	P-090S	
2,4,6-Tribromophenol 118-79-6	200	D	M-625-19		Triethylphosphate 78-40-0	100	M	P-335S	
2,4,6-Tribromophenol-PFB	200	M	M-604-SS-PFB		o,o,o-Triethylphosphorothioate 126-68-1	100	M	P-172S	
Tributylphosphate 126-73-8	1,000	A	M-8141A-SS-01		2',4',5'-Trifluoroacetophenone 129322-83-4	1,000	H	P-172S-H-10X	
Trichlorfon 52-68-6	100	M	P-044S		1,1,1-Trifluoroethane (Freon #143A)	20	CN	M-556-SS	
1,1,2-Trichloro-1,2,2-trifluoroethane 76-13-1	200	M	M-REF-14		Trifluoromethane (Freon #23)	200	M	M-REF-15	
1,1,1-Trichloro-2-propanone 918-00-3	2,000	M	M-REF-14-10X		a,a,a-Trifluorotoluene 98-08-8	200	M	M-602-SS	
Trichloroacetic acid 76-03-9	5,000	A	M-551B-8		Trifluralin 1582-09-8	2,000	M	M-602-SS-10X	
Trichloroacetonitrile 545-06-2	20	MT	M-552.2A-10		Trifluralin 1582-09-8	100	M	P-197S	
1,2,3-Trichlorobenzene 87-61-6	1,000	MT	M-552A-4 *		2,3,5-Triiodobenzoic acid 88-82-4	1,000	M	P-197S-10X	
1,2,4-Trichlorobenzene 120-82-1	5,000	A	M-551B-7		2,3,5-Trimethacarb 2655-15-4	100	M	P-507S	
2,3,5-Trichlorobenzoic acid 50-73-7	200	M	M-502-47		3,4,5-Trimethacarb 2686-99-9	100	CN	P-507S-CN	
1,1,1-Trichloroethane 71-55-6	2,000	M	M-502-47-10X		Trimethyl phosphate 512-56-1	100	M	P-515S	
1,1,2-Trichloroethane 79-00-5	200	M	M-502-48		1,2,4-Trimethylbenzene 95-63-6	200	M	M-502-54	
Trichloroethene 79-01-6	2,000	M	M-502-48-10X		1,3,5-Trimethylbenzene 108-67-8	2,000	M	M-502-54-10X	
Trichlorofluoromethane (Freon #11) 75-69-4	200	M	M-502-49		1,3,5-Trinitrobenzene 99-35-4	200	M	M-502-55	
Trichloronate 327-98-0	2,000	M	M-502-49-10X		Triphenylphosphate 115-86-6	2,000	M	M-502-55-10X	
2,4,5-Trichlorophenol 95-95-4	200	M	M-502-50		Vacor 53558-25-1	500	MT	M-507-IS	
2,4,6-Trichlorophenol 88-06-2	2,000	M	M-502-50-10X		Vernolate 1929-77-7	5,000	MT	M-507-IS-10X	
3,4,5-Trichlorophenol 609-19-8	200	M	M-502-51		Vinclozolin 50471-44-8	100	M	P-240S	
1,1,2-Trichloropropane 598-77-6	1,000	H	M-8140-20		Vinyl acetate 108-05-4	100	CN	M-632.1-1	
1,2,3-Trichloropropane 96-18-4	100	A	CLP-FC		Vinyl chloride 75-01-4	100	M	P-111S	
a,a,a-Trichlorotoluene 98-07-7	1,000	M	M-8040-18		o-Xylene 95-47-6	100	M	P-122S	
Triclopyr 55335-06-3	1,000	M	M-552A-R-08 *		m-Xylene 108-38-3	1,000	M	P-122S-10X	
Triclopyr methyl ester 60825-26-5	1,000	M	M-8040-19		p-Xylene 106-42-3	500	MT	M-507-IS	
Tricresyl phosphate 1330-78-5	1,000	A	M-1653-IS		Xylene (total) 1330-20-7	2,000	M	M-502-58	
	200	M	M-1653-IS-R		Ziram 137-30-4	200	M	M-502-58-10X	
	200	M	S-1321B			100	M	M-502-59	
	200	M	M-502-53			2,000	M	M-502-59-10X	
	2,000	M	M-502-53-10X			100	M	APP-9-213	
	200	M	M-624-SS-14			100	CN	M-630-1-0.1X	

* ColdPAK required to maintain integrity of product.



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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.



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CLP

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.



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	1,2-Dichloropropane
Bromodichloromethane	<i>cis</i> -1,3-Dichloropropene *
Bromoform	<i>trans</i> -1,3-Dichloropropene **
Bromomethane	Ethylbenzene
Carbon tetrachloride	1,1,2,2-Tetrachloroethane
Chlorobenzene	Tetrachloroethene
Chloroethane	Toluene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
Dibromochloromethane	Trichloroethene
1,1-Dichloroethane	Vinyl chloride
Dichloromethane	<i>m</i> -Xylene
1,2-Dichloroethane	<i>p</i> -Xylene
1,1-Dichloroethylene	* <i>cis</i> (1.06 x conc.)
<i>cis</i> -1,2-Dichloroethylene	** <i>trans</i> (0.94 x conc.)
<i>trans</i> -1,2-Dichloroethylene	

Part B

CLP-022-PART-B * 1 x 1 mL
0.5 mg/mL each in MeOH 8 comps.

Acetone	4-Methyl-2-pentanone
2-Butanone	Styrene
Carbondisulfide	Vinyl acetate
2-Hexanone	<i>o</i> -Xylene

Volatile Target Compounds List (TCL)

CLP-022 * 1 x 1 mL
0.2 mg/mL each in MeOH 37 comps.

Acetone	1,2-Dichloropropane
Benzene	<i>cis</i> -1,3-Dichloropropene *
Bromodichloromethane	<i>trans</i> -1,3-Dichloropropene **
Bromoform	Ethylbenzene
Bromomethane	2-Hexanone
2-Butanone	4-Methyl-2-pentanone
Carbondisulfide	Styrene
Carbon tetrachloride	1,1,2,2-Tetrachloroethane
Chlorobenzene	Tetrachloroethene
Chloroethane	Toluene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
Dibromochloromethane	Trichloroethene
1,1-Dichloroethane	Vinyl acetate
Dichloromethane	Vinyl chloride
1,2-Dichloroethane	<i>m</i> -Xylene
1,1-Dichloroethylene	<i>o</i> -Xylene
<i>cis</i> -1,2-Dichloroethylene	<i>p</i> -Xylene
<i>trans</i> -1,2-Dichloroethylene	* <i>cis</i> (1.06 x conc.)
	** <i>trans</i> (0.94 x conc.)

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	Chloromethane
Chloroethane	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	5 x 1 mL 4 comps.

Acetone	2-Hexanone
2-Butanone	4-Methyl-2-pentanone

CLP-022-R2 * 1 x 1 mL
0.2 mg/mL each in MeOH 36 comps.

Acetone	1,2-Dichloropropane
Benzene	<i>cis</i> -1,3-Dichloropropene *
Bromodichloromethane	<i>trans</i> -1,3-Dichloropropene **
Bromoform	Ethylbenzene
Bromomethane	2-Hexanone
2-Butanone	4-Methyl-2-pentanone
Carbondisulfide	Styrene
Carbon tetrachloride	1,1,2,2-Tetrachloroethane
Chlorobenzene	Tetrachloroethene
Chloroethane	Toluene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
Dibromochloromethane	Trichloroethene
1,1-Dichloroethane	Vinyl chloride
Dichloromethane	<i>m</i> -Xylene
1,2-Dichloroethane	<i>o</i> -Xylene
1,1-Dichloroethylene	<i>p</i> -Xylene
<i>cis</i> -1,2-Dichloroethylene	* <i>cis</i> (1.06 x conc.)
<i>trans</i> -1,2-Dichloroethylene	** <i>trans</i> (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.

Contract Laboratory Program (CLP)

Auxiliary Volatiles

CLP

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	Ethylbenzene
1,1-Dichloroethene	Toluene
1,2-Dichloropropane	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	1,1-Dichloroethane
Chlorobenzene	1,1,2,2-Tetrachloroethane
Chloromethane	

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	m-Xylene
Ethylbenzene	o-Xylene
Toluene	p-Xylene

CLP-001B		1 x 1 mL
<i>1.0 mg/mL each in MeOH</i>		2 comps.
<i>n-Decane</i>	<i>n-Nonane</i>	

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

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.

<i>p</i> -Bromofluorobenzene	Toluene-d ₈
1,2-Dichloroethane-d ₄	

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	1,4-Difluorobenzene
Chlorobenzene-d ₂	

Purgeable Internal/Surrogate Standard

CLP-PIPS		1 x 1 mL
CLP-PIPS-PAK	SAVE	5 x 1 mL
<i>2.5 mg/mL each in MeOH</i>		6 comps.

Bromochloromethane	1,2-Dichloroethane-d ₄
<i>p</i> -Bromofluorobenzene	1,4-Difluorobenzene
Chlorobenzene-d ₂	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	Toluene
Chlorobenzene	Trichloroethene
1,1-Dichloroethene	

Many Higher Concentrations are the Same Price

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.

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Save 20-40% 5 x 1 mL



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		1 x 1 mL
CLP-022-R3-PAK	SAVE	5 x 1 mL
200 µg/mL in MeOH		40 comps.
Benzene	1,2-Dichloropropane	
Bromodichloromethane	cis-1,3-Dichloropropene	
Bromoform	trans-1,3-Dichloropropene	
Carbon disulfide	Ethylbenzene	
Carbon tetrachloride	Isopropylbenzene	
Chlorobenzene	Methyl acetate	
Chloroform	Methylcyclohexane	
1,2-Dibromo-3-chloropropane	MtBE	
Cyclohexane	Styrene	
Dibromochloromethane	1,1,2,2-Tetrachloroethane	
1,2-Dibromoethane	Tetrachloroethene	
1,2-Dichlorobenzene	Toluene	
1,3-Dichlorobenzene	1,2,4-Trichlorobenzene	
1,4-Dichlorobenzene	1,1,1-Trichloroethane	
1,1-Dichloroethane	1,1,2-Trichloroethane	
1,2-Dichloroethane	Trichloroethene	
1,1-Dichloroethene	1,1,2-Trichloro-1,2,2-trifluoroethane	
cis-1,2-Dichloroethene	m-Xylene	
trans-1,2-dichloroethene	p-Xylene	
Dichloromethane	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	Dichlorodifluoromethane	
Chloromethane	Trichlorofluoromethane	
Chloroethane	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-Hexanone	
2-Butanone	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	m-Xylene	
Ethylbenzene	o-Xylene	
Toluene	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	Toluene-d ₈	
1,2-Dichloroethane-d ₄		

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	1,4-Difluorobenzene	
Chlorobenzene-d ₅		

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	1,2-Dichloroethane-d ₄	
p-Bromofluorobenzene	1,4-Difluorobenzene	
Chlorobenzene-d ₅	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	Toluene	
Chlorobenzene	Trichloroethene	
1,1-Dichloroethene		

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 indicated)		
Acetone (1.0 mg/mL)	1,2-Dichloroethane	
Benzene	1,1-Dichloroethylene	
Bromochloromethane	<i>cis</i> -1,2-Dichloroethylene	
Bromodichloromethane	<i>trans</i> -1,2-Dichloroethylene	
Bromoform	1,2-Dichloropropane	
Bromomethane	<i>cis</i> -1,3-Dichloropropene *	
2-Butanone (1.0 mg/mL)	<i>trans</i> -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	<i>o</i> -Xylene	
1,1-Dichloroethane	<i>m</i> -Xylene	* <i>cis</i> (1.06 x conc.)
Dichloromethane	<i>p</i> -Xylene	** <i>trans</i> (0.94 x conc.)

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		
Benzene	1,2-Dichloropropane	
Bromoform	<i>cis</i> -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

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- <i>d</i> ₆	1,4-Difluorobenzene	
1,4-Dichlorobenzene- <i>d</i> ₂		

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 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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 6 comps.

Acenaphthene-d₁₀
 Chrysene-d₁₂
 1,4-Dichlorobenzene-d₄
 Naphthalene-d₈
 Perylene-d₁₂
 Phenanthrene-d₁₀

PAH Mix

Z-014G 1 x 1 mL
 Z-014G-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂: 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 CH₂Cl₂: 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 CH₂Cl₂ 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 CH₂Cl₂

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 CH₂Cl₂

- (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)

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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

2.0 mg/mL each in Benzene : CH₂Cl₂ : AcCN (40:40:20)

44 comps.

Acenaphthene	Diethyl phthalate
Acenaphthylene	Dimethyl phthalate
Anthracene	2,4-Dinitrotoluene
Azobenzene	2,6-Dinitrotoluene
Benz[a]anthracene	Di- <i>n</i> -octyl phthalate
Benzo[b]fluoranthene	bis(2-Ethylhexyl)phthalate
Benzo[k]fluoranthene	Fluoranthene
Benzo[g,h,i]perylene	Fluorene
Benzo[a]pyrene	Hexachlorobenzene
4-Bromophenyl phenyl ether	Hexachlorobutadiene
Butyl benzyl phthalate	Hexachlorocyclopentadiene
bis(2-Chloroethoxy)methane	Hexachloroethane
bis(2-Chloroethyl)ether	Indeno[1,2,3-cd]pyrene
bis(2-Chloro-1-methylethyl) ether	Isophorone
2-Chloronaphthalene	Naphthalene
4-Chlorophenyl phenyl ether	Nitrobenzene
Chrysene	N-Nitrosodimethylamine
Dibenz[a,h]anthracene	N-Nitrosodiphenylamine
Di- <i>n</i> -butyl phthalate	N-Nitrosodi- <i>n</i> -propylamine
1,2-Dichlorobenzene	Phenanthrene
1,3-Dichlorobenzene	Pyrene
1,4-Dichlorobenzene	1,2,4-Trichlorobenzene

Benzidine

Z-014F

2.0 mg/mL each in MeOH

2 comps.

Benzidine	3,3'-Dichlorobenzidine
-----------	------------------------

CLP-HC-BN-R

CLP-HC-BN-R-PAK

Z-014F

SAVE

1 x 1 mL

5 x 1 mL

1 x 1 mL

CLP Target List Set

CLP-HC-BN-SET

CLP-HC-BN-SET-PAK

SAVE

2 x 1 mL

(CLP-HC-BN-R, Z-014F)

5 x (2 x 1 mL)

Acid Composite Mix

CLP-HC-A-R

CLP-HC-A-R-PAK

2.0 mg/mL each in CH₂Cl₂

SAVE

1 x 1 mL

5 x 1 mL

19 comps.

Benzoic acid
4-Chloro-3-methylphenol
2-Chlorophenol
<i>o</i> -Cresol
<i>p</i> -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

Technical Note

Azobenzene was substituted for 1,2-Diphenylhydrazine because the 1,2-Diphenylhydrazine loses hydrogen to form azobenzene under GC operating conditions.

Additional Composite Mixtures

Composite #1

Z-014E

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

8 comps.

Aniline	2-Methylnaphthalene
Benzyl alcohol	2-Nitroaniline
4-Chloroaniline	3-Nitroaniline
Dibenzofuran	4-Nitroaniline

Composite #2

Z-014E-R

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

9 comps.

Aniline	2-Nitroaniline
Benzyl alcohol	3-Nitroaniline
4-Chloroaniline	4-Nitroaniline
Dibenzofuran	Pyridine
2-Methylnaphthalene	

Composite #3

Z-014E-R3

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

10 comps.

Aniline	2-Methylnaphthalene
Benzyl alcohol	2-Nitroaniline
Carbazole	3-Nitroaniline
4-Chloroaniline	4-Nitroaniline
Dibenzofuran	Pyridine



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GC/MS Analysis of Semi-Volatiles

Method Analytes Mixture

CLP-TCLSV	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	3 comps.
Benzoic acid	N-Nitrosodimethylamine
Benzyl alcohol	

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 ₂ Cl ₂	7 comps.
Acenaphthene	Hexachlorobutadiene
Benzo[a]pyrene	Fluoranthene
1,4-Dichlorobenzene	N-Nitroso-diphenylamine
Di- <i>n</i> -octylphthalate	

Acids

CLP-011B	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	6 comps.
4-Chloro-3-methylphenol	Pentachlorophenol
2,4-Dichlorophenol	Phenol
2-Nitrophenol	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	N-Nitroso-di- <i>n</i> -propylamine
1,4-Dichlorobenzene	Pyrene
2,4-Dinitrotoluene	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	Pentachlorophenol
4-Chloro-3-methylphenol	Phenol
4-Nitrophenol	

Surrogate Standard

CLP-BNS-3-2X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
4-Terphenyl-d ₄	

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- <i>n</i> -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)	

Internal Standards Mixture

Z-014J	1 x 1 mL
Z-014J-PAK	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂	6 comps.
Acenaphthene-d ₁₀	Naphthalene-d ₈
Chrysene-d ₁₂	Perylene-d ₁₂
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀

SAVE

System Performance Check Compounds (SPCC)

CLP-010	1 x 1 mL
0.2 mg/mL each in CH ₂ Cl ₂	
CLP-010-10X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	4 comps.
2,4-Dinitrophenol	4-Nitrophenol
Hexachlorocyclopentadiene	N-nitroso-di- <i>n</i> -propylamine

Semi-Volatile Organic Extract Calibration (Screening Mix)

CLP-009	1 x 1 mL
0.1 mg/mL each in CH ₂ Cl ₂	
CLP-009-10X	1 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂	3 comps.
Di- <i>n</i> -octylphthalate	Phenol
Phenanthrene	

Initial Calibration Target Compounds List

CLP-012	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	9 comps.
Benzoic acid	4-Nitroaniline
2,4-Dinitrophenol	4-Nitrophenol
4,6-Dinitro-2-methylphenol	Pentachlorophenol
2-Nitroaniline	2,4,5-Trichlorophenol
3-Nitroaniline	

Acid Surrogate Standard

CLP-AS	1 x 1 mL
CLP-AS-PAK	5 x 1 mL
2.0 mg/mL each in MeOH	
CLP-AS-10X	1 x 1 mL
CLP-AS-10X-PAK	5 x 1 mL
20 mg/mL each in MeOH	3 comps.
2-Fluorophenol	2,4,6-Tribromophenol
Phenol-d ₅	

SAVE

SAVE

Base/Neutrals Surrogate Standard

CLP-BNS	1 x 1 mL
CLP-BNS-PAK	5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂	
CLP-BNS-10X	1 x 1 mL
CLP-BNS-10X-PAK	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	3 comps.
2-Fluorobiphenyl	<i>p</i> -Terphenyl-d ₄
Nitrobenzene-d ₅	

SAVE

SAVE

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- <i>n</i> -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		
2-Chlorophenol-d ₄	Phenol-d ₅	
2-Fluorophenol	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 ₂ Cl ₂ (50:50)		
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)	<i>p</i> -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 ₂ Cl ₂		
2-Chlorophenol-d ₄		Nitrobenzene-d ₅
1,2-Dichlorobenzene-d ₄		Phenol-d ₅
2-Fluorobiphenyl		<i>p</i> -Terphenyl-d ₁₄
2-Fluorophenol		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 ₂ Cl ₂		
1,2-Dichlorobenzene-d ₄		Nitrobenzene-d ₅
2-Fluorobiphenyl		<i>p</i> -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 ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂		
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 ₂ Cl ₂		
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 ₂ Cl ₂		
Corn Oil		

Solution B

CLP-008B-R		1 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 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 5 x 1 mL
2.0 mg/mL each in CH₂Cl₂:Benzene (50:50) **SAVE** 16 comps.

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

Phenols Mixture

Z-014H-LC 1 x 1 mL
Z-014H-LC-PAK 5 x 1 mL
2.0 mg/mL each in CH₂Cl₂ **SAVE** 9 comps.

- | | |
|-------------------------|-----------------------|
| 4-Chloro-3-methylphenol | 4-Methylphenol |
| 2-Chlorophenol | 2-Nitrophenol |
| 2,4-Dichlorophenol | Phenol |
| 2,4-Dimethylphenol | 2,4,6-Trichlorophenol |
| 2-Methylphenol | |

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- <i>n</i> -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 CH₂Cl₂
Decafluorotriphenylphosphine

Internal Standard

Z-014J-0.5X 1 x 1 mL
Z-014J-0.5X-PAK 5 x 1 mL **SAVE**
2.0 mg/mL each in CH₂Cl₂ 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 5 x 1 mL **SAVE**
2.0 mg/mL each in MeOH:CH₂Cl₂ (20:80) 5 comps.

- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d₅
- Phenol-d₅
- p*-Terphenyl-d₁₄

CLP-LC-SS-2 1 x 1 mL
CLP-LC-SS-2-PAK 5 x 1 mL **SAVE**
6.0 mg/mL in MeOH
2,4,6-Tribromophenol

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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 CH₂Cl₂ 13 comps.

Benzyl butyl phthalate	Diethyl phthalate
4-Bromophenyl phenyl ether	Dimethyl phthalate
bis(2-Chloroethoxy)methane	Di- <i>n</i> -octyl phthalate
bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)phthalate
bis(2-Chloro-1-methylethyl) ether	N-Nitrosodiphenylamine
4-Chlorophenyl phenyl ether	N-Nitrosodi- <i>n</i> -propylamine
Dibutyl phthalate	

CLP Base Neutral & PAH Mix #2

CLP-HC-SV-MIX2 1 x 1 mL
2000 µg/mL each in CH₂Cl₂ : Benzene (75:25) 31 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	2,4-Dinitrotoluene
Acetophenone	2,6-Dinitrotoluene
Anthracene	Fluoranthene
Atrazine	Fluorene
Benzaldehyde	Hexachlorobenzene
Benz[a]anthracene	Hexachlorobutadiene
Benzo[b]fluoranthene	Hexachlorocyclopentadiene
Benzo[k]fluoranthene	Hexachloroethane
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene
Benzo[a]pyrene	Isophorone
Biphenyl	Naphthalene
e-Caprolactam	Nitrobenzene
Carbazole	Phenanthrene
2-Chloronaphthalene	Pyrene
Chrysene	

CLP Toxic Substance Mix #4

CLP-HC-SV-MIX4 1 x 1 mL
2000 µg/mL each in CH₂Cl₂ 7 comps.

4-Chloroaniline	2-Nitroaniline
Dibenzofuran	3-Nitroaniline
3,3'-Dichlorobenzidine	4-Nitroaniline
2-Methylnaphthalene	

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 CH₂Cl₂ 14 comps.

4-Chloro-3-methylphenol	<i>p</i> -Cresol
2,4-Dichlorophenol	2-Nitrophenol
2,4-Dimethylphenol	4-Nitrophenol
2,4-Dinitrophenol	Pentachlorophenol
2-Chlorophenol	Phenol
2-Methyl-4,6-dinitrophenol	2,4,5-Trichlorophenol
<i>o</i> -Cresol	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	N-Nitrosodi- <i>n</i> -propylamine
2,4-Dinitrotoluene	Pyrene

Semi-Volatile Organic Extract Calibration

(Screening Mix)
CLP-009-10X 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂ 3 comps.

Di- <i>n</i> -octylphthalate	Phenol
Phenanthrene	

Instrument Performance Check Solution

CLP-033 1 x 1 mL
CLP-033-PAK SAVE 5 x 1 mL
0.25 mg/mL in CH₂Cl₂

Decafluorotriphenylphosphine (DFTPP)

Acids

CLP-007-2 1 x 1 mL
1.5 mg/mL each in MeOH 5 comps.

2-Chlorophenol	Pentachlorophenol
4-Chloro-3-methylphenol	Phenol
4-Nitrophenol	

Internal Standards Mixture

Z-014J 1 x 1 mL
Z-014J-PAK SAVE 5 x 1 mL
4.0 mg/mL each in CH₂Cl₂ 6 comps.

Acenaphthene-d ₁₀	Naphthalene-d ₈
Chrysene-d ₁₂	Perylene-d ₁₂
1,4-Dichlorobenzene-d ₄	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:CH₂Cl₂ (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 ₆	(1.5 mg/mL)
2-Fluorobiphenyl	(1.0 mg/mL)	<i>p</i> -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	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	

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)	<i>p</i> -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

CLP - Pesticide Mixtures

CLP-018-10X CLP-018-10X-PAK At stated conc. in Isooctane	SAVE	1 x 1 mL 5 x 1 mL 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 CLP-019-10X-PAK At stated conc. in Isooctane	SAVE	1 x 1 mL 5 x 1 mL 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 CLP-032-R-PAK 200 µg/mL each in Acetone	SAVE	1 x 1 mL 5 x 1 mL 2 comps.
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene	

CLP-034 CLP-034-PAK 200 µg/mL each in Acetone	SAVE	1 x 1 mL 5 x 1 mL 2 comps.
Dibutylchlorendate	Tetrachloro- <i>m</i> -xylene	

CLP-PES-A CLP-PES-A-PAK 200 µg/mL in Acetone	SAVE	1 x 1 mL 5 x 1 mL
CLP-PES-A-20X 4000 µg/mL in Acetone		1 x 1 mL
Dibutylchlorendate		

Pesticide Calibration Mixtures - Statement of Work 2/88 to 8/94

Working Level Pesticide Standard

At stated conc. (ng/mL) in Isooctane

Compound	Level				
	1	2	3	4	5
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- <i>m</i> -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- <i>m</i> -xylene (20 ng/mL)
Dieldrin (40 ng/mL)	



Working Level Pesticide Standard

At stated conc. (ng/mL) in Isooctane

Compound	Level				
	1	2	3	4	5
α-BHC	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- <i>m</i> -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- <i>m</i> -xylene (20 ng/mL)
Decachlorobiphenyl (40 ng/mL)	

Pesticide Calibration Sets

CLP-023R/024R-SET	2 x 1 mL	CLP-023R/024R-40X-SET	2 x 1 mL
	(CLP-023R, CLP-024R)		(CLP-023R-40X, CLP-024R-40X)
CLP-023R/024R-4X-SET	2 x 1 mL	CLP-023R/024R-160X-SET	2 x 1 mL
	(CLP-023R-4X, CLP-024R-4X)		(CLP-023R-160X, CLP-024R-160X)

CLP - Pesticides

Evaluation Standard Mixture

CLP-017			1 x 1 mL
CLP-017-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Isooctane</i>			
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
<i>100 µg/mL in Acetone</i>			
2,4,5-Trichlorophenol			

Pesticide Matrix Spiking Solutions

CLP-026-R2			1 x 1 mL
CLP-026-R2-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Acetone</i>			
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

CLP-026-R2-10X-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Acetone</i>			
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
<i>At stated conc. in Acetone</i>			
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
<i>At stated conc. in Isooctane</i>			
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- <i>m</i> -xylene	(20 ng/mL)
Dieldrin	(20 ng/mL)		

Performance Evaluation Solution

CLP-025			1 x 1 mL
CLP-025-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Isooctane</i>			
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- <i>m</i> -xylene	(200 ng/mL)

Resolution Mixture

CLP-028			1 x 1 mL
CLP-028-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Isooctane</i>			
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- <i>m</i> -xylene	(200 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
<i>At stated conc. in MeOH</i>			
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
<i>At stated conc. in MeOH</i>			
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
<i>At stated conc. in Acetone</i>			
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
<i>At stated conc. in Isooctane</i>			
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- <i>m</i> -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
<i>0.2 µg/mL each in Acetone</i>			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	
			2 comps.

Pesticide and PCBs

Performance Evaluation Solution

CLP-025			1 x 1 mL
CLP-025-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Isooctane</i>			
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- <i>m</i> -xylene	(200 ng/mL)

Resolution Mixture

CLP-028			1 x 1 mL
CLP-028-PAK		SAVE	5 x 1 mL
<i>At stated conc. in Isooctane</i>			
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- <i>m</i> -xylene	(200 ng/mL)

Polychlorinated Biphenyls, Chlordane & Toxaphene

<i>Each at 1,000 µg/mL in Hexane</i>			
			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 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- <i>m</i> -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- <i>m</i> -xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

Aroclor 1232 with Surrogates

CLP-232-WL	1 x 1 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- <i>m</i> -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- <i>m</i> -xylene	(20 ng/mL)
Decachlorobiphenyl	(20 ng/mL)		

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- <i>m</i> -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- <i>m</i> -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- <i>m</i> -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.

Sample Clean-up Solutions at Working Levels

GPC Calibration Solution

CLP-027-WL-10ML	1 x 10 mL		
At stated conc. in CH ₂ Cl 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 ₂ Cl 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

CLP-CC-A-WL-10ML	1 x 10 mL		
At stated conc. in CH ₂ Cl 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)

CLP-CC-B-WL-10ML	1 x 10 mL
0.2 µg/mL each in CH ₂ Cl ₂	2 comps.
Aroclor 1016	
Aroclor 1260	

Labels, Safety, Storage and Packaging

All organic solutions are in 2 mL Ampules, filled to approximately 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, Handling 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



- Acute Toxicity (fatal or toxic)

GHS-06



- Flammables
- Self Reactives
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Organic Peroxides

GHS-02



- Corrosives
- Skin corrosion/burns
- Eye Damage
- Corrosive to Metals

GHS-05



- Irritant
- Skin Sensitizer
- Acute toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant

GHS-07



- Oxidizers

GHS-03



- Carcinogen
- Respiratory Sensitizer
- Reproductive Toxicity
- Mutagenicity
- Aspiration Toxicity

GHS-08

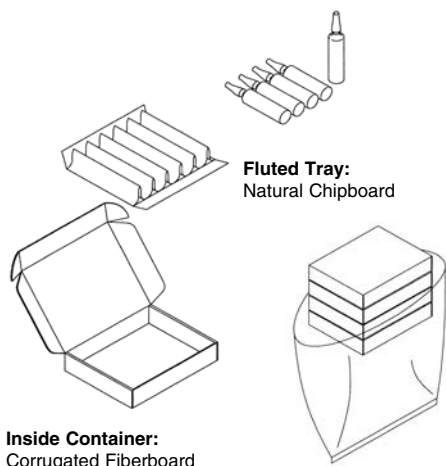


- Aquatic Toxicity

GHS-09

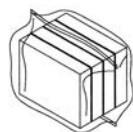
AccuStandard uses recyclable and biogradable material

Package compliant with DOT and International regulations.

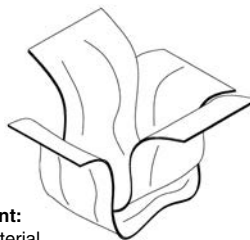


Fluted Tray:
Natural Chipboard

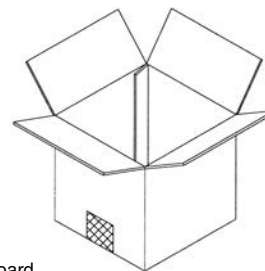
Inside Container:
Corrugated Fiberboard



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

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EPA Hazardous Substances List (Volatiles)

HSL Volatiles Standard Mixture

M-HSL *
2.0 mg/mL each in MeOH

Acetone
2-Butanone
Carbon disulfide
2-Hexanone

4-Methyl-2-pentanone
Styrene
Vinyl acetate
o-Xylene

* ColdPAK required to maintain integrity of product.

1 x 1 mL
8 comps.

Method 501 Trihalomethane Analysis by P&T-GC/ECD or PID

Trihalomethanes

M-501
M-501-PAK
0.2 mg/mL each in MeOH
M-501-SET

SAVE

M-501-10X
M-501-10X-PAK
2.0 mg/mL each in MeOH

SAVE

Bromoform
Chloroform

Dibromochloromethane
Dichlorobromomethane

1 x 1 mL
5 x 1 mL
4 comps.
set of 5 x 1 mL
1 x 1 mL
5 x 1 mL
4 comps.



EPA Method 500 Series

Method 502

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)	1,2-Dibromo-3-chloropropane (18)	1,1-Dichloropropene (33)	Toluene (46)
Bromobenzene (02)	1,2-Dibromoethane (19)	<i>cis</i> -1,3-Dichloropropene (34A) *	1,2,3-Trichlorobenzene (47)
Bromochloromethane (03)	Dibromomethane (20)	<i>trans</i> -1,3-Dichloropropene (34B) **	1,2,4-Trichlorobenzene (48)
Bromodichloromethane (04)	1,2-Dichlorobenzene (21)	Ethylbenzene (35)	1,1,1-Trichloroethane (49)
Bromoform (05)	1,3-Dichlorobenzene (22)	Hexachlorobutadiene (36)	1,1,2-Trichloroethane (50)
<i>n</i> -Butylbenzene (07)	1,4-Dichlorobenzene (23)	Isopropylbenzene (<i>Cumene</i>) (37)	Trichloroethene (51)
<i>sec</i> -Butylbenzene (08)	1,1-Dichloroethane (25)	<i>p</i> -Isopropyltoluene (<i>p-Cymene</i>) (38)	1,2,3-Trichloropropane (53)
<i>tert</i> -Butylbenzene (09)	1,2-Dichloroethane (26)	Methylene chloride (39)	1,2,4-Trimethylbenzene (54)
Carbon tetrachloride (10)	1,1-Dichloroethene (27)	Naphthalene (40)	1,3,5-Trimethylbenzene (55)
Chlorobenzene (11)	<i>cis</i> -1,2-Dichloroethene (28)	<i>n</i> -Propylbenzene (41)	<i>o</i> -Xylene (57)
Chloroform (13)	<i>trans</i> -1,2-Dichloroethene (29)	Styrene (42)	<i>m</i> -Xylene (58)
2-Chlorotoluene (15)	1,2-Dichloropropane (30)	1,1,1,2-Tetrachloroethane (43)	<i>p</i> -Xylene (59)
4-Chlorotoluene (16)	1,3-Dichloropropane (31)	1,1,2,2-Tetrachloroethane (44)	* <i>cis</i> (1.06 x conc.) (34A)
Dibromochloromethane (17)	2,2-Dichloropropane (32)	Tetrachloroethene (45)	** <i>trans</i> (0.94 x conc.) (34B)

6 Gas Components

Bromomethane (06)	Dichlorodifluoromethane (24)
Chloroethane (12)	Trichlorofluoromethane (52)
Chloromethane (14)	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	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	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	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	5 x 1 mL

54 Liquid and 6 Gas Component Sets

M-502A-R/B-SET	0.2 mg/mL each in MeOH	2 x 1 mL
	(M-502A-R, M-502B)	
M-502A-R/B-10X-SET	2.0 mg/mL each in MeOH	2 x 1 mL
	(M-502A-R-10X, M-502B-10X)	

Internal & Surrogate Standard

M-502-IS/SS	1 x 1 mL
M-502-IS/SS-PAK	5 x 1 mL
2.0 mg/mL each in MeOH	4 comps.

1-Chloro-3-fluorobenzene	Fluorobenzene
2-Chloropropane	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

M-502-IS-ASL	1 x 1 mL
M-502-IS-ASL-PAK	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.
<i>o</i> -Xylene (57)	<i>p</i> -Xylene (59)	
<i>m</i> -Xylene (58)		

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	5 x 1 mL
0.2 mg/mL each in MeOH	60 comps.
M-502-10X	1 x 1 mL
M-502-10X-PAK	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	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.

<i>cis</i> -1,3-Dichloropropene	<i>trans</i> -1,3-Dichloropropene
---------------------------------	-----------------------------------

Individual Component Neats

To order, specify identity

M-502-#N	1 x 1 gram
except,	

1 x 1 gram	1 x 1 gram
------------	------------

M-502-04N	M-502-31N	M-502-49N
M-502-08N	M-502-32N	
M-502-17N	M-502-34N	
M-502-18N	M-502-43N	
M-502-28N	M-502-44N	
M-502-29N		



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	Dichlorodifluoromethane		
Chloroethane	Trichlorofluoromethane		
Chloromethane	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	cis-1,2-Dichloroethylene		
Dibromochloromethane	trans-1,2-Dichloroethylene		
1,1-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	1,1-Dichloroethane		
Bromoform	2,2-Dichloropropane		
Carbon tetrachloride	Tetrachloroethylene		
Chloroform	1,1,1-Trichloroethane		
Dibromomethane			
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	Hexachlorobutadiene		
1,2-Dibromoethane	1,1,1,2-Tetrachloroethane		
1,2-Dichloroethane	1,1,2,2-Tetrachloroethane		
1,2-Dichloropropane	1,1,2-Trichloroethane		
1,3-Dichloropropane	Trichloroethylene		
1,1-Dichloropropylene	1,2,3-Trichloropropane		
cis-1,3-Dichloropropene *		* cis (1.06 x conc.)	
trans-1,3-Dichloropropene **		** 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	Toluene		
Bromobenzene	1,2,3-Trichlorobenzene		
n-Butylbenzene	1,2,4-Trichlorobenzene		
Ethylbenzene	1,2,4-Trimethylbenzene		
p-Isopropyltoluene	1,3,5-Trimethylbenzene		
Naphthalene	m-Xylene		
Styrene			
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	1,3-Dichlorobenzene		
tert-Butylbenzene	1,4-Dichlorobenzene		
Chlorobenzene	Isopropylbenzene		
2-Chlorotoluene	n-Propylbenzene		
4-Chlorotoluene	o-Xylene		
1,2-Dichlorobenzene	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	1,1-Dichloropropene		
Bromochloromethane	cis-1,3-Dichloropropene *		
Bromodichloromethane	trans-1,3-Dichloropropene **		
Bromoform	Hexachlorobutadiene		
Bromomethane	Isopropylbenzene (<i>Cumene</i>)		
n-Butylbenzene	p-Isopropyltoluene (<i>p-Cymene</i>)		
sec-Butylbenzene	Dichloromethane (<i>Methylene chloride</i>)		
tert-Butylbenzene	Naphthalene		
4-Chlorotoluene	n-Propylbenzene		
Chloroform	1,1,1,2-Tetrachloroethane		
Chloromethane	1,1,2,2-Tetrachloroethane		
2-Chlorotoluene	1,2,3-Trichlorobenzene		
4-Chlorotoluene	1,2,4-Trichlorobenzene		
Dibromochloromethane	1,1,2-Trichloroethane		
Dibromomethane	Trichlorofluoromethane		
1,3-Dichlorobenzene	1,2,3-Trichloropropane		
Dichlorodifluoromethane	1,2,4-Trimethylbenzene		
1,1-Dichloroethane	1,3,5-Trimethylbenzene (<i>Mesitylene</i>)		
1,2-Dichloropropane		* cis (1.06 x conc.)	
1,3-Dichloropropane		** trans (0.94 x conc.)	
2,2-Dichloropropane			

Wisconsin DNR VOC Mixture

S-989			1 x 1 mL
2.0 mg/mL each in MeOH			52 comps.
Benzene	1,3-Dichloropropane		
Bromobenzene	2,2-Dichloropropane		
Bromodichloromethane	Diisopropyl ether		
n-Butylbenzene	Ethylbenzene		
sec-Butylbenzene	Hexachlorobutadiene		
tert-Butylbenzene	Isopropylbenzene		
Carbon tetrachloride	p-Isopropyltoluene		
Chlorobenzene	Methylene chloride		
Chlorodibromomethane	Methyl tert-butyl ether		
Chloroethane	Naphthalene		
Chloroform	n-Propylbenzene		
Chloromethane	1,1,2,2-Tetrachloroethane		
2-Chlorotoluene	Tetrachloroethene		
4-Chlorotoluene	Toluene		
1,2-Dibromo-3-chloropropane	1,2,3-Trichlorobenzene		
1,2-Dibromoethane	1,2,4-Trichlorobenzene		
1,2-Dichlorobenzene	1,1,1-Trichloroethane		
1,3-Dichlorobenzene	1,1,2-Trichloroethane		
1,4-Dichlorobenzene	Trichloroethene		
Dichlorodifluoromethane	Dichlorofluoromethane		
1,1-Dichloroethane	1,2,4-Trimethylbenzene		
1,2-Dichloroethane	1,3,5-Trimethylbenzene		
1,1-Dichloroethene	Vinyl chloride		
cis-1,2-Dichloroethene	o-Xylene		
trans-1,2-Dichloroethene	m-Xylene		
1,2-Dichloropropane	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	Dichlorodifluoromethane
Bromobenzene	2,2-Dichloropropane
Bromochloromethane	Ethyl benzene
Bromoform	Ethylene dibromide
sec-Butyl benzene	Isopropylbenzene
Carbon tetrachloride	Tetrachloroethene
Chloroethane	1,1,1,2-Tetrachloroethane
4-Chlorotoluene	Toluene
Dibromomethane	1,2,3-Trichlorobenzene
1,2-Dichlorobenzene	1,2,4-Trichlorobenzene
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethene	Vinyl chloride
trans-1,2-Dichloroethene	o-Xylene

Mix E

M-502E 1 x 1 mL
0.2 mg/mL each in MeOH 21 comps.

Bromomethane	Hexachlorobutadiene
Chlorobenzene	Methylene chloride
Chloromethane	1,1,1-Trichloroethane
2-Chlorotoluene	1,1,2-Trichloroethane
Dibromochloromethane	Trichlorofluoromethane
1,3-Dichlorobenzene	Styrene
1,1-Dichloroethane	1,2,3-Trichloropropane
1,2-Dichloroethane	1,2,4-Trimethylbenzene
cis-1,2-Dichloroethene	<i>m</i> -Xylene
1,2-Dichloropropane	
cis-1,3-Dichloropropene*	* cis (1.06 x conc.)
trans-1,3-Dichloropropene**	** trans (0.94 x conc.)

Mix F

M-502F 1 x 1 mL
0.2 mg/mL each in MeOH 13 comps.

Bromodichloromethane	<i>p</i> -Isopropyl toluene
<i>n</i> -Butyl benzene	Naphthalene
<i>tert</i> -Butyl benzene	<i>n</i> -Propyl benzene
Chloroform	1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane	1,3,5-Trimethyl benzene
1,3-Dichloropropane	<i>p</i> -Xylene
1,1-Dichloropropene	

Mixtures of Internal, Surrogate Standards & Fortification Solutions

Internal Standard

M-502-IS 1 x 1 mL
M-502-IS-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 26 comps.
1-Chloro-2-bromopropane Fluorobenzene

Internal Standard 2

M-502-IS-2 1 x 1 mL
M-502-IS-2-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps.
1-Chloro-2-bromopropane Methylene chloride-d₂
Fluorobenzene

Internal Standard 3

M-502-IS-2-3 1 x 1 mL
2.0 mg/mL in MeOH
Methylene chloride-d₂

Internal Standard

M-524-IS 1 x 1 mL
M-524-IS-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
1,2-Dichlorobenzene-d₄ Fluorobenzene

Internal Standard 2

M-524-IS-2 1 x 1 mL
M-524-IS-2-PAK 5 x 1 mL
2.0 mg/mL in MeOH
Fluorobenzene

Fortification Solution

M-524-FS 1 x 1 mL
M-524-FS-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps.
4-Bromofluorobenzene Fluorobenzene
1,2-Dichlorobenzene-d₄

Surrogate Standard

M-524-SS 1 x 1 mL
M-524-SS-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
4-Bromofluorobenzene 1,2-Dichlorobenzene-d₄

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-d₄
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-d₂

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-d₅
1,4-Dichlorobenzene-d₄
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-d₄
Pentafluorobenzene

M-8260-IS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.
Chlorobenzene-d₅
1,4-Difluorobenzene
1,4-Dichlorobenzene-d₄
Pentafluorobenzene

M-8260A/B-IS 1 x 1 mL
0.2 mg/mL each in MeOH 3 comps.
Chlorobenzene-d₅
1,4-Dichlorobenzene-d₄
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 2-Chloropropane
4-Bromochlorobenzene Dibromofluoromethane
Bromochloromethane 1,4-Dichlorobutane
p-Bromofluorobenzene 1,4-Difluorobenzene
2-Bromo-1-chloropropane Fluorobenzene
1-Chloro-2-fluorobenzene Pentafluorobenzene
1-Chloro-3-fluorobenzene α,α,α-Trifluorotoluene
1-Chloro-4-fluorobenzene

Deuterated ISTD/SS Evaluation Mixture

M-DEUT-IS/SS 1 x 1 mL
200 µg/mL each in MeOH 8 comps.
Benzene-d₆
Chlorobenzene-d₅
1,2-Dichlorobenzene-d₄
1,4-Dichlorobenzene-d₄
1,2-Dichloroethane-d₄
Ethylbenzene-d₁₀
Methylene chloride-d₂
Toluene-d₈

Popular Surrogate Standards

M-502-IS-ASL 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
2-Bromo-1-chloropropane **Alternate Source**
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-d₄

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 1,4-Dichlorobutane
Bromochloromethane 2-Bromo-1-chloropropane

M-8240/60-SS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.
p-Bromofluorobenzene 1,2-Dichloroethane-d₄
Dibromofluoromethane Toluene-d₈

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-d₄
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 1,2-Dichloroethane-d₄
p-Bromofluorobenzene 1,4-Difluorobenzene
Chlorobenzene-d₅ Pentafluorobenzene
Dibromofluoromethane Toluene-d₈
1,4-Dichlorobenzene-d₄

M-8260A/B-IS/SS 1 x 1 mL
200 µg/mL each in MeOH 7 comps.
p-Bromofluorobenzene 1,2-Dichloroethane-d₄
Chlorobenzene-d₅ Fluorobenzene
Dibromofluoromethane Toluene-d₈
1,4-Dichlorobenzene-d₄



EPA Method 500 Series

Method 503-506

Method 503.1 Purgeable Aromatics & Alkenes

Purgeable Aromatics & Alkenes

M-503 1 x 1 mL
M-503-PAK 5 x 1 mL
0.2 mg/mL each in MeOH 28 comps.

SAVE

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 5 x 1 mL
0.2 mg/mL in MeOH

SAVE

α,α,α -Trifluorotoluene

Method 504 EDB & DBCP by ECD

EDB & DBCP

M-504 1 x 1 mL
M-504-PAK 5 x 1 mL
0.2 mg/mL each in MeOH

SAVE

M-504-10X 1 x 1 mL
M-504-10X-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

SAVE

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 5 x 1 mL
0.2 mg/mL each in MeOH 3 comps.

SAVE

1,2-Dibromoethane (EDB) 1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane (DBCP)

Laboratory Fortified Blank Sample Concentrate

M-504.1-LFB 1 x 1 mL
M-504.1-LFB-PAK 5 x 1 mL
0.25 μ g/mL each in MeOH 3 comps.

SAVE

1,2-Dibromoethane (EDB) 1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane (DBCP)

MDL Check Sample Concentrate

M-504.1-MDL 1 x 1 mL
M-504.1-MDL-PAK 5 x 1 mL
0.02 μ g/mL each in MeOH 3 comps.

SAVE

1,2-Dibromoethane (EDB) 1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane (DBCP)

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 5 x 1 mL
At stated conc. in MeOH 16 comps.

SAVE

Alachlor (10 μ g/mL)	Heptachlor epoxide (1 μ g/mL)
Aldrin (1 μ g/mL)	Hexachlorobenzene (1 μ g/mL)
Atrazine (250 μ g/mL)	Hexachlorocyclopentadiene (1 μ g/mL)
α -Chlordane (1 μ g/mL)	Lindane (1 μ g/mL)
γ -Chlordane (1 μ g/mL)	Methoxychlor (5 μ g/mL)
Dieldrin (1 μ g/mL)	cis-Nonachlor (1 μ g/mL)
Endrin (1 μ g/mL)	trans-Nonachlor (1 μ g/mL)
Heptachlor (1 μ g/mL)	Simazine (250 μ g/mL)

M-505-ASL 1 x 1 mL
M-505-ASL-PAK 5 x 1 mL
At stated conc. in Acetone 12 comps.

Alternate Source

SAVE

Alachlor (50 μ g/mL)	Heptachlor (20 μ g/mL)
Aldrin (20 μ g/mL)	Heptachlor epoxide (Isomer B) (20 μ g/mL)
Atrazine (500 μ g/mL)	Hexachlorobenzene (10 μ g/mL)
γ -BHC (20 μ g/mL)	Hexachlorocyclopentadiene (20 μ g/mL)
Dieldrin (20 μ g/mL)	Methoxychlor (200 μ g/mL)
Endrin (20 μ g/mL)	Simazine (100 μ g/mL)

Multi-Component Analytes

(Polychlorinated Biphenyls, Chlordane & Toxaphene)

Each at 1,000 μ g/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 μ g/mL in MeOH

Endrin

Method 506 Phthalate Esters by PID

Phthalate Esters

M-506 1 x 1 mL
M-506-PAK 5 x 1 mL
1.0 mg/mL each in Isooctane 7 comps.

SAVE

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 5 x 1 mL
At stated conc. in MeOH 7 comps.

SAVE

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

M-507A-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

6 comps.

Ametryn
Cycloate
Disulfoton

Fenamiphos
Merphos
Prometon

Mix E

M-507E

M-507E-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

8 comps.

Dichlorvos
Fenarimol
Fluridone
Napropamide

Pebulate (*Tillam*)
Simetryn
Tebuthiuron
Terbacil

Mix B

M-507B

M-507B-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

9 comps.

Atrazine
Diphenamid
EPTC
Ethoprop
Mevinphos

Prometryne
Propazine
Terbutryn
Triadimefon

Mix F

M-507F-R2

M-507F-R2-PAK

1.0 mg/mL each in Acetone

SAVE

1 x 1 mL

5 x 1 mL

2 comps.

Methyl paraoxon

Simazine

Mix C

M-507C

M-507C-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

9 comps.

Butachlor
Carboxin
Diazinon
Metolachlor
Metribuzin

MGK-264
Norflurazon
Terbufos
Vernolate

Mix G

M-507G

M-507G-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

8 comps.

Benefin
Isopropalin
Pendimethalin
Oxadiazon

Oxyfluorfen
Propachlor
Profluralin
Trifluralin

Mix H

M-507H

M-507H-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

DEF (for Merphos quantitation)

Mix D

M-507D

M-507D-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

10 comps.

Alachlor
Atraton
Bromacil
Butylate
Chlorpropham

Hexazinone
Molinate
Pronamide
Stirofos
Tricyclazole

Performance Check Solution

M-507-QC

M-507-QC-PAK

At stated conc. in MtBE

SAVE

1 x 1 mL

5 x 1 mL

6 comps.

Atrazine (150 ng/mL)
DNB (2500 ng/mL)
Bromacil (5000 ng/mL)

Prometon (300 ng/mL)
TPP (2500 ng/mL)
Vernolate (50 ng/mL)

Surrogate Standard

M-507-SS

M-507-SS-PAK

0.25 mg/mL in MtBE

M-507-SS-4X

1.0 mg/mL in MtBE

SAVE

1 x 1 mL

5 x 1 mL

1 x 1 mL

1,3-Dimethyl-2-nitrobenzene

Internal Standard

M-507-IS

M-507-IS-PAK

0.5 mg/mL in MtBE

M-507-IS-10X

5.0 mg/mL in MtBE

SAVE

1 x 1 mL

5 x 1 mL

1 x 1 mL

Triphenyl phosphate



EPA Method 500 Series

Method 508

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			
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		

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			
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

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			

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			

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			

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			
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			
δ-BHC	(40 ng/mL)	Chlorpyrifos	(2 ng/mL)
Chlorothalonil	(50 ng/mL)	Dacthal	(50 ng/mL)

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 5 x 1 mL
 500 µg/mL each in Ethyl acetate **SAVE** 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 5 x 1 mL
 500 µg/mL each in Ethyl acetate **SAVE** 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 5 x 1 mL
 100 µg/mL each in MtBE **SAVE** 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 5 x 1 mL
 100 µg/mL each in Ethyl acetate **SAVE** 2 comps.
 4,4'-DDT Endrin

Internal Standard Solution

M-508.1-IS 1 x 1 mL
M-508.1-IS-PAK 5 x 1 mL
 100 µg/mL each in Ethyl acetate **SAVE**
 Pentachloronitrobenzene

Surrogate Standard Solution

M-508.1-SS 1 x 1 mL
M-508.1-SS-PAK 5 x 1 mL
 100 µg/mL each in Ethyl acetate **SAVE**
 4,4'-Dibromobiphenyl

Performance Check Solution

M-508.1-QC 1 x 1 mL
M-508.1-QC-PAK 5 x 1 mL
 At stated conc. in MtBE **SAVE** 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)

Thousands of Standards,
 just a click away



AccuStandard.com



EPA Method 500 Series

Method 515

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)	Dichlorprop (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 5 x 1 mL
At stated conc. in Acetone 17 comps. **SAVE**

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 5 x 1 mL
At stated conc. in MtBE 4 comps. **SAVE**

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 5 x 1 mL
At stated conc. in MtBE 16 comps. **SAVE**

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 5 x 1 mL
0.1 mg/mL in MtBE **SAVE**

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 5 x 1 mL
At stated conc. in Acetone 17 comps. **SAVE**

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)	Quinlorac (50 µg/mL)
Dicamba (50 µg/mL)	

Underivatized Surrogate

M-8150B-SS 1 x 1 mL
M-8150B-SS-PAK 5 x 1 mL
0.1 mg/mL in Acetone
 2,4-Dichlorophenylacetic acid **SAVE**

Quality Control Sample Methyl Derivatives

M-515.4-QCS 1 x 1 mL
M-515.4-QCS-PAK 5 x 1 mL
At stated conc. in MtBE 16 comps. **SAVE**

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)	Quinlorac 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.

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Save 20-40% 5 x 1 mL





EPA Method 500 Series

Method 521-524

Method 521 Nitrosamines by SPE & Capillary Column GC

Analyte Stock Solution

M-521		1 x 1 mL
200 µg/mL each in CH ₂ Cl ₂		7 comps.
N-Nitrosodimethylamine	N-Nitrosodi-n-butylamine	
N-Nitrosomethylethylamine	N-Nitrosopyrrolidine	
N-Nitrosodiethylamine	N-Nitrosopiperidine	
N-Nitrosodi-n-propylamine		

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 ₂ Cl ₂		
N-Nitrosodi-n-propylamine-d ₄		

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 ₂ Cl 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	2-Hexanone
Acrylonitrile	Methacrylonitrile
Allyl chloride	Methylacrylate
2-Butanone	Methyl iodide
Carbon disulfide	Methylmethacrylate
Chloroacetonitrile	4-Methyl-2-pentanone
1-Chlorobutane	Methyl-t-butyl ether
trans-1,4-Dichloro-2-butene	Nitrobenzene
1,1-Dichloropropanone	2-Nitropropane
Diethyl ether	Pentachloroethane
Ethyl methacrylate	Propionitrile
Hexachloroethane	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	Methylene chloride-d ₂	
Fluorobenzene		

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	Fluorobenzene	
1,2-Dichlorobenzene-d ₄		

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	Methyl acetate
1-Chlorobutane	Methyl iodide
Allyl chloride	Methyl-t-butyl ether
Carbon disulfide	Pentachloroethane
Chlorodifluoromethane	Chlorodifluoromethane
Diethyl ether	t-Amyl methyl ether
Diisopropyl ether	t-Butyl alcohol
Ethyl methacrylate	t-Butyl ethyl ether
Hexachloroethane	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	1,4-Dichlorobenzene-d ₄	
Chlorobenzene-d ₃		

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	tert-Butyl methyl ether-d ₃	
Chlorobenzene-d ₃	p-Bromofluorobenzene	
1,4-Dichlorobenzene-d ₄	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	p-Bromofluorobenzene	
1,2-Dichlorobenzene-d ₄		

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

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		
Alachlor	Heptachlor	
Aldrin	Heptachlor epoxide	
Atrazine	Lindane	
α-Chlordane	Methoxychlor	
γ-Chlordane	Simazine	
Endrin	trans-Nonachlor	

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		
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		
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)		

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)		
Butylbenzylphthalate	Hexachlorobenzene	
di-n-Butylphthalate	Hexachlorocyclopentadiene	
Diethylphthalate	bis(2-Ethylhexyl)phthalate	
bis(2-Ethylhexyl)adipate	Pentachlorophenol (PCP)	
Dimethylphthalate		

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 ₂ Cl ₂		
Acenaphthene-d ₁₀	Perylene-d ₁₂	
Chrysene-d ₁₂	Phenanthrene-d ₁₀	

Tuning Standards

CLP-TS		1 x 1 mL
CLP-TS-PAK	SAVE	5 x 1 mL
50 µg/mL in CH ₂ Cl ₂		
Perfluorokerosene		

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		
Acenaphthene-d ₁₀	Perylene-d ₁₂	
Chrysene-d ₁₂	Phenanthrene-d ₁₀	

M-525-TS

M-525-TS-PAK	SAVE	1 x 1 mL
0.1 mg/mL in CH ₂ Cl ₂		
DFTPP		5 x 1 mL

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)



EPA Method 500 Series

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 1.0 mg/mL each in MtBE 1 x 1 mL 6 comps.

Ametryn	Fenamiphos
Cycloate	Merphos
Disulfoton	Prometon

M-507B 1.0 mg/mL each in MtBE 1 x 1 mL 9 comps.

Atrazine	Prometryne
Diphenamid	Propazine
EPTC	Terbutryn
Ethoprop	Triadimefon
Mevinphos	

M-507C 1.0 mg/mL each in MtBE 1 x 1 mL 9 comps.

Butachlor	MGK-264
Carboxin	Norflurazon
Diazinon	Terbufos
Metolachlor	Vernolate
Metribuzin	

M-507D 1.0 mg/mL each in MtBE 1 x 1 mL 10 comps.

Alachlor	Hexazinone
Atraton	Molinat
Bromacil	Pronamide
Butylate	Stirofos
Chlorpropham	Tricyclazole

M-507E 1.0 mg/mL each in MtBE 1 x 1 mL 8 comps.

Dichlorvos	Pebulate (Tillam)
Fenarimol	Simetryn
Fluridone	Tebuthiuron
Napropamide	Terbacil

M-507F-R2 1.0 mg/mL each in Acetone 1 x 1 mL 2 comps.

Methyl paraoxon	Simazine
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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.
Acenaphthene-d ₁₀	Phenanthrene-d ₁₀	
Chrysene-d ₁₂		

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	Triphenylphosphate	
Perylene-d ₁₂		

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.
Acenaphthene-d ₁₀	Perylene-d ₁₂	
Chrysene-d ₁₂	Phenanthrene-d ₁₀	
1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate	

Tuning Standard

M-525.2-TS		1 x 1 mL
0.5 mg/mL each in CH ₂ Cl ₂		3 comps.
4,4'-DDT	Endrin	
DFTPP		

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 2.5 mg/mL in Acetone 1 x 1 mL

Aroclor® 1016

C-216S-M-28.5X 1.0 mg/mL in MeOH 1 x 1 mL

Aroclor 1254

C-254S-M-28.5X 1.0 mg/mL in MeOH 1 x 1 mL

Aroclor 1260

C-260S-M-28.5X 1.0 mg/mL in MeOH 1 x 1 mL

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
M-508P-A-PAK
1.0 mg/mL each in MtBE

SAVE

1 x 1 mL
5 x 1 mL
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	

Mix B

M-508P-B-R2
M-508P-B-R2-PAK
1.0 mg/mL each in MtBE

SAVE

1 x 1 mL
5 x 1 mL
15 comps.

α-Chlordane	Etridiazole
γ-Chlordane	Hexachlorobenzene
Chlorobenzilate	trans-Nonachlor
Chloroneb	cis-Permethrin (0.5 mg/mL)
Chlorothalonil	trans-Permethrin (1.5 mg/mL)
Chlorpyrifos	Propachlor
Cyanazine	Trifluralin
DCPA	

Certificate will reflect actual cis/trans permethrin ratio

Semi-Volatile Analytes

PAH Mixtures

M-525-1-5X
0.5 mg/mL each in Acetone

1 x 1 mL
13 comps.

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

PCB Congener Mixtures

M-525-2-5X
0.5 mg/mL each in Acetone

1 x 1 mL
8 comps.

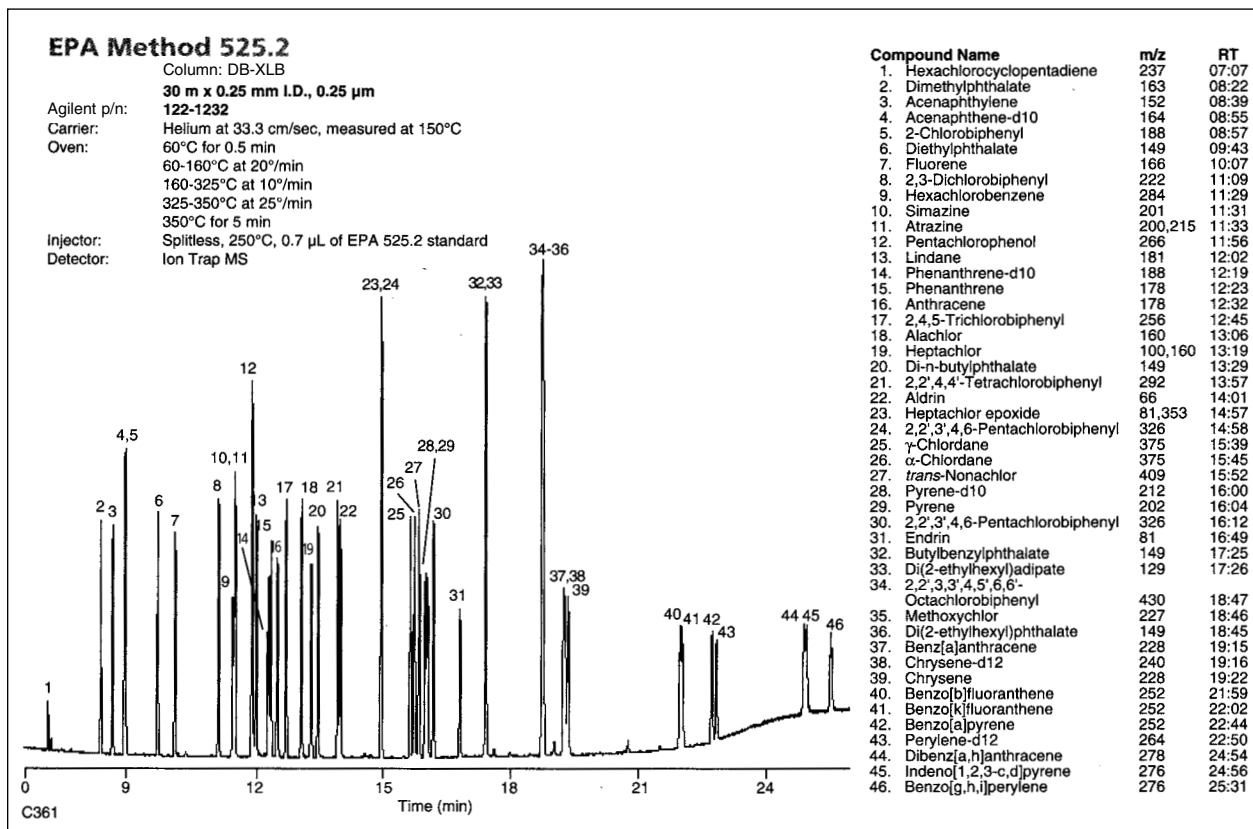
2-Chlorobiphenyl	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
2,3-Dichlorobiphenyl	2,2',3',4,6-Pentachlorobiphenyl
2,2',3,3',4,4',6-Heptachlorobiphenyl	2,2',4,4'-Tetrachlorobiphenyl
2,2',4,4',5,6'-Hexachlorobiphenyl	2,4,5-Trichlorobiphenyl

Semi-Volatile Mixtures

M-525-4-R-5X
0.5 mg/mL each in Acetone

1 x 1 mL
11 comps.

Butylbenzylphthalate	2,6-Dinitrotoluene
di-n-Butylphthalate	Hexachlorocyclopentadiene
Diethylphthalate	bis(2-Ethylhexyl)phthalate
bis(2-Ethylhexyl)adipate	Isophorone
Dimethylphthalate	Pentachlorophenol (2.0 mg/mL)
2,4-Dinitrotoluene	





EPA Method 500 Series

Method 525

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 5 x 1 mL
100 µg/mL each in Acetone 41 comps. **Alternate Source SAVE**

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	

Semi-Volatiles Mixture

M-525.2-SV-ASL 1 x 1 mL
M-525.2-SV-ASL-PAK 5 x 1 mL
100 µg/mL each in Acetone 33 comps. **Alternate Source SAVE**

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	

Nitrogen / Phosphorus Pesticide Mix Revision

M-525.2-NP1-ASL-R1 1 x 1 mL
100 µg/mL each in Acetone 40 comps. **Alternate Source**

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		

Regulated Semi-Volatiles Mixture

M-525-REG-ASL 1 x 1 mL
M-525-REG-ASL-PAK 5 x 1 mL
0.5 mg/mL each in Acetone 6 comps. **Alternate Source SAVE**

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 5 x 1 mL
500 µg/mL each in Acetone 7 comps. **Alternate Source SAVE**

Acenaphthene-d ₁₀	Phenanthrene-d ₁₀
Chrysene-d ₁₂	Pyrene-d ₁₀
1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
Perylene-d ₁₂	

Nitrogen / Phosphorus Pesticide Mixture

M-525.2-NP2-ASL 1 x 1 mL
M-525.2-NP2-ASL-PAK 5 x 1 mL
100 µg/mL each in Acetone 6 comps. **Alternate Source SAVE**

Carboxin	Fenamiphos
Diazinon	Merphos
Disulfoton	Terbufos

Surrogate Standard

M-525.2-SS2-ASL 1 x 1 mL
M-525.2-SS2-ASL-PAK 5 x 1 mL
500 µg/mL each in Acetone 4 comps. **Alternate Source SAVE**

1,3-Dimethyl-2-nitrobenzene	Pyrene-d ₁₀
Perylene-d ₁₂	Triphenylphosphate

Organochlorine Pesticides

M-525.2-CP-ASL 1 x 1 mL
M-525.2-CP-ASL-PAK 5 x 1 mL
100 µg/mL each in Acetone 30 comps. **Alternate Source SAVE**

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

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	

Match frequently requested products.

Alternate Source

ASL products can be used as an independent second source.



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	Dyfonate
Cyanazine	Nitrobenzene
Diazinon	Prometon
2,4-Dichlorophenol	Terbufos
1,2-Diphenylhydrazine	2,4,6-Trichlorophenol
Disulfoton	

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	Phenanthrene-d ₁₀
Chrysene-d ₁₂	Triphenylphosphate
1,3-Dimethyl-2-nitrobenzene	

M-525-TS-0.05X		1 x 1 mL
5 µg/mL in CH ₂ C 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	Phenanthrene-d ₁₀
Chrysene-d ₁₂	

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

Pesticide Mix A

M-527-PEST-A		1 x 1 mL
500 µg/mL each in MeOH		11 comps.

Atrazine	Kepona
Bioallethrin, S-cyclopentyl isomer	Norflurazon
Bromacil	Oxychlorane isomer
Esfenvalerate	Prometryne
Fenvalerate	Propazine
Hexazinone	

Pesticide Mix B

M-527-PEST-B		1 x 1 mL
500 µg/mL each in MeOH		12 comps.

Bifenthrin	Nitrofen
Dimethoate	Parathion
Dursban	Terbufos sulfone
Fenamiphos	Thiazopyr
Malathion	Thiobencarb
Mirex	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.

Acenaphthene-d ₁₀	Phenanthrene-d ₁₀
Chrysene-d ₁₂	

Surrogate Standard

M-525.2-SS		1 x 1 mL
0.5 mg/mL each in Acetone		3 comps.

1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
Perylene-d ₁₂	





EPA Method 500 Series

Method 528-529

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 ₂ Cl ₂		
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 ₂ Cl ₂		
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 ₂ Cl ₂		
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		
4-Chloro-3-methylphenol	(100 µg/mL)	2-Methyl-4,6-Dinitrophenol
2-Chlorophenol	(100 µg/mL)	2-Nitrophenol
o-Cresol	(100 µg/mL)	4-Nitrophenol
2,4-Dichlorophenol	(100 µg/mL)	Pentachlorophenol
2,4-Dimethylphenol	(100 µg/mL)	Phenol
2,4-Dinitrophenol	(500 µg/mL)	2,4,6-Trichlorophenol

Surrogate Standards

M-528-SS		1 x 1 mL
M-528-SS-PAK	SAVE	5 x 1 mL
At stated conc. in MeOH		
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		
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)	
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	5 x 1 mL
1000 µg/mL each in MeOH	
1,3,5-Trimethyl-2-nitrobenzene	1,2,4-Trimethyl-5-nitrobenzene

M-529-SS2	1 x 1 mL
M-529-SS2-PAK	5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂	
Nitrobenzene-d ₅	

Surrogate Analyte Fortification Solution

M-529-SAFS	1 x 1 mL
100 µg/mL each in MeOH	
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.
Diflufenzuron 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.
Diflufenzuron 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

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

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.



EPA Method 500 Series

Method 547-551

Method 547 Glyphosate by HPLC

M-547 0.1 mg/mL in Deionized water	1 x 1 mL
M-547-10X 1.0 mg/mL in Deionized water	1 x 1 mL
Glyphosate	

Glyphosate Metabolite

M-547-02 0.1 mg/mL in Deionized water	1 x 1 mL
Aminomethyl phosphonic acid (AMPA)	

Method 548 Endothall by GC/ECD

M-548A 10 µg/mL in Deionized water	1 x 1 mL
M-548B 50 µg/mL in Deionized water	1 x 1 mL
Endothall	

Internal Standard

M-548-IS 10 µg/mL in MtBE	1 x 1 mL
Endosulfan I	

Calibration Standard

M-548-CAL 100 µg/mL in MtBE	1 x 1 mL
Endothall pentafluorophenyl hydrazine derivative	

Method 548.1 Endothall by GC/MS

P-183S 100 µg/mL in MeOH	1 x 1 mL
Endothall	

Internal Standard

M-548.1-IS 500 µg/mL in MeOH	1 x 1 mL
Acenaphthene-d ₁₀	

Methyl Derivative

M-548.1-ME 100 µg/mL in MeOH	1 x 1 mL
Dimethyl endothall	

Method 549.1/549.2 Diquat & Paraquat Liquid - Solid Extraction & HPLC

M-549.1 1.0 mg/mL each in Deionized water as non-hydrated species	1 x 1 mL 2 comps.
Diquat dibromide - H ₂ O (1.97 mg/mL)	
Paraquat dichloride - 4 H ₂ O (1.77 mg/mL)	

Method 550 + 550.1 PAHs by HPLC & Internal Standard

M-550-QC At stated conc. in AcCN	1 x 1 mL 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 0.1 mg/mL in AcCN	1 x 1 mL
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 5.0 mg/mL each in Acetone		1 x 1 mL 8 comps.
M-551B-SET Each at 5.0 mg/mL in Acetone		set of 8 x 1 mL
	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
<i>At stated conc. in Acetone</i>		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
<i>1000 µg/mL each in Acetone</i>		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
<i>At stated conc. in Acetone</i>		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

- 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.
- 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
<i>At stated conc. in Pentane</i>		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
<i>At stated conc. in MtBE</i>		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
<i>100 µg/mL in Acetone</i>		
M-551.1-IS-100X		1 x 1 mL
M-551.1-IS-100X-PAK	SAVE	5 x 1 mL
<i>10,000 µg/mL in Acetone</i>		
<i>p-Bromofluorobenzene</i>		

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
<i>At stated conc. in Pentane</i>		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
<i>At stated conc. in MtBE</i>		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
<i>10 µg/mL in Acetone</i>		
M-551.1-SS-100X		1 x 1 mL
M-551.1-SS-100X-PAK	SAVE	5 x 1 mL
<i>1,000 µg/mL in Acetone</i>		
<i>Decafluorobiphenyl</i>		



EPA Method 500 Series

Method 552

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-Dichloroisole	M-552-R-01	
Methyl bromoacetate	M-552-R-02	
Methyl 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-Trichloroisole	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 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 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)

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 Standard - Haloacetic Acid Methyl Derivative

M-552.2-SS-ME 1 x 1 mL
 1000 µg/mL in MtBE

Methyl 2,3-dibromopropionate

Surrogate Standards - Haloacetic Acid

M-552.2-SS 1 x 1 mL
 1000 µg/mL in MtBE

2,3-Dibromopropionic acid

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 chlorodibromoacetate	(10 µg/mL)
Methyl 2,3-dibromopropionate	(10 µg/mL)

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

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 chlorodibromoacetate	(0.010 µg/mL)
Methyl 2,3-dibromopropionate	(0.010 µg/mL)

* ColdPAK required to maintain integrity of product.



EPA Method 500 Series

Method 553-556

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
<i>At stated conc. in AcCN:MeOH (50:50)</i>			
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
<i>0.1 mg/mL in AcCN</i>	
DFTPPO (<i>Decafluorotriphenylphosphine oxide</i>)	

* 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
<i>1.0 mg/mL each in AcCN</i>	
Acetaldehyde	Heptanal
Butanal	Hexanal
Crotonaldehyde	Nonanal
Cyclohexanone	Octanal
Decanal	Pentanal
Formaldehyde	Propanal

DNPH Derivatives

M-554-DNPH	1 x 1 mL
<i>1.0 mg/mL each in MeOH:AcCN (95:5)</i>	
M-554-DNPH-SET	set of 12 x 1 mL
<i>Each at 1.0 mg/mL in MeOH:AcCN (95:5)</i>	

	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
<i>1.0 mg/mL each in AcCN</i>	
Acifluorfen	Dicamba
Bentazon	Dichlorprop
Chloramben	Picloram
2,4-D	2,4,5-TP

Mix B

M-555B	1 x 1 mL
<i>1.0 mg/mL each in AcCN</i>	
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
<i>1.0 mg/mL each in AcCN</i>	
Acetaldehyde	Heptanal
Benzaldehyde	Hexanal
Butanal	Nonanal
Crotonaldehyde	Octanal
Cyclohexanone	Pentanal
Decanal	Propanal
Formaldehyde	

Mix B

M-556-MIXB	1 x 1 mL
<i>1.0 mg/mL each in AcCN</i>	
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	5 x 1 mL
<i>10 mg/mL in Hexane</i>	
1,2-Dibromopropane	

SAVE

Surrogate Standards

M-556-SS	1 x 1 mL
M-556-SS-PAK	5 x 1 mL
<i>20 µg/mL in AcCN</i>	
M-556-SS-100X	1 x 1 mL
M-556-SS-100X-PAK	5 x 1 mL
<i>2.0 mg/mL in AcCN</i>	

SAVE

SAVE

2',4',5'-Trifluoroacetophenone

PFBHA Reagent

M-556-DER-10ML	1 x 10 mL
M-556-DER-10ML-PAK	5 x 10 mL
<i>15 mg/mL in Water</i>	
O-(2,3,4,5,6-Pentafluorobenzyl)hydroxylamine hydrochloride	

SAVE

Working Level (Internal Standard)

M-556-IS-WL-5ML-VAP	10 x 5 mL
<i>400 µg/L in Hexane</i>	
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 analytical 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

2.0 mg/mL each in MeOH

1 x 1 mL
12 comps.

Benzene	1,4-Dichlorobenzene
Bromodichloromethane	1,2-Dichloroethane
Bromoform	1,1-Dichloroethylene
Carbon tetrachloride	1,1,1-Trichloroethane
Chloroform	Trichloroethylene
Dibromochloromethane	Vinyl chloride

Phase II

VOCs

M-502C-08

2.0 mg/mL each in MeOH

1 x 1 mL
12 comps.

Chlorobenzene	Styrene
1,2-Dichlorobenzene	Tetrachloroethylene
cis-1,2-Dichloroethylene	Toluene
trans-1,2-Dichloroethylene	o-Xylene
1,2-Dichloropropane	m-Xylene
Ethylbenzene	p-Xylene

Phase V

Additions

M-502C-10

2.0 mg/mL in MeOH

1 x 1 mL
3 comps.

Dichloromethane	1,1,2-Trichloroethane
1,2,4-Trichlorobenzene	

Phase VIB

Additions

M-502C-11

2.0 mg/mL each in MeOH

1 x 1 mL
7 comps.

Acrylonitrile	Hexachlorobutadiene
Bromomethane	1,1,1,2-Tetrachloroethane
cis-1,3-Dichloropropene *	1,2,3-Trichloropropane
trans-1,3-Dichloropropene **	* cis (1.06 x conc.)
	** trans (0.94 x conc.)

Combined Phase I, Phase II, Phase V

Volatiles

M-502-REG

M-502-REG-PAK

0.2 mg/mL each in MeOH

M-502-REG-10X

M-502-REG-10X-PAK

2.0 mg/mL each in MeOH

SAVE
1 x 1 mL
5 x 1 mL
27 comps.
1 x 1 mL
5 x 1 mL
27 comps.

Benzene	1,2-Dichloropropane
Bromodichloromethane	Ethylbenzene
Bromoform	Styrene
Carbon tetrachloride	Tetrachloroethylene
Chlorobenzene	Toluene
Chloroform	1,2,4-Trichlorobenzene
Dibromochloromethane	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethylene
1,2-Dichloroethane	Vinyl chloride
1,1-Dichloroethylene	m-Xylene
cis-1,2-Dichloroethylene	o-Xylene
trans-1,2-Dichloroethylene	p-Xylene
Dichloromethane	

Method 504 EDB & DBCP

M-504

M-504-PAK

0.2 mg/mL each in MeOH

SAVE
1 x 1 mL
5 x 1 mL
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 ₂ O	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

Technical Note

If you require formulations with additional analytes found on the contaminant list, please contact our Technical Department.

National Primary Drinking Water Standards



Safe Drinking Water Act

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 ††	}	see Method 501 Total Trihalomethanes
Chloroform ††		
Dibromochloromethane ††		
Dichlorobromomethane ††		
		Method 551, Chlorinated Solvents + Disinfectant By-products

Bromoacetic acid ††	}	Haloacetic acids see Method 552.2
Chloroacetic acid ††		
Dibromoacetic acid ††		
Dichloroacetic acid ††		
Trichloroacetic acid ††		

Regulated Pesticide Mixture

M-508.1-ASL		1 x 1 mL	
M-508.1-ASL-PAK		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			

Alternate Source SAVE

Regulated Semi-Volatiles Mixture

M-525-REG-ASL		1 x 1 mL	
M-525-REG-ASL-PAK		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)	

Alternate Source SAVE

Carbamate Pesticide Mixture

M-531-REG-ASL		1 x 1 mL	
M-531-REG-ASL-PAK		5 x 1 mL	
100 µg/mL each in MeOH		2 comps.	
Carbofuran		Oxamyl	

Alternate Source SAVE

Match frequently requested products.

Alternate Source

ASL products can be used as an independent second source.



EPA Consent Decree Water Protocol

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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 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:CH₂Cl₂(50:50)

M-001G-D 1 x 1 mL
At stated conc. in CH₂Cl₂ 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 CH₂Cl₂ 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 1248
Aroclor 1232 Aroclor 1260

Aroclor Mix 2

M-001L 1 x 1 mL

Aroclor 1221 Aroclor 1254
Aroclor 1242

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 H₂O 2 comps.

Internal Standard -

Anthracene-d₁₀

M-001N 1 x 1 mL
2.0 mg/mL in CH₂Cl₂

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-001I,M-001J,M-001K,M-001L,M-001M,M-603A,M-001N,M-001R)

Purgeable A	Base/Neutral 1	Pesticide Mixture	Acrolein-Acrylonitrile
Purgeable B	Base/Neutral 2	Phenol Mixture	Anthracene-d ₁₀
Purgeable C (Gases)	Base/Neutral 3	Chlordane & Toxaphene	Internal Standard
	Base/Neutral 4	Aroclor Mix 1	
		Aroclor Mix 2	

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

Thousands of Standards,
just a click away



AccuStandard.com



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EPA Method 600 Series

Method 601

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

Carbon tetrachloride	<i>cis</i> -1,3-Dichloropropylene *
Chlorobenzene	<i>trans</i> -1,3-Dichloropropylene **
1,2-Dichlorobenzene	Methylene chloride
1,3-Dichlorobenzene	1,1,2,2-Tetrachloroethane
1,4-Dichlorobenzene	Tetrachloroethylene
1,1-Dichloroethane	1,1,1-Trichloroethane
1,2-Dichloroethane	1,1,2-Trichloroethane
1,1-Dichloroethylene	Trichloroethylene
<i>trans</i> -1,2-Dichloroethylene	
1,2-Dichloropropane	* <i>cis</i> (1.06 x conc.)
	** <i>trans</i> (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

Bromomethane	Dichlorodifluoromethane
Chloromethane	Trichlorofluoromethane
Chloroethane	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
		4 comps.

2.0 mg/mL each in MeOH

Bromoform	Dichlorobromomethane
Chloroform	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

Bromochloromethane	2-Bromo-1-chloropropane
1,4-Dichlorobutane	

Purgeable Halocarbon Mix

M-601-ASL	Alternate Source	1 x 1 mL
M-601-ASL-PAK	SAVE	5 x 1 mL

100 µg/mL each in MeOH

Bromodichloromethane	1,2-Dichloroethane
Bromoform	1,1-Dichloroethene
Bromomethane	<i>trans</i> -1,2-Dichloroethene
Carbon tetrachloride	1,2-Dichloropropane
Chlorobenzene	<i>cis</i> -1,3-Dichloropropene
Chloroethane	<i>trans</i> -1,3-Dichloropropene
Chloroform	Dichloromethane
Chloromethane	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
Dichlorodifluoromethane	Trichlorofluoromethane
1,1-Dichloroethane	Vinyl chloride

Performance Check Solution

S-532-ASL	Alternate Source	1 x 1 mL
S-532-ASL-PAK	SAVE	5 x 1 mL

0.2 mg/mL each in MeOH

Benzene	1,1-Dichloroethene
Carbon tetrachloride	1,1,1-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,2-Dichloroethane	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		
Benzene	1,2-Dichloropropane	
Bromoform	cis-1,3-Dichloropropylene *	
Carbon tetrachloride	trans-1,3-Dichloropropylene **	
Chlorobenzene	Ethylbenzene	
Chloroform	Methylene chloride	
Dibromochloromethane	1,1,2,2-Tetrachloroethane	
1,2-Dichlorobenzene	Tetrachloroethylene	
1,3-Dichlorobenzene	Toluene	
1,4-Dichlorobenzene	1,1,1-Trichloroethane	
Dichlorobromomethane	1,1,2-Trichloroethane	
1,1-Dichloroethane	Trichloroethylene	
1,2-Dichloroethane		* cis (1.06 x conc.)
1,1-Dichloroethylene		** trans (0.94 x conc.)
trans-1,2-Dichloroethylene		

Gases

M-601B		1 x 1 mL
M-601B-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Bromomethane	Dichlorodifluoromethane	
Chloromethane	Trichlorofluoromethane	
Chloroethane	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		
Benzene	1,4-Dichlorobenzene	
Chlorobenzene	Ethylbenzene	
1,2-Dichlorobenzene	Toluene	
1,3-Dichlorobenzene		

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		
Benzene	Toluene	
Chlorobenzene	o-Xylene	
1,2-Dichlorobenzene	p-Xylene	
1,3-Dichlorobenzene	m-Xylene	
1,4-Dichlorobenzene	MtBE	
Ethylbenzene		

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		
Benzene	1,2-Dichloropropane	
Bromodichloromethane	cis-1,3-Dichloropropene *	
Bromoform	trans-1,3-Dichloropropene **	
Bromomethane	Dichloromethane	
Carbon tetrachloride	Ethylbenzene	
Chlorobenzene	MtBE	
Chloroethane	1,1,2,2-Tetrachloroethane	
Chloroform	Tetrachloroethene	
Chloromethane	Toluene	
Dibromochloromethane	1,1,1-Trichloroethane	
1,2-Dichlorobenzene	1,1,2-Trichloroethane	
1,3-Dichlorobenzene	Trichloroethene	
1,4-Dichlorobenzene	Trichlorofluoromethane	
Dichlorodifluoromethane	m-Xylene	
1,1-Dichloroethane	o-Xylene	
1,2-Dichloroethane	p-Xylene	
1,1-Dichloroethene	Vinyl chloride	
trans-1,2-Dichloroethene		* 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		
Benzene	1,1,1-Trichloroethane	
Carbon tetrachloride	1,1,2,2-Tetrachloroethane	
Chlorobenzene	1,1,2-Trichloroethane	
Ethylbenzene	1,1-Dichloroethane	
Methyl-t-butyl ether	1,1-Dichloroethene	
Methylene chloride	1,2-Dichlorobenzene	
Tetrachloroethene	1,2-Dichloroethane	
Toluene	1,2-Dichloropropane	
Trichloroethene	o-Xylene	
cis-1,3-Dichloropropene	m-Xylene	
cis-1,2-Dichloroethene	p-Xylene	
trans-1,2-Dichloroethene	1,3-Dichlorobenzene	
trans-1,3-Dichloropropene	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 603-608

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		
M-603-10X		1 x 1 mL
10 mg/mL each in Water		
M-603-M-0.1X *		1 x 1 mL
0.1 mg/mL each in MeOH:Water 90:10		
M-603-M-5X *		1 x 1 mL
5.0 mg/mL each in MeOH:Water 90:10		
Acrolein	Acrylonitrile	2 comps.

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		
4-Chloro-3-methylphenol	2,4-Dinitrophenol	Pentachlorophenol
2-Chlorophenol	2-Methyl-4,6-dinitrophenol	Phenol
2,4-Dichlorophenol	2-Nitrophenol	2,4,6-Trichlorophenol
2,4-Dimethylphenol	4-Nitrophenol	

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		
4-Chloro-3-methylphenol	2,4-Dinitrophenol	Pentachlorophenol
2-Chlorophenol	2-Methyl-4,6-dinitrophenol	Phenol
2,4-Dichlorophenol	2-Nitrophenol	2,4,6-Trichlorophenol
2,4-Dimethylphenol	4-Nitrophenol	

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		
Hexachlorophene	Dichlorophene	2 comps.

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		
Benzidine	3,3'-Dichlorobenzidine	2 comps.

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		
Benzyl butyl phthalate	Di- <i>n</i> -butyl phthalate	
Dimethyl phthalate	Di- <i>n</i> -octyl phthalate	
Diethyl 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		
N-Nitrosodimethylamine (0.2 mg/mL)	N-Nitrosodi- <i>n</i> -propylamine (0.2 mg/mL)	
N-Nitrosodiphenylamine (0.4 mg/mL)		3 comps.

Method 608 Pesticides and PCBs by GC/ECD

M-001H		1 x 1 mL
At stated conc. in MeOH		
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		
Chlordane	(0.02 mg/mL)	Toxaphene (0.20 mg/mL)

M-001K		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1016		Aroclor 1248
Aroclor 1232		Aroclor 1260

M-001L		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1221		Aroclor 1254
Aroclor 1242		

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		

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

M-608-ASL	Alternate Source	1 x 1 mL	
M-608-ASL-PAK	SAVE	5 x 1 mL	
20 µg/mL each in MeOH			
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)

		AccuPAK™ (5 x 1 mL)	
		SAVE	
Aroclors #	Cat. No.	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	

* ColdPAK required to maintain integrity of product.



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	Etridiazole	
Chloroneb	PCNB	
Chloropropylate	Propachlor	
Dibromochloropropane		

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	Methoxychlor	
DCPA	cis-Permethrin *	
Dichloram	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 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	4-Bromophenyl phenyl ether	
bis(2-Chloroethoxy)methane	4-Chlorophenyl phenyl ether	
bis(2-Chloro-1-methylethyl) 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	Ethion	
Demeton (mix of O & S isomers)	Malathion	
Diazinon	Parathion	
Disulfoton	Parathion methyl	

M-614.1		1 x 1 mL
1,000 µg/mL each in Acetone:Hexane (50:50)		4 comps.
Dioxathion	Ethion	
EPN	Terbufos	

M-614.1-ASL	Alternate Source	1 x 1 mL
At stated conc. in Hexane		4 comps.
Dioxathion (10 µg/mL)	Ethion (100 µg/mL)	
EPN (200 µg/mL)	Terbufos (4 µg/mL)	

Method 610 PAHs by GC/FID or HPLC

M-610		1 x 1 mL
At stated conc. in MeOH:CH ₂ Cl ₂ (50:50)		16 comps.
M-610A		1 x 1 mL
At stated conc. in MeOH:CH ₂ Cl 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)	

For additional formulations also see Method 8310



EPA Method 600 Series

Method 615-622

Method 615 Chlorinated Herbicides

Chlorinated Herbicides

Compound	Herbicide Acids	Methyl Derivatives	1 mL
	In MeOH Cat. No.	In Hexane Cat. No.	
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
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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		Terbutylazine	M-619-10	
Prometryn	M-619-05		Terbutryn	M-619-11	
Propazine	M-619-06				

M-619-SET

Each at 0.1 mg/mL in MeOH 11 x 1 mL
Above 11 compounds

M-619M

0.1 mg/mL each in MeOH 1 x 1 mL
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)
Fensulfthion (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	Fonophos
Dichlofenthion	Phosmet
Famphur	Thionazin
Fenitrothion	

Method 624 Purgeables by GC/MS

Purgeables

M-624 1 x 1 mL
0.2 mg/mL each in MeOH 31 comps.

Benzene	<i>trans</i> -1,2-Dichloroethene
Bromodichloromethane	1,2-Dichloropropane
Bromoform	<i>cis</i> -1,3-Dichloropropene *
Bromomethane	<i>trans</i> -1,3-Dichloropropene **
Carbon tetrachloride	Ethylbenzene
Chlorobenzene	Methylene chloride
Chloroethane	1,1,2,2-Tetrachloroethane
2-Chloroethylvinyl ether	Tetrachloroethene
Chloroform	Toluene
Chloromethane	1,1,1-Trichloroethane
Dibromochloromethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	Vinyl chloride
1,1-Dichloroethane	
1,2-Dichloroethane	* <i>cis</i> (1.06 x conc.)
1,1-Dichloroethene	** <i>trans</i> (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	Pentafluorobenzene	
Fluorobenzene		

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	2-Bromo-1-chloropropane	
1,4-Dichlorobutane		

Tens of thousands of Standards Ready-to-Ship



Method 622-624



EPA Method 600 Series

Method 625

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 ₂ Cl 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 ₂ Cl 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 ₂ Cl 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	Diethyl phthalate
Acenaphthylene	Dimethyl phthalate
Anthracene	2,4-Dinitrotoluene
Azobenzene	2,6-Dinitrotoluene
Benz[a]anthracene	Di- <i>n</i> -octyl phthalate
Benzo[b]fluoranthene	bis(2-Ethylhexyl)phthalate
Benzo[k]fluoranthene	Fluoranthene
Benzo[g,h,i]perylene	Fluorene
Benzo[a]pyrene	Hexachlorobenzene
4-Bromophenyl phenyl ether	Hexachlorobutadiene
Butyl benzyl phthalate	Hexachlorocyclopentadiene
bis(2-Chloroethoxy)methane	Hexachloroethane
bis(2-Chloroethyl) ether	Indeno[1,2,3- <i>cd</i>]pyrene
bis(2-Chloro-1-methylethyl) ether	Isophorone
2-Chloronaphthalene	Naphthalene
4-Chlorophenyl phenyl ether	Nitrobenzene
Chrysene	N-Nitrosodimethylamine
Dibenz[a,h]anthracene	N-Nitrosodiphenylamine
Di- <i>n</i> -butyl phthalate	N-Nitrosodi- <i>n</i> -propylamine
1,2-Dichlorobenzene	Phenanthrene
1,3-Dichlorobenzene	Pyrene
1,4-Dichlorobenzene	1,2,4-Trichlorobenzene

Benzidine Analytes (2 comps.)

Benzidine	3,3'-Dichlorobenzidine
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Base-Neutral Mix

CLP-HC-BN-R		1 x 1 mL
2.0 mg/mL each in Benzene : CH ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂ 17 comps.		

Acetophenone	<i>n</i> -Dodecane
Aniline	<i>n</i> -Eicosane
Benzoic acid	<i>n</i> -Hexadecane
Carbazole	1-Methylphenanthrene
<i>p</i> -Cresol	<i>n</i> -Octadecane
<i>o</i> -Cresol	Pyridine
2,3-Dichloroaniline	<i>a</i> -Terpineol
<i>n</i> -Decane	<i>n</i> -Tetradecane
<i>n</i> -Docosane	

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 ₂ Cl ₂ 12 comps.		
Acenaphthylene	3,3'-Dichlorobenzidine	
Benzo[b]fluoranthene	Dimethyl phthalate	
4-Bromophenylphenyl ether	Di- <i>n</i> -butyl phthalate	
bis(2-Chloroethyl) ether	2,6-Dinitrotoluene	
bis(2-Chloro-1-methylethyl) ether	bis(2-Ethylhexyl)phthalate	
1,4-Dichlorobenzene	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 ₂ Cl ₂ 15 comps.		

Acenaphthene	Diethyl phthalate
Anthracene	2,4-Dinitrotoluene
Benz[a]anthracene	Fluorene
bis(2-Chloroethoxy)methane	Hexachlorobenzene
Chrysene	Hexachlorobutadiene
Dibenz[a,h]anthracene	Naphthalene
1,2-Dichlorobenzene	Pyrene
1,3-Dichlorobenzene	

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 ₂ Cl ₂ 11 comps.		

Azobenzene	Isophorone
Benzyl butyl phthalate	N-Nitrosodi- <i>n</i> -propylamine
2-Chloronaphthalene	N-Nitrosodiphenylamine
Fluoranthene	Phenanthrene
Hexachlorocyclopentadiene	1,2,4-Trichlorobenzene
Hexachloroethane	

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 ₂ Cl ₂ 8 comps.		

Benzidine	4-Chlorophenylphenyl ether
Benzo[a]pyrene	Di- <i>n</i> -octyl phthalate
Benzo[g,h,i]perylene	Indeno[1,2,3- <i>cd</i>]pyrene
Benzo[k]fluoranthene	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 ₂ Cl ₂ 11 comps.		

4-Chloro-3-methylphenol	2-Nitrophenol
2-Chlorophenol	4-Nitrophenol
2,4-Dichlorophenol	Pentachlorophenol
2,4-Dimethylphenol	Phenol
2,4-Dinitrophenol	2,4,6-Trichlorophenol
2-Methyl-4,6-dinitrophenol	



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		
4-Chloro-3-methylphenol	2-Nitrophenol	
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
4,6-Dinitro-2-methylphenol		11 comps.

Single Component Surrogates & Internal Standards

Base/Neutrals

Individual solutions at 0.2 mg/mL in CH₂Cl₂

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 CH₂Cl₂

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		
Aldrin	Dieldrin	
β-BHC	Endosulfan sulfate	
δ-BHC	Endrin aldehyde	
4,4'-DDD	Heptachlor	
4,4'-DDE	Heptachlor epoxide	
4,4'-DDT		11 comps.

GC/MS Calibration Standards

M-625C-SET set of 5 x 1 mL
5 solutions each at stated conc. in CH₂Cl₂

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 ₂ Cl ₂		
M-625-TS-20X		4 comps.
M-625-TS-20X-PAK	SAVE	1 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		
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 ₂ Cl ₂		
Perfluorokerosene		

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	

Chlordane and Toxaphene

M-001J		1 x 1 mL
M-001J-PAK	SAVE	5 x 1 mL
At stated conc. in MeOH		
Chlordane (0.02 mg/mL)	Toxaphene (0.20 mg/mL)	2 comps.

Polychlorinated Biphenyls

Aroclor Mix #1

M-001K		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1016	Aroclor 1248	
Aroclor 1232	Aroclor 1260	4 comps.

Aroclor Mix #2

M-001L		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1221	Aroclor 1254	
Aroclor 1242		3 comps.

Internal Standard Mix

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₂	Phenanthrene-d ₁₀	6 comps.



EPA Method 600 Series

Method 625

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 ₂ Cl ₂		
4-Bromophenylphenyl ether	Dimethyl phthalate	
Butyl benzyl phthalate	Di- <i>n</i> -butyl phthalate	
bis(2-Chloroethoxy)methane	Di- <i>n</i> -octyl phthalate	
bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)phthalate	
bis(2-Chloro-1-methylethyl) ether	N-Nitrosodimethylamine	
4-Chlorophenylphenyl ether	N-Nitrosodi- <i>n</i> -propylamine	
Diethyl phthalate	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 ₂ Cl ₂		
Azobenzene	Hexachlorobenzene	
2-Chloronaphthalene	Hexachlorobutadiene	
1,2-Dichlorobenzene	Hexachlorocyclopentadiene	
1,3-Dichlorobenzene	Hexachloroethane	
1,4-Dichlorobenzene	Isophorone	
2,4-Dinitrotoluene	Nitrobenzene	
2,6-Dinitrotoluene	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 ₂ Cl ₂		
Benzoic acid	4-Methylphenol	
2-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 ₂ Cl ₂		
Aniline	2-Methylnaphthalene	
Benzyl alcohol	2-Nitroaniline	
4-Chloroaniline	3-Nitroaniline	
Dibenzofuran	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		
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 ₂ Cl ₂ :Benzene (50:50)		
Acenaphthene	Chrysene	
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benzo[a]anthracene	Fluorene	
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	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 ₂ Cl ₂ :Benzene (50:50)		
Acenaphthene	Chrysene	
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benzo[a]anthracene	Fluorene	
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	Pyrene	
Carbazole		

Phenols Mix

Z-014H		1 x 1 mL
Z-014H-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
4-Chloro-3-methylphenol	2-Nitrophenol	
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
2-Methyl-4,6-dinitrophenol		

Internal Standard Mix

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₂	Phenanthrene-d ₁₀	

Method 625 Priority Pollutant Set

Order a complete Set **SAVE 25%**

Z-014R-SET	set of 9 x 1 mL	Z-014R-1-SET	set of 9 x 1 mL	Z-014R-2-SET	set of 7 x 1 mL	Z-014R-3-SET	set of 7 x 1 mL
Set includes:		Set includes:		Set includes:		Set includes:	
Z-014A	Base/Neutrals - Mix #1	Z-014A	Base/Neutrals - Mix #1	Z-014A	Base/Neutrals - Mix #1	Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2	Z-014B	Base/Neutrals - Mix #2	Z-014B	Base/Neutrals - Mix #2	Z-014B	Base/Neutrals - Mix #2
Z-014C	Pesticides - Mix #1	Z-014C-R	Pesticides - Mix #2	Z-014D	Toxic Substances - Mix #1	Z-014D	Toxic Substances - Mix #1
Z-014D	Toxic Substances - Mix #1	Z-014D	Toxic Substances - Mix #1	Z-014E	Toxic Substances - Mix #2	Z-014E	Toxic Substances - Mix #2
Z-014E	Toxic Substances - Mix #2	Z-014E	Toxic Substances - Mix #2	Z-014F	Benzidine Mix	Z-014F	Benzidine Mix
Z-014F	Benzidine Mix	Z-014F	Benzidine Mix	Z-014G	PAH Mix	Z-014G-R	PAH Mix
Z-014G-R	PAH Mix	Z-014G-R	PAH Mix	Z-014H	Phenols Mix	Z-014H	Phenols Mix
Z-014H	Phenols Mix	Z-014H	Phenols Mix				
Z-014J	Internal Standard Mix	Z-014J	Internal Standard Mix				



Method 625 (continued) Priority Pollutant Standards

Pesticides - Mix #1

Z-014C 1 x 1 mL
Z-014C-PAK 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50) 16 comps.

SAVE

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-R2-PAK 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps.

SAVE

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 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50) 18 comps.

SAVE

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 5 x 1 mL
 50 µg/mL each in CH₂Cl₂ 4 comps.

SAVE

Benzidine	DFTPP
p,p'-DDT	Pentachlorophenol

CLP-TS 1 x 1 mL
CLP-TS-PAK 5 x 1 mL
 50 µg/mL in CH₂Cl₂

SAVE

Perfluorokerosene

EPA Method 625 GC/MS Calibration Standards

M-625C-SET set of 5 x 1 mL
 5 solutions each at stated conc. in CH₂Cl₂

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.

Ethalfuralin	Tolban (Profluralin)
Paarlan (Isopropalin)	Trifluralin

M-627-R 1 x 1 mL
 1.0 mg/mL each in MeOH 5 comps.

Benfluralin	Tolban (Profluralin)
Ethalfuralin	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



EPA Method 600 Series

Method 645-680

Method 645 Amino Pesticides & Lethane by GC/NPD

Amino Pesticides Mix

M-645 1.0 mg/mL each in Hexane 1 x 1 mL 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 (<i>Basagran</i>)	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 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-d₁₂

Method 680 PCB Isomer Calibration Set
M-680-SET 2 x 1 mL
 (M-680A, M-680B)

Pesticide Mix

M-680P 1 x 1 mL
M-680P-PAK 5 x 1 mL **SAVE**
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 5 x 1 mL **SAVE**
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)	

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-d₁₂, 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

Internal Standard

M-680-IS 1 x 1 mL
M-680-IS-PAK 5 x 1 mL **SAVE**
75 µg/mL each in Toluene:Hexane (50:50) 2 comps.
M-680-IS-10X 1 x 1 mL
M-680-IS-10X-PAK 5 x 1 mL **SAVE**
750 µg/mL each in Hexane:CH₂Cl₂ (50:50) 2 comps.

Chrysene-d₁₂ Phenanthrene-d₁₀

Tuning Standard

M-680-TS 1 x 1 mL
M-680-TS-PAK 5 x 1 mL **SAVE**
10 µg/mL in CH₂Cl₂
Decafluorotriphenylphosphine (DFTPP)

Retention Time Calibration Standard

M-680-RT 1 x 1 mL
M-680-RT-PAK 5 x 1 mL **SAVE**
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	1,2-Dichloroethane	
2-Butanone (10 mg/mL)	1,1-Dichloroethene	
Carbon tetrachloride	Tetrachloroethene	
Chlorobenzene	Trichloroethene	
Chloroform	Vinyl chloride	
1,4-Dichlorobenzene		

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 ₂ Cl ₂		13 comps.
<i>o</i> -Cresol	Hexachloroethane	
<i>m</i> -Cresol	Nitrobenzene	
<i>p</i> -Cresol	Pentachlorophenol	
1,4-Dichlorobenzene	Pyridine	
2,4-Dinitrotoluene	2,4,5-Trichlorophenol	
Hexachlorobenzene	2,4,6-Trichlorophenol	
Hexachlorobutadiene		

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.
<i>o</i> -Cresol	Pentachlorophenol	
<i>m</i> -Cresol	2,4,5-Trichlorophenol	
<i>p</i> -Cresol	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	Hexachloroethane	
2,4-Dinitrotoluene	Nitrobenzene	
Hexachlorobenzene	Pyridine	
Hexachlorobutadiene		

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	Lindane	
Endrin	Methoxychlor	
Heptachlor	Toxaphene (4.0 mg/mL)	
Heptachlor epoxide		

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	Lindane	
Heptachlor	Methoxychlor	
Heptachlor epoxide		

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

Method 1311 TCLP Regulatory Level Mixtures

Volatiles

TCLP-QC *			1 x 1 mL
TCLP-QC-PAK *		SAVE	5 x 1 mL
<i>At stated conc. in MeOH</i>			
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
<i>At stated conc. in MeOH</i>			
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
<i>At stated conc. in MeOH</i>			
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
<i>At stated conc. in CH₂Cl₂</i>			
<i>o</i> -Cresol (2000 µg/mL)	Hexachloroethane (30 µg/mL)		
<i>m</i> -Cresol (2000 µg/mL)	Nitrobenzene (20 µg/mL)		
<i>p</i> -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
<i>At stated conc. in MeOH</i>			
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
<i>2.0 mg/mL each in CH₂Cl₂</i>			
Acenaphthene	2,4-Dinitrophenol		
β-BHC	2,4-Dinitrotoluene		
γ-BHC	<i>o</i> -Cresol		
bis-2-Chloroethyl ether	2,4-Dimethylphenol		
2-Chlorophenol	Hexachlorobenzene		
1,2-Dichlorobenzene	Hexachlorobutadiene		
1,4-Dichlorobenzene	Nitrobenzene		



EPA Method 1600 Series

Dioxins and Furans

1600

Method 1613

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Method 1613 Dioxins & Furans by HRGC/HRMS

Precision and Recovery Standard

M-1613-PAR Bold (-04)

M-1613-PAR-PAK

All units in ng/mL in Nonane

1 x 1 mL

5 x 1 mL

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

All in ng/mL in Nonane

5 x 1 mL

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

40 ng/mL each in Nonane

1 x 1 mL

2 comps.

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



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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

At stated conc. in Isooctane

1 x 1 mL

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

At stated conc. in Isooctane:Toluene

1 x 1 mL

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

At stated conc. in Isooctane

1 x 1 mL

8 comps.

Matrix Spiking Solution

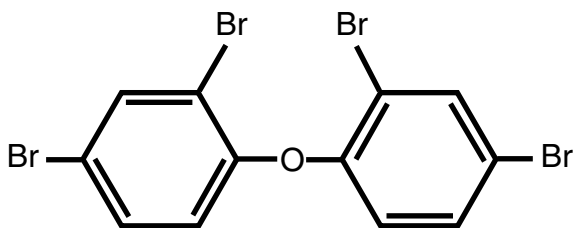
BDE-MS

At stated conc. in Isooctane

1 x 1 mL

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 **5 x 1 mL**
At stated conc. in Isooctane **14 comps.**

SAVE

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 **5 x 1 mL**
20 µg/mL each in Hexane **8 comps.**

SAVE

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 **5 x 1 mL**
2.0 mg/mL in Hexane **2 comps.**

SAVE

MCPA	MCPP
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Surrogate Standards

Organochlorine Pesticide

M-1618-SS **1 x 1 mL**
M-1618-SS-PAK **5 x 1 mL**
2 µg/mL in Acetone

SAVE

Dibutylchlorendate

Organophosphate Pesticide

M-1618-SP **1 x 1 mL**
2 µg/mL each in Acetone **2 comps.**

Tributyl phosphate	Triphenyl phosphate
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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 * **5 x 1 mL**
At stated conc. in Acetone **2 comps.**

SAVE

p,p'-DDT (2.0 µg/mL)	Endrin (1.0 µg/mL)
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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 **5 x 1 mL**
0.1 µg/mL in Acetone

SAVE

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		
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		
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		
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		
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		

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 ₂ Cl ₂		
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		
4,4'-DDT (2 µg/mL)	Endrin (1 µg/mL)	

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		
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		
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		
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		
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		
Methanol	Propionaldehyde	
Acetaldehyde	Methyl ethyl ketone	

Instrument Performance Check Solution

M-1653-TS		1 x 1 mL
50 µg/mL in Acetone		
DFTPP		

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		
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene	

CLP-034		1 x 1 mL
0.2 mg/mL each in Acetone		
Dibutylchlorendate	Tetrachloro- <i>m</i> -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- <i>m</i> -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
Ethalfuralin	10	50	200
Fenarimol	20	100	400
Methoxychlor	20	100	400
Metribuzin	10	50	200
Tetrachloro- <i>m</i> -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- <i>m</i> -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- <i>m</i> -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- <i>m</i> -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- <i>m</i> -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- <i>m</i> -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 CH₂Cl₂ 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 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

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

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)
Chlorfenvinphos	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

M-1657-CAL-SET 4 x (3 x 1 mL)
Contains all 4 calibration groups at
Low, Medium and High Ranges



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

All solutions in Isooctane

3 x 1 mL
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-Dichlorophenylacetic 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 Phosphorus 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)
bis(2-Ethylhexyl)phthalate (15.0 mg/mL)
Pentachlorophenol (1.4 mg/mL)

Perylene (0.1 mg/mL)
Sulfur (0.5 mg/mL)

PMI Stock Standard

M-1665

1 x 1 mL

2000 µg/mL each in CH₂Cl₂

6 comps.

Aniline
N,N-Dimethylacetamide
N,N-Dimethylaniline

Dimethylformamide
2-Picoline
Pyridine

Instrument Performance Check Solution

M-1653-TS

1 x 1 mL

50 µg/mL in Acetone

DFTPP

PMI Labeled Stock Standard (Not for individual sale)

M-1665-LAB

1 x 1 mL

500 µg/mL each in CH₂Cl₂

5 comps.

Aniline-d.
N,N-Dimethylaniline-d.
Dimethylformamide-d.

2-Picoline-d.
Pyridine-d.

PMI Internal Standard

M-625-07-10X

1 x 1 mL

2.0 mg/mL in CH₂Cl₂

2,2'-Difluorobiphenyl

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 ₁
Ethanol-d ₅	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 5 x 1 mL
1.0 mg/mL each in MeOH 3 comps. **SAVE**

Bromochloromethane	1,4-Difluorobenzene
Chlorobenzene-d ₅	

PMI Resolution Standard

M-1666A-RES 1 x 1 mL
M-1666A-RES-PAK 5 x 1 mL
100 µg/mL each in MeOH 2 comps. **SAVE**

o-Xylene	o-Xylene-d ₁₀
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Instrument Performance Check Solution

CLP-004-10X 1 x 1 mL
CLP-004-10X-PAK 5 x 1 mL
250 µg/mL in MeOH **SAVE**

p-Bromofluorobenzene

Buy AccuPAKs™
Save 20-40% 5 x 1 mL



EPA Method 1600 Series

Pharmaceutical Waste Discharge Standards

1600

Method 1667

Method 1667A Formaldehyde, Isobutylaldehyde & Furfural by Derivatization followed by HPLC for PMI pollutants

PMI Carbonyl Set

M-1667A-SET

Each at 1.0 mg/mL in AcCN

3 x 1 mL

	Cat. No.	1 mL
Formaldehyde	M-1667A-01	
2-Furaldehyde	M-1667A-02	
Isobutylaldehyde	M-1667A-03	

PMI Carbonyl DNPH Set

M-1667A-DNPH-SET

Each at 1.0 mg/mL in AcCN

3 x 1 mL

	Cat. No.	1 mL
Formaldehyde-DNPH	M-1667A-DNPH-01	
2-Furaldehyde-DNPH	M-1667A-DNPH-02	
Isobutylaldehyde-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	Isobutylaldehyde
2-Furaldehyde	

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	Isobutylaldehyde-DNPH
2-Furaldehyde-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 (Continued) Congener Set - 209 Chlorinated Biphenyl Congeners by HRGC/HRMS

PCB Congener Mix #4

M-1668A-4-0.01X

At stated conc. in Isooctane

1 x 1 mL

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

At stated conc. in Isooctane

1 x 1 mL

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

At stated conc. in Isooctane

1 x 1 mL

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)

Method 1668A - Combined Congener Standard

M-1668A-C-NT-LOC-WD

20 µg/mL each in Isooctane

1 x 1 mL

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',4,4',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	

PAR PCB Spike Mix

M-1668A-PAR

At stated conc. in Isooctane

1 x 1 mL

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)

Method 1668A - QC Standard

M-1668A-QC

M-1668A-QC-PAK

At stated conc. in Isooctane

SAVE

1 x 1 mL

5 x 1 mL

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)

Level of Chlorination Calibration / Spike Set

M-1668A-LOC-SET

2 x 1 mL (M-1668A-NAT, M-1668A-PAR)

Method 1671 VOCs Specific to PMI by GC/FID

PMI Internal Standard

M-1671A-IS

1 x 1 mL

M-1671A-IS-PAK

5 x 1 mL

1.0 mg/mL in Water

SAVE

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

5 x 1 mL

2.5 mg/mL in Tetrahydrofuran

SAVE

Polyethylene glycol-600

Surrogate Standard

M-1673-SS

1 x 1 mL

M-1673-SS-PAK

5 x 1 mL

1.0 mg/mL in Tetrahydrofuran

SAVE

Diethylene glycol monoethyl 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

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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	<i>trans</i> -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 ₂ Cl ₂	APP-9-004	2,4-Dichlorophenol	120-83-2	MeOH	APP-9-075
2-Acetylaminofluorene	53-96-3	CH ₂ Cl ₂	APP-9-006	2,6-Dichlorophenol	87-65-0	CH ₂ Cl 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	<i>cis</i> -1,3-Dichloropropene	10061-01-5	MeOH	APP-9-078
Aldrin	309-00-2	MeOH	APP-9-009	<i>trans</i> -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 ₂ Cl 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	<i>p</i> -(Dimethylamino)azobenzene	60-11-7	CH ₂ Cl ₂	APP-9-083
Aramite	140-57-8	MeOH	APP-9-014	7,12-Dimethylbenz[a]anthracene	57-97-6	CH ₂ Cl ₂	APP-9-084
Benz[a]anthracene	56-55-3	MeOH	APP-9-016	3,3'-Dimethylbenzidine	119-93-7	CH ₂ Cl ₂	APP-9-085
Benzene	71-43-2	MeOH	APP-9-015	<i>a,a</i> -Dimethylphenethylamine	122-09-8	CH ₂ Cl 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 ₂ Cl ₂	APP-9-019	<i>m</i> -Dinitrobenzene	99-65-0	CH ₂ Cl ₂	APP-9-089
Benzo[a]pyrene	50-32-8	MeOH	APP-9-020	4,6-Dinitro- <i>o</i> -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- <i>n</i> -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 ₂ Cl 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
<i>p</i> -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 ₂ Cl ₂	APP-9-040	Ethyl methacrylate	97-63-2	MeOH	APP-9-105
<i>p</i> -Chloro- <i>m</i> -cresol	59-50-7	MeOH	APP-9-041	Ethylmethanesulfonate	62-50-0	CH ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂	APP-9-028	Heptachlor epoxide [Isomer B]	1024-57-3	MeOH	APP-9-111
Chloromethane	74-87-3	MeOH	APP-9-044	Hexachlorobenzene	118-74-1	MeOH	APP-9-112
2-Chloronaphthalene	91-58-7	MeOH	APP-9-045	Hexachlorobutadiene	87-68-3	MeOH	APP-9-113
2-Chlorophenol	95-57-8	MeOH	APP-9-046	Hexachlorocyclopentadiene	77-47-4	MeOH	APP-9-114
4-Chlorophenyl phenyl ether	7005-72-3	MeOH	APP-9-047	Hexachloroethane	67-72-1	MeOH	APP-9-115
Chloroprene (Xylene-Free)	126-99-8	MeOH	APP-9-048-R1	Hexachlorophene	70-30-4	MeOH	APP-9-116
Chrysene	218-01-9	MeOH	APP-9-049	Hexachloropropene	1888-71-7	MeOH	APP-9-117
<i>m</i> -Cresol	108-39-4	CH ₂ Cl ₂	APP-9-050	2-Hexanone *	591-78-6	MeOH	APP-9-118
<i>o</i> -Cresol	95-48-7	CH ₂ Cl ₂	APP-9-051	Indeno[1,2,3- <i>cd</i>]pyrene	193-39-5	MeOH	APP-9-119
<i>p</i> -Cresol	106-44-5	CH ₂ Cl ₂	APP-9-052	Isobutyl alcohol	78-83-1	MeOH	APP-9-120
2,4-D	94-75-7	MeOH	APP-9-053	Isodrin	465-73-6	MeOH	APP-9-121
4,4'-DDD	72-54-8	MeOH	APP-9-054	Isophorone	78-59-1	MeOH	APP-9-122
4,4'-DDE	72-55-9	MeOH	APP-9-055	Isosafrole	120-58-1	CH ₂ Cl ₂	APP-9-123
4,4'-DDT	50-29-3	MeOH	APP-9-056	Kepon	143-50-0	MeOH	APP-9-124
Diallate	2303-16-4	MeOH	APP-9-057	Methacrylonitrile	126-98-7	MeOH	APP-9-125
Dibenz[a,h]anthracene	53-70-3	MeOH	APP-9-058	Methapyrilene	91-80-5	CH ₂ Cl ₂	APP-9-126
Dibenzofuran	132-64-9	MeOH	APP-9-059	Methoxychlor	72-43-5	MeOH	APP-9-127
Dibromochloromethane	124-48-1	MeOH	APP-9-060	3-Methylcholanthrene	56-49-5	CH ₂ Cl ₂	APP-9-128
1,2-Dibromo-3-chloropropane	96-12-8	MeOH	APP-9-061	Methyl ethyl ketone; MEK *	78-93-3	MeOH	APP-9-129
Dibromomethane	74-95-3	MeOH	APP-9-062	Methyl iodide: Iodomethane	74-88-4	MeOH	APP-9-130
1,2-Dibromoethane, EDB	107-06-2	MeOH	APP-9-214	Methyl methacrylate	80-62-6	MeOH	APP-9-131
Di- <i>n</i> -butyl phthalate	84-74-2	MeOH	APP-9-063	Methyl methanesulfonate	66-27-3	CH ₂ Cl ₂	APP-9-132
<i>o</i> -Dichlorobenzene	95-50-1	MeOH	APP-9-064	2-Methylnaphthalene	91-57-6	CH ₂ Cl ₂	APP-9-133
<i>m</i> -Dichlorobenzene	541-73-1	MeOH	APP-9-065	Methyl parathion	298-00-0	MeOH	APP-9-134
<i>p</i> -Dichlorobenzene	106-46-7	MeOH	APP-9-066	4-Methyl-2-pentanone (MIBK)	108-10-1	MeOH	APP-9-135
3,3'-Dichlorobenzidine	91-94-1	MeOH	APP-9-067	Naphthalene	91-20-3	CH ₂ Cl ₂	APP-9-136
<i>trans</i> -1,4-Dichloro-2-butene	110-57-6	MeOH	APP-9-068	1,4-Naphthoquinone	130-15-4	CH ₂ Cl ₂	APP-9-137
Dichlorodifluoromethane	75-71-8	MeOH	APP-9-069	1-Naphthylamine	134-32-7	CH ₂ Cl ₂	APP-9-138
1,1-Dichloroethane	75-34-3	MeOH	APP-9-070	2-Naphthylamine	91-59-8	CH ₂ Cl ₂	APP-9-139
				<i>o</i> -Nitroaniline	88-74-4	CH ₂ Cl 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.	Compound	CAS No.	Solv.	Cat. No.
<i>m</i> -Nitroaniline	99-09-2	CH ₂ Cl ₂	APP-9-141	Pentachlorobenzene	608-93-5	MeOH	APP-9-173
<i>p</i> -Nitroaniline	100-01-6	CH ₂ Cl ₂	APP-9-142	Pentachloroethane	76-01-7	MeOH	APP-9-174
Nitrobenzene	98-95-3	MeOH	APP-9-143	Pentachloronitrobenzene	82-68-8	MeOH	APP-9-175
<i>o</i> -Nitrophenol	88-75-5	MeOH	APP-9-144	Pentachlorophenol	87-86-5	MeOH	APP-9-176
<i>p</i> -Nitrophenol	100-02-7	MeOH	APP-9-145	Phenacetin	62-44-2	CH ₂ Cl ₂	APP-9-177
4-Nitroquinoline-1-oxide	56-57-5	CH ₂ Cl ₂	APP-9-146	Phenanthrene	85-01-8	MeOH	APP-9-178
N-Nitrosodi- <i>n</i> -butylamine	924-16-3	CH ₂ Cl ₂	APP-9-147	Phenol	108-95-2	CH ₂ Cl ₂	APP-9-179
N-Nitrosodiethylamine	55-18-5	CH ₂ Cl ₂	APP-9-148	<i>p</i> -Phenylenediamine	106-50-3	MeOH	APP-9-180
N-Nitrosodimethylamine	62-75-9	CH ₂ Cl ₂	APP-9-149	Phorate	298-02-2	MeOH	APP-9-181
N-Nitrosodiphenylamine	86-30-6	CH ₂ Cl ₂	APP-9-150	2-Picoline	109-06-8	MeOH	APP-9-182
N-Nitrosodipropylamine	621-64-7	CH ₂ Cl ₂	APP-9-151	Pronamide	23950-58-5	MeOH	APP-9-183
N-Nitrosomethylethylamine	10595-95-6	CH ₂ Cl ₂	APP-9-152	Propionitrile	107-12-0	MeOH	APP-9-184
N-Nitrosomorpholine	59-89-2	CH ₂ Cl ₂	APP-9-153	Pyrene	129-00-0	MeOH	APP-9-185
N-Nitrosopiperidine	100-75-4	CH ₂ Cl ₂	APP-9-154	Pyridine	110-86-1	MeOH	APP-9-186-M
N-Nitrosopyrrolidine	930-55-2	CH ₂ Cl ₂	APP-9-155	Safrole	94-59-7	MeOH	APP-9-187
5-Nitro- <i>o</i> -toluidine	99-55-8	CH ₂ Cl ₂	APP-9-156	Silvex (2,4,5-TP)	93-72-1	MeOH	APP-9-188
Parathion	56-38-2	MeOH	APP-9-157	Styrene	100-42-5	MeOH	APP-9-189
Polychlorinated biphenyls:				2,4,5-Trichlorophenoxy acetic acid	93-76-5	MeOH	APP-9-190
Aroclor® 1016	12674-11-2	MeOH	APP-9-158	1,2,4,5-Tetrachlorobenzene	95-94-3	MeOH	APP-9-191
Aroclor 1221	11104-28-2	MeOH	APP-9-159	1,1,1,2-Tetrachloroethane	630-20-6	MeOH	APP-9-192
Aroclor 1232	11141-16-5	MeOH	APP-9-160	1,1,2,2-Tetrachloroethane	79-34-5	MeOH	APP-9-193
Aroclor 1242	53469-21-9	MeOH	APP-9-161	Tetrachloroethylene	127-18-4	MeOH	APP-9-194
Aroclor 1248	12672-29-6	MeOH	APP-9-162	2,3,4,6-Tetrachlorophenol	58-90-2	MeOH	APP-9-195
Aroclor 1254	11097-69-1	MeOH	APP-9-163	Tetraethyl dithiopyrophosphate (Sulfotep)	3689-24-5	MeOH	APP-9-196
Aroclor 1260	11096-82-5	MeOH	APP-9-164	Thionazin	297-97-2	MeOH	APP-9-197
Aroclor 1262	37324-23-5	MeOH	APP-9-165	Toluene	108-88-3	MeOH	APP-9-198
Aroclor 1268	11100-14-4	MeOH	APP-9-166	<i>o</i> -Toluidine	95-53-4	MeOH	APP-9-199
	0.5 mg/mL in	MeOH	APP-9-166-5X	Toxaphene	8001-35-2	MeOH	APP-9-200
Dioxins:				1,2,4-Trichlorobenzene	120-82-1	MeOH	APP-9-201
1,2,3,4,7,8-HCDD (5 µg/mL)	39227-28-6	Toluene	APP-9-169	1,1,1-Trichloroethane	71-55-6	MeOH	APP-9-202
1,2,3,7,8-PCCD (5 µg/mL)	40321-76-4	Toluene	APP-9-168	1,1,2-Trichloroethane	79-00-5	MeOH	APP-9-203
2,3,7,8-TCDD (5 µg/mL)	1746-01-6	Toluene	APP-9-167	Trichloroethylene	79-01-6	MeOH	APP-9-204
Polychlorinated dibenzofurans:				Trichlorofluoromethane	75-69-4	MeOH	APP-9-205
1,2,3,4,7,8-PCDF (5 µg/mL)	55684-94-1	Toluene	APP-9-172	2,4,5-Trichlorophenol	95-95-4	MeOH	APP-9-206
1,2,3,7,8-PCDF (5 µg/mL)	57117-41-6	Toluene	APP-9-171	2,4,6-Trichlorophenol	88-06-2	MeOH	APP-9-207
2,3,7,8-TCDF (5 µg/mL)	51207-31-9	Toluene	APP-9-170	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 * 0.2 mg/mL each in MeOH	1 x 1 mL 41 comps.	M-502B M-502B-PAK SAVE 0.2 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 6 comps.	M-8240C 0.2 mg/mL each in MeOH	1 x 1 mL 17 comps.
Acetone	<i>cis</i> -1,3-Dichloropropene *	Bromomethane		Acetonitrile	
Acrolein	<i>trans</i> -1,3-Dichloropropene **	Chloromethane		Allyl chloride	
Acrylonitrile	Ethanol	Chloroethane		1,2-Dibromo-3-chloropropane	
Benzene	Ethylbenzene	Dichlorodifluoromethane		Dibromomethane	
Bromodichloromethane	2-Hexanone	Trichlorofluoromethane		1,2-Dibromoethane	
Bromoform	Iodomethane	Vinyl chloride		1,4-Dioxane	
2-Butanone	4-Methyl-2-pentanone			Ethyl methacrylate	
Carbon disulfide	Methylene chloride			Isobutyl alcohol	
Carbon tetrachloride	Styrene			Methacrylonitrile	
Chlorobenzene	1,1,2,2-Tetrachloroethane			Methyl methacrylate	
Chloroform	Tetrachloroethene			Nitrobenzene	
Dibromochloromethane	Toluene			Pentachloroethane	
<i>cis</i> -1,4-Dichloro-2-butene *	1,1,1-Trichloroethane			Propionitrile	
<i>trans</i> -1,4-Dichloro-2-butene **	1,1,2-Trichloroethane			Pyridine	
1,2-Dichlorobenzene	Trichloroethene			1,1,1,2-Tetrachloroethane	
1,3-Dichlorobenzene	Vinyl acetate			1,2,4-Trichlorobenzene	
1,4-Dichlorobenzene	<i>o</i> -Xylene			1,2,3-Trichloropropane	
1,1-Dichloroethane	<i>m</i> -Xylene				
1,2-Dichloroethane	<i>p</i> -Xylene				
1,1-Dichloroethene					
<i>trans</i> -1,2-Dichloroethene					
1,2-Dichloropropane					

* *cis* (1.06 x conc.)
** *trans* (0.94 x conc.)
+ *cis* (0.1 mg/mL)
++ *trans* (0.1 mg/mL)

* ColdPAK required to maintain integrity of product.



EPA Method 8000 Series

Appendix IX Special Mixtures

Special Mixtures for Laboratories Testing Appendix IX Analytes

Volatile Mixtures

S-168A
0.5 mg/mL each in MeOH

1 x 1 mL
14 comps.

S-181M
0.1 mg/mL each in MeOH

1 x 1 mL
6 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

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
500 µg/mL each in CH₂Cl₂

1 x 1 mL
4 comps.

3,3'-Dimethylbenzidine
1,4-Naphthoquinone

4-Nitroquinoline-1-oxide
p-Phenylenediamine

Mix 2

S-168-MIXB
500 µg/mL each in CH₂Cl₂

1 x 1 mL
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.

Volatile ISTD & SS

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-d₄
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-d₂

M-001R 1 x 1 mL
2.0 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-d₅
1,4-Dichlorobenzene-d₄
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-d₄
Pentafluorobenzene

M-8260-IS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.
Chlorobenzene-d₅
1,4-Difluorobenzene
1,4-Dichlorobenzene-d₄
Pentafluorobenzene

M-8260A/B-IS 1 x 1 mL
0.2 mg/mL each in MeOH 3 comps.
Chlorobenzene-d₅
1,4-Dichlorobenzene-d₄
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 2-Chloropropane
4-Bromochlorobenzene Dibromofluoromethane
Bromochloromethane 1,4-Dichlorobutane
p-Bromofluorobenzene 1,4-Difluorobenzene
2-Bromo-1-chloropropane Fluorobenzene
1-Chloro-2-fluorobenzene Pentafluorobenzene
1-Chloro-3-fluorobenzene α,α,α-Trifluorotoluene
1-Chloro-4-fluorobenzene

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-d₄

M-624-SS-M 1 x 1 mL
2.0 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
2.0 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-d₄
Toluene-d₈

Deuterated ISTD/SS Evaluation Mix

M-DEUT-IS/SS 1 x 1 mL
200 µg/mL each in MeOH 8 comps.

Benzene-d₆ 1,2-Dichloroethane-d₄
Chlorobenzene-d₅ Ethylbenzene-d₁₀
1,2-Dichlorobenzene-d₄ Methylene chloride-d₂
1,4-Dichlorobenzene-d₄ Toluene-d₈

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-d₄
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-d₅
Dibromofluoromethane
1,4-Dichlorobenzene-d₄
1,2-Dichloroethane-d₄
1,4-Difluorobenzene
Pentafluorobenzene
Toluene-d₈

M-8260A/B-IS/SS 1 x 1 mL
200 µg/mL each in MeOH 7 comps.

p-Bromofluorobenzene
Chlorobenzene-d₅
Dibromofluoromethane
1,4-Dichlorobenzene-d₄
1,2-Dichloroethane-d₄
Fluorobenzene
Toluene-d₈



EPA Method 8000 Series

Method 8010

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	5 x 1 mL
0.2 mg/mL each in MeOH	SAVE
M-601A-10X	1 x 1 mL
2.0 mg/mL each in MeOH	18 comps.

Carbon tetrachloride	<i>cis</i> -1,3-Dichloropropylene *
Chlorobenzene	<i>trans</i> -1,3-Dichloropropylene **
1,2-Dichlorobenzene	Methylene chloride
1,3-Dichlorobenzene	1,1,2,2-Tetrachloroethane
1,4-Dichlorobenzene	Tetrachloroethylene
1,1-Dichloroethane	1,1,1-Trichloroethane
1,2-Dichloroethane	1,1,2-Trichloroethane
1,1-Dichloroethylene	Trichloroethylene
<i>trans</i> -1,2-Dichloroethylene	
1,2-Dichloropropane	

* *cis* (1.06 x conc.)
 ** *trans* (0.94 x conc.)

Gases

M-502B	1 x 1 mL
M-502B-PAK	5 x 1 mL
0.2 mg/mL each in MeOH	SAVE
M-502B-10X	1 x 1 mL
2.0 mg/mL each in MeOH	6 comps.

Bromomethane	Dichlorodifluoromethane
Chloromethane	Trichlorofluoromethane
Chloroethane	Vinyl chloride

Liquid Component

M-601C *	1 x 1 mL
M-601C-PAK *	5 x 1 mL
0.2 mg/mL in MeOH	SAVE
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	5 x 1 mL
0.2 mg/mL each in MeOH	SAVE
M-501-10X	1 x 1 mL
2.0 mg/mL each in MeOH	4 comps.

Bromoform	Dichlorobromomethane
Chloroform	Dibromochloromethane

Method 8010 Additional Analytes

M-8010R-1	1 x 1 mL
0.2 mg/mL each in MeOH	9 comps.
Benzylchloride	4-Chlorotoluene
Bromobenzene	Dibromomethane
bis(2-Chloroethoxy)methane	1,1,1,2-Tetrachloroethane
1-Chlorohexane	1,2,3-Trichloropropane
Chloromethylmethyl ether	

Surrogate Standard

M-001R	1 x 1 mL
M-001R-PAK	5 x 1 mL
20 mg/mL each in MeOH	SAVE
Bromochloromethane	2-Bromo-1-chloropropane
1,4-Dichlorobutane	

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	1,2-Dichloroethane
Bromobenzene	1,1-Dichloroethylene
Bromoform	<i>trans</i> -1,2-Dichloroethylene
Bromomethane	1,2-Dichloropropane
Carbon tetrachloride	<i>cis</i> -1,3-Dichloropropylene *
Chlorobenzene	<i>trans</i> -1,3-Dichloropropylene **
Chloroethane	Methylene chloride
Chloroform	1,1,1,2-Tetrachloroethane
Chloromethane	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethylene
Dibromomethane	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,3-Dichlorobenzene	Trichloroethylene
1,4-Dichlorobenzene	Trichlorofluoromethane
Dichlorobromomethane	1,2,3-Trichloropropane
Dichlorodifluoromethane	Vinyl chloride
1,1-Dichloroethane	

* 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	1,2-Dichlorobenzene	Methylene chloride
Bromobenzene	1,3-Dichlorobenzene	1,1,1,2-Tetrachloroethane
Bromoform	1,4-Dichlorobenzene	1,1,2,2-Tetrachloroethane
Bromomethane	Dichlorobromomethane	Tetrachloroethylene
Carbon tetrachloride	Dichlorodifluoromethane	1,1,1-Trichloroethane
Chlorobenzene	1,1-Dichloroethane	1,1,2-Trichloroethane
Chloroethane	1,2-Dichloroethane	Trichloroethylene
2-Chloroethylvinyl ether	1,1-Dichloroethylene	Trichlorofluoromethane
Chloroform	<i>trans</i> -1,2-Dichloroethylene	1,2,3-Trichloropropane
Chloromethane	1,2-Dichloropropane	Vinyl chloride
Dibromochloromethane	<i>cis</i> -1,3-Dichloropropylene *	
Dibromomethane	<i>trans</i> -1,3-Dichloropropylene **	

* 1.06 times conc.
 ** 0.94 times conc.

Internal & Surrogate Standard

M-8010-IS/SS	1 x 1 mL
M-8010-IS/SS-PAK	5 x 1 mL
150 µg/mL each in MeOH	SAVE
4-Bromochlorobenzene	3 comps.
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	1,2-Dichloroethane	
Bromobenzene	1,1-Dichloroethylene	
Bromoform	trans-1,2-Dichloroethylene	
Bromomethane	1,2-Dichloropropane	
Carbon tetrachloride	cis-1,3-Dichloropropylene *	
Chlorobenzene	trans-1,3-Dichloropropylene **	
Chloroethane	Methylene chloride	
2-Chloroethylvinyl ether	1,1,1,2-Tetrachloroethane	
Chloroform	1,1,2,2-Tetrachloroethane	
Chloromethane	Tetrachloroethylene	
Dibromochloromethane	1,1,1-Trichloroethane	
Dibromomethane	1,1,2-Trichloroethane	
1,2-Dichlorobenzene	Trichloroethylene	
1,3-Dichlorobenzene	Trichlorofluoromethane	
1,4-Dichlorobenzene	1,2,3-Trichloropropane	
Dichlorobromomethane	Vinyl chloride	
Dichlorodifluoromethane		* 1.06 times conc.
1,1-Dichloroethane		** 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	1,1-Dichloroethane	
Bromobenzene	1,2-Dichloroethane	
Bromoform	1,1-Dichloroethene	
Bromomethane	trans-1,2-Dichloroethene	
Carbon tetrachloride	1,2-Dichloropropane	
Chlorobenzene	1,3-Dichloro-2-propanol	
Chloroethane	cis-1,3-Dichloropropene *	
2-Chloroethanol	trans-1,3-Dichloropropene **	
Chloroform	Ethylene dibromide	
1-Chlorohexane	Methylene chloride	
Chloromethane	1,1,1,2-Tetrachloroethane	
4-Chlorotoluene	1,1,2,2-Tetrachloroethane	
Dibromochloromethane	Tetrachloroethene	
1,2-Dibromo-3-chloropropane	1,1,1-Trichloroethane	
Dibromomethane	1,1,2-Trichloroethane	
1,2-Dichlorobenzene	Trichloroethene	
1,3-Dichlorobenzene	Trichlorofluoromethane	
1,4-Dichlorobenzene	1,2,3-Trichloropropane	
Dichlorobromomethane	Vinyl chloride	
1,4-Dichloro-2-butene		* 1.06 times conc.
Dichlorodifluoromethane		** 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-Chloro-1-methylethyl) ether	
bis(2-Chloroethoxy)methane	Epichlorohydrin	
2-Chloroethylvinyl ether		

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	4-Bromofluorobenzene	
Bromochloromethane		

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	2-Bromo-1-chloropropane	
1,4-Dichlorobutane		

Halogenated Volatiles

M-8021B-X2		1 x 1 mL
0.2 mg/mL each in Pentane		2 comps.
Bromoacetone	Chloromethylmethyl ether	

APP-9-030

100 µg/mL in MeOH		1 x 1 mL
Bromodichloromethane		

APP-9-130

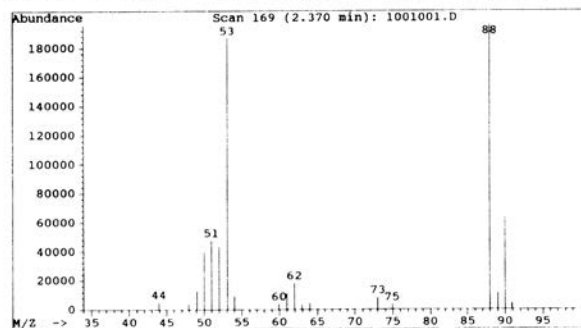
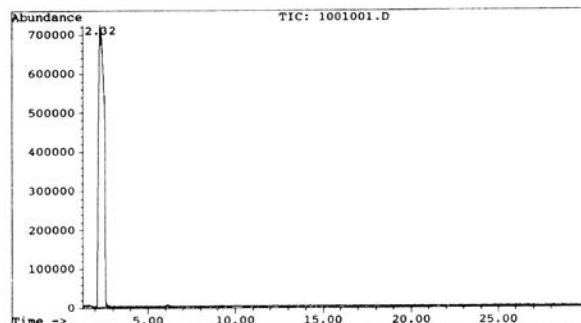
100 µg/mL in MeOH		1 x 1 mL
Methyl iodide		

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)	



EPA Method 8000 Series

Method 8015-8020

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 Methyl ethyl ketone
 Ethanol Methyl isobutyl ketone

Non-Halogenated Volatile Organics

M-8015-ASL 1 x 1 mL
 100 µg/mL each in MeOH 12 comps. **Alternate Source**

Acetonitrile Ethyl methacrylate
 Acrylamide Isobutyl alcohol
 2-Butanone Methacrylonitrile
 Diethyl ether Methyl methacrylate
 1,4-Dioxane 4-Methyl-2-pentanone
 Ethanol Propionitrile

Internal Standard

M-8015B-IS-10X 1 x 1 mL
 2.0 mg/mL each in Water 3 comps.

2-Chloroacrylonitrile Hexafluoro-2-propanol
 Hexafluoro-2-methyl-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 H₂O

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 H₂O 3 comps.

2-Chloroacetonitrile Hexafluoro-2-propanol
 Hexafluoro-2-methyl-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 Ethylbenzene
 Chlorobenzene Toluene
 1,2-Dichlorobenzene o-Xylene
 1,3-Dichlorobenzene m-Xylene
 1,4-Dichlorobenzene 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 Pyridine
 Chlorobenzene Thiophenol
 1,2-Dichlorobenzene Toluene
 1,3-Dichlorobenzene o-Xylene
 1,4-Dichlorobenzene m-Xylene
 Ethylbenzene p-Xylene
 2-Picoline

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 Fluorobenzene
 1,4-Difluorobenzene

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 Fluorobenzene
 p-Bromofluorobenzene α,α,α-Trifluorotoluene
 1,4-Difluorobenzene

* 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)	1,1-Dichloropropene (33)
Bromobenzene (02)	<i>cis</i> -1,3-Dichloropropene (34A) *
Bromochloromethane (03)	<i>trans</i> -1,3-Dichloropropene (34B) **
Bromodichloromethane (04)	Ethylbenzene (35)
Bromoform (05)	Hexachlorobutadiene (36)
<i>n</i> -Butylbenzene (07)	Isopropylbenzene (<i>Cumene</i>) (37)
<i>sec</i> -Butylbenzene (08)	<i>p</i> -Isopropyltoluene (<i>p-Cymene</i>) (38)
<i>tert</i> -Butylbenzene (09)	Methylene chloride (39)
Carbon tetrachloride (10)	Naphthalene (40)
Chlorobenzene (11)	<i>n</i> -Propylbenzene (41)
Chloroform (13)	Styrene (42)
2-Chlorotoluene (15)	1,1,1,2-Tetrachloroethane (43)
4-Chlorotoluene (16)	1,1,2,2-Tetrachloroethane (44)
Dibromochloromethane (17)	Tetrachloroethene (45)
1,2-Dibromo-3-chloropropane (18)	Toluene (46)
1,2-Dibromoethane (19)	1,2,3-Trichlorobenzene (47)
Dibromomethane (20)	1,2,4-Trichlorobenzene (48)
1,2-Dichlorobenzene (21)	1,1,1-Trichloroethane (49)
1,3-Dichlorobenzene (22)	1,1,2-Trichloroethane (50)
1,4-Dichlorobenzene (23)	Trichloroethene (51)
1,1-Dichloroethane (25)	1,2,3-Trichloropropane (53)
1,2-Dichloroethane (26)	1,2,4-Trimethylbenzene (54)
1,1-Dichloroethene (27)	1,3,5-Trimethylbenzene (55)
<i>cis</i> -1,2-Dichloroethene (28)	<i>o</i> -Xylene (57)
<i>trans</i> -1,2-Dichloroethene (29)	<i>m</i> -Xylene (58)
1,2-Dichloropropane (30)	<i>p</i> -Xylene (59)
1,3-Dichloropropane (31)	
2,2-Dichloropropane (32)	

* *cis* (1.06 x conc.)
** *trans* (0.94 x conc.)

6 Gas Components

Bromomethane (06)	Dichlorodifluoromethane (24)
Chloroethane (12)	Trichlorofluoromethane (52)
Chloromethane (14)	Vinyl chloride (56)

All 60 liquid & gas components in One Solution

Liquids (54 comps.) and Gases (6 comps.)

M-502	SAVE	1 x 1 mL
M-502-PAK		5 x 1 mL
0.2 mg/mL each in MeOH		
M-502-10X	SAVE	1 x 1 mL
M-502-10X-PAK		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.
<i>cis</i> -1,3-Dichloropropene	<i>trans</i> -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 5 x 1 mL
0.2 mg/mL each in MeOH 35 comps.

SAVE	Dichloromethane
	1,2-Dichloropropane
	1,3-Dichloropropane
	2,2-Dichloropropane
	1,1-Dichloropropene
	<i>cis</i> -1,3-Dichloropropene
	<i>trans</i> -1,3-Dichloropropene
	Hexachlorobutadiene
	Tetrachloroethene
	1,1,1,2-Tetrachloroethane
	1,1,2,2-Tetrachloroethane
	1,2-Dibromoethane
	Dibromomethane
	Dichlorodifluoromethane
	1,1-Dichloroethane
	1,2-Dichloroethane
	1,1-Dichloroethene
	<i>cis</i> -1,2-Dichloroethene
	<i>trans</i> -1,2-Dichloroethene

Aromatic Volatiles Solution #2

M-8021B-AV 1 x 1 mL
M-8021B-AV-PAK 5 x 1 mL
0.2 mg/mL each in MeOH 25 comps.

SAVE	Isopropylbenzene
	<i>p</i> -Isopropyltoluene
	<i>n</i> -Butylbenzene
	Naphthalene
	<i>n</i> -Propylbenzene
	Styrene
	Toluene
	1,2,3-Trichlorobenzene
	1,2,4-Trichlorobenzene
	1,2-Dichlorobenzene
	1,3-Dichlorobenzene
	1,4-Dichlorobenzene
	Ethylbenzene
	<i>o</i> -Xylene
	<i>m</i> -Xylene
	<i>p</i> -Xylene

Halogenated Volatiles Solution #3

M-8021B-X1 1 x 1 mL
0.2 mg/mL each in MeOH 8 comps.

Allyl chloride	bis(2-Chloroisopropyl) ether
Benzyl chloride	Chloroprene (Xylene-free)
2-Chloroethanol	1,3-Dichloro-2-propanol
2-Chloroethylvinyl ether	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
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EPA Method 8000 Series

Method 8021-8033

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
<i>5 µg/mL each in MeOH</i>		
M-8021B-IS-10X		1 x 1 mL
M-8021B-IS-10X-PAK	SAVE	5 x 1 mL
<i>50 µg/mL each in MeOH</i>		
M-8021B-IS-100X		1 x 1 mL
M-8021B-IS-100X-PAK	SAVE	5 x 1 mL
<i>500 µg/mL each in MeOH</i>		
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
<i>15 mg/mL each in MeOH</i>		
M-001R-0.075X		1 x 1 mL
M-001R-0.075X-PAK	SAVE	5 x 1 mL
<i>1.5 mg/mL each in MeOH</i>		
M-001R-0.0075X		1 x 1 mL
M-001R-0.0075X-PAK	SAVE	5 x 1 mL
<i>150 µg/mL each in MeOH</i>		
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
<i>15 µg/mL each in MeOH</i>		
M-8021B-SS-10X		1 x 1 mL
M-8021B-SS-10X-PAK	SAVE	5 x 1 mL
<i>150 µg/mL each in MeOH</i>		
M-8021B-SS-100X		1 x 1 mL
M-8021B-SS-100X-PAK	SAVE	5 x 1 mL
<i>1,500 µg/mL each in MeOH</i>		
4-Bromochlorobenzene	1,4-Dichlorobutane	

Surrogate Standards

M-8021-SS		1 x 1 mL
M-8021-SS-PAK	SAVE	5 x 1 mL
<i>2.0 mg/mL each in MeOH</i>		
4-Bromochlorobenzene	1,4-Dichlorobutane	

M-8021-SS-M		1 x 1 mL
M-8021-SS-M-PAK	SAVE	5 x 1 mL
<i>2.0 mg/mL each in MeOH</i>		
Bromochloromethane	1,4-Dichlorobutane	

M-001R		1 x 1 mL
M-001R-PAK	SAVE	5 x 1 mL
<i>20 mg/mL each in MeOH</i>		
Bromochloromethane	2-Bromo-1-chloropropane	
1,4-Dichlorobutane		

M-8021A-SS		1 x 1 mL
M-8021A-SS-PAK	SAVE	5 x 1 mL
<i>20 mg/mL each in MeOH</i>		
4-Bromochlorobenzene	1,4-Dichlorobutane	
Bromochloromethane	2-Bromo-1-chloropropane	

Chloroprene Solution

APP-9-048-R1-2X		1 x 1 mL
<i>0.2 mg/mL in MeOH</i>		
Chloroprene (Xylene-free)		

Method 8030A Acrolein & Acrylonitrile by GC/FID

M-603-10X		1 x 1 mL
<i>10 mg/mL each in Water</i>		
Acrolein	Acrylonitrile	2 comps.

Method 8031 Acrylonitrile by GC/NPD

APP-9-008-10X		1 x 1 mL
APP-9-008-10X-PAK	SAVE	5 x 1 mL
<i>1.0 mg/mL in MeOH</i>		
Acrylonitrile		

Method 8032/8032A Acrylamide by GC/ECD

Acrylamide		
M-8032		1 x 1 mL
M-8032-PAK	SAVE	5 x 1 mL
<i>1.0 mg/mL in MeOH</i>		
Acrylamide		

Brominated Analyte

M-8032B		1 x 1 mL
M-8032B-PAK	SAVE	5 x 1 mL
<i>0.1 mg/mL in Ethyl acetate</i>		
2,3-Dibromopropionamide		

Internal Standard

M-8032-IS		1 x 1 mL
M-8032-IS-PAK	SAVE	5 x 1 mL
<i>0.1 mg/mL in Ethyl acetate</i>		
Dimethyl phthalate		

Method 8033 Acrylonitrile by GC/NPD

Acrylonitrile		
M-8033		1 x 1 mL
M-8033-PAK	SAVE	5 x 1 mL
<i>1,000 µg/mL in H₂O</i>		
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 | (11) Dinoseb |
| (02) <i>o</i> -Chlorophenol | (12) 2-Methyl-4,6-dinitrophenol |
| (03) <i>m</i> -Cresol | (13) <i>o</i> -Nitrophenol |
| (04) <i>o</i> -Cresol | (14) <i>p</i> -Nitrophenol |
| (05) <i>p</i> -Cresol | (15) Pentachlorophenol |
| (06) 2-Cyclohexyl-4,6-dinitrophenol (<i>Dinex</i>) | (16) Phenol |
| (07) 2,4-Dichlorophenol | (17) 2,3,4,6-Tetrachlorophenol |
| (08) 2,6-Dichlorophenol | (18) 2,4,5-Trichlorophenol |
| (09) 2,4-Dimethylphenol | (19) 2,4,6-Trichlorophenol |
| (10) 2,4-Dinitrophenol | |

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 | <i>o</i> -Nitrophenol |
| <i>o</i> -Cresol | <i>p</i> -Nitrophenol |
| 2-Cyclohexyl-4,6-dinitrophenol (<i>Dinex</i>) | 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol | Pentachlorophenol |
| 2-Methyl-4,6-dinitrophenol | 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.

- | | |
|------------------------|---------------------------|
| <i>o</i> -Chlorophenol | 2,4-Dinitrophenol |
| <i>m</i> -Cresol | Dinoseb |
| <i>p</i> -Cresol | 2,3,4,6-Tetrachlorophenol |
| 2,6-Dichlorophenol | 2,4,5-Trichlorophenol |
| 2,4-Dimethylphenol | |

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 | (11) Dinoseb |
| (02) <i>o</i> -Chlorophenol | (12) 2-Methyl-4,6-dinitrophenol |
| (03) <i>m</i> -Cresol | (13) <i>o</i> -Nitrophenol |
| (04) <i>o</i> -Cresol | (14) <i>p</i> -Nitrophenol |
| (05) <i>p</i> -Cresol | (15) Pentachlorophenol |
| (06) 2-Cyclohexyl-4,6-dinitrophenol (<i>Dinex</i>) | (16) Phenol |
| (07) 2,4-Dichlorophenol | (17) 2,3,4,6-Tetrachlorophenol |
| (08) 2,6-Dichlorophenol | (18) 2,4,5-Trichlorophenol |
| (09) 2,4-Dimethylphenol | (19) 2,4,6-Trichlorophenol |
| (10) 2,4-Dinitrophenol | |

Mix A

M-8040A-R

1 x 1 mL

M-8040A-R-PAK

SAVE

2.0 mg/mL each in Isopropyl alcohol

5 x 1 mL
10 comps.

- | | |
|---|-----------------------|
| 4-Chloro-3-cresol | <i>o</i> -Nitrophenol |
| <i>o</i> -Cresol | <i>p</i> -Nitrophenol |
| 2-Cyclohexyl-4,6-dinitrophenol (<i>Dinex</i>) | 2,4,6-Trichlorophenol |
| 2,4-Dichlorophenol | Pentachlorophenol |
| 2-Methyl-4,6-dinitrophenol | Phenol |

Mix B

M-8040B-R

1 x 1 mL

M-8040B-R-PAK

SAVE

2.0 mg/mL each in Isopropyl alcohol

5 x 1 mL
9 comps.

- | | |
|------------------------|---------------------------|
| <i>o</i> -Chlorophenol | 2,4-Dinitrophenol |
| <i>m</i> -Cresol | Dinoseb |
| <i>p</i> -Cresol | 2,3,4,6-Tetrachlorophenol |
| 2,6-Dichlorophenol | 2,4,5-Trichlorophenol |
| 2,4-Dimethylphenol | |

Phenols QC Check Standard

M-8040A-ASL

1 x 1 mL

M-8040A-ASL-PAK

Alternate Source

SAVE

100 µg/mL each in Isopropyl alcohol

1 x 1 mL

M-8040A-ASL-20X

2000 µg/mL each in Isopropyl alcohol

1 x 1 mL

19 comps.

- | | |
|--------------------------------|-------------------------------|
| Dinoseb | 4,6-Dinitro- <i>o</i> -cresol |
| 4-Chloro-3-methylphenol | 2,4-Dinitrophenol |
| 2-Chlorophenol | 2-Nitrophenol |
| <i>o</i> -Cresol | 4-Nitrophenol |
| <i>m</i> -Cresol | Pentachlorophenol |
| <i>p</i> -Cresol | Phenol |
| 2-Cyclohexyl-4,6-dinitrophenol | 2,3,4,6-Tetrachlorophenol |
| 2,4-Dichlorophenol | 2,4,5-Trichlorophenol |
| 2,6-Dichlorophenol | 2,4,6-Trichlorophenol |
| 2,4-Dimethylphenol | |

Method 8040/8040A Bromo Phenols and Anisoles

Bromo Phenols

Each at 100 µg/mL in Toluene

Compound	Cat. No.	1 mL	Compound	Cat. No.	1 mL
3-Bromophenol	BP-003S		2,3,4-Tribromophenol	BP-234S	
4-Bromophenol	BP-004S		2,4,5-Tribromophenol	BP-245S	
2,3-Dibromophenol	BP-023S		2,3,6-Tribromophenol	BP-236S	
2,4-Dibromophenol	BP-024S		2,4,6-Tribromophenol	BP-246S	
2,5-Dibromophenol	BP-025S		3,4,5-Tribromophenol	BP-345S	
2,6-Dibromophenol	BP-026S		2,3,4,5-Tetrabromophenol	BP-2345S	
3,5-Dibromophenol	BP-035S		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	



EPA Method 8000 Series

Method 8041-8061

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		
4-Chloro-3-methylphenol	4-Methylphenol (<i>p</i> -Cresol)	
2-Chlorophenol	2-Nitrophenol	
2-Cyclohexyl-4,6-dinitrophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,6-Dichlorophenol	Phenol	
2,4-Dimethylphenol	2,3,4,5-Tetrachlorophenol	
Dinoseb (<i>DNBP</i>)	2,3,4,6-Tetrachlorophenol	
2,4-Dinitrophenol	2,3,5,6-Tetrachlorophenol	
2-Methyl-4,6-dinitrophenol	2,4,5-Trichlorophenol	
2-Methylphenol (<i>o</i> -Cresol)	2,4,6-Trichlorophenol	
3-Methylphenol (<i>m</i> -Cresol)		

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		
2-Chloro-5-methylphenol	2,5-Dimethylphenol	
4-Chloro-2-methylphenol	2,6-Dimethylphenol	
3-Chlorophenol	3,4-Dimethylphenol	
4-Chlorophenol	2,5-Dinitrophenol	
2,3-Dichlorophenol	3-Nitrophenol	
2,5-Dichlorophenol	2,3,4-Trichlorophenol	
3,4-Dichlorophenol	2,3,5-Trichlorophenol	
3,5-Dichlorophenol	2,3,6-Trichlorophenol	
2,3-Dimethylphenol	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		
2,5-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 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		
N-Nitrosodimethylamine	N-Nitrosodi- <i>n</i> -propylamine	
N-Nitrosodiphenylamine		

Nitrosamines Mix

M-8270-03-ASL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
N-Nitrosodi- <i>n</i> -butylamine	N-Nitrosomethylethylamine	
N-Nitrosodiethylamine	N-Nitrosomorpholine	
N-Nitrosodimethylamine	N-Nitrosopiperidine	
N-Nitrosodiphenylamine	N-Nitrosopyrrolidine	
N-Nitrosodi- <i>n</i> -propylamine		

Alternate Source

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		
Benzyl butyl phthalate	Di- <i>n</i> -butyl phthalate	
Diethyl phthalate	Di- <i>n</i> -octyl phthalate	
Dimethyl 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		

Benzyl butyl phthalate (0.1 mg/mL)	Di- <i>n</i> -butyl phthalate (0.25 mg/mL)
Diethyl phthalate (0.25 mg/mL)	Di- <i>n</i> -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		
bis(2- <i>n</i> -Butoxyethyl)phthalate	Dimethyl phthalate	
Butyl benzyl phthalate	Dinonyl phthalate	
Diamyl phthalate	Di- <i>n</i> -octyl phthalate	
Di- <i>n</i> -butyl phthalate	bis(2-Ethoxyethyl)phthalate	
Dicyclohexyl phthalate	bis(2-Ethylhexyl)phthalate	
Diethyl phthalate	bis(2-Methoxyethyl)phthalate	
Dihexyl phthalate	bis(4-Methyl-2-pentyl)phthalate	
Diisobutyl phthalate		

M-8061A		1 x 1 mL
M-8061A-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Hexane		

Butyl benzyl phthalate	Diethyl phthalate
bis(2-Ethylhexyl)phthalate	Dimethyl phthalate
Di- <i>n</i> -butyl phthalate	Di- <i>n</i> -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		
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		
Dibenzyl phthalate	Diphenyl phthalate	
Diphenyl isophthalate		



Method 8080-8081

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			
Aldrin	Endosulfan I		17 comps.
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			
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			
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene		2 comps.

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	

Decomposition Solution

M-1618D *			1 x 1 mL
M-1618D-PAK *	SAVE		5 x 1 mL
At stated conc. in Acetone			
p,p'-DDT (2 µg/mL)	Endrin (1 µg/mL)		2 comps.

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)			
o,p'-DDD	o,p'-DDT		3 comps.
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)			
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			
Aldrin (200 ng/mL)	Endrin (500 ng/mL)		6 comps.
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			
Aldrin (1,000 ng/mL)	Endrin (2,500 ng/mL)		6 comps.
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			
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene		2 comps.

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			
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene		2 comps.

* ColdPAK required to maintain integrity of product.

EPA Method 8000 Series

Ready-to-Inject Working Level Pesticide Standards

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

All solutions in Isooctane

7 x 1 mL
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- <i>m</i> -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

All solutions in Isooctane

7 x 1 mL
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- <i>m</i> -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



EPA Method 8000 Series

Ready-to-Inject Working Level Standards for Aroclors



Method 8080/8081 Aroclor Calibration Curves

Aroclor 1016/1260 Calibration Curve

C-216/260-CAL-SET

All solutions in Isooctane

6 x 1 mL
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- <i>m</i> -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

All solutions in Isooctane

6 x 1 mL
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- <i>m</i> -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

All solutions in Isooctane

6 x 1 mL
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- <i>m</i> -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

All solutions in Isooctane

6 x 1 mL
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- <i>m</i> -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

All solutions in Isooctane

6 x 1 mL
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- <i>m</i> -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



EPA Method 8000 Series

Ready-to-Inject Working Level Aroclor & GPC Standards

Method 8080/8081

Method 8080/8081 Aroclor Calibration Curves (Continued)

Aroclor 1254 Calibration Curve

C-254-CAL-SET

All solutions in Isooctane

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- <i>m</i> -xylene	10	20	50	100	150	200

6 x 1 mL
3 comps.

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

All solutions in Isooctane

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- <i>m</i> -xylene	2	4	10	20	30	40

6 x 1 mL
3 comps.

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

All solutions in Isooctane

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- <i>m</i> -xylene	20	40	70	100	150	200

6 x 1 mL
3 comps.

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

At stated conc. in CH₂Cl₂

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)		

1 x 10 mL
5 comps.

Florisol Cartridge Check Solution

CLP-FC-WL-10ML

0.1 µg/mL in Acetone

2,4,5-Trichlorophenol

1 x 10 mL

GPC Calibration Solution for 8/94 SOW OLM03.1

CLP-R2-WL-10ML

At stated conc. in CH₂Cl₂

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)		

1 x 10 mL
5 comps.

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML

At stated conc. in CH₂Cl₂

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)

1 x 10 mL
6 comps.

GPC-CC-B-WL-10ML

0.2 µg/mL each in CH₂Cl₂

Aroclor 1016

Aroclor 1260

1 x 10 mL
2 comps.



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)		
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)		
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)		
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)		
Alachlor	Etridiazole	
Captafol	Hexachlorobenzene	
Captan	Hexachlorocyclopentadiene	
Chlorobenzilate	Isodrin	
Chloroneb	Mirex	
Chloropropylate	trans-Nonachlor	
Chlorothalonil	PCNB	
DBCP	Perthane	
DCEPA	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)		
Carbophenothion	Kepone	
Dichlone	Nitrofen	

M-8081-T-R		1 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
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		
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene	

CLP-034		1 x 1 mL
CLP-034-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Acetone		
Dibutylchlorendate	Tetrachloro- <i>m</i> -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- <i>m</i> -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		
4,4'-DDT	Endrin	
		2 comps.





EPA Method 8000 Series

Method 8082

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- <i>m</i> -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	
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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- <i>m</i> -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	
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M-8082-SSC-WL-10ML	1 x 10 mL
M-8082-SSC-WL-10ML-PAK	SAVE
5 µg/mL in Acetone	
Tetrachloro- <i>m</i> -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- <i>m</i> -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- <i>m</i> -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- <i>m</i> -xylene	



Method 8085 Pesticides by GC/AED

Nitrogen Containing Pesticides

Mix #1

M-8085-N1

At stated conc. in MtBE

1 x 5 mL
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)
Ethalfuralin (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

At stated conc. in MtBE

1 x 5 mL
18 comps.

Ametryn (5 µg/mL)	Molinate (10 µg/mL)
Benfluralin (7.5 µg/mL)	Prebane (5 µg/mL)
Butylate (10 µg/mL)	Profluralin (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

At stated conc. in MtBE

1 x 5 mL
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

2.5 µg/mL each in Hexane

1 x 5 mL
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

At stated conc. in Hexane

1 x 5 mL
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

At stated conc. in MtBE

1 x 5 mL
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

At stated conc. in MtBE

1 x 5 mL
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)
Fensulfotiothion (5 µg/mL)	Ronnel (3.5 µg/mL)

Herbicides as Methyl Derivatives

Mix #1

M-8085-H1-M

At stated conc. in MtBE

1 x 5 mL
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)
MCPPP methyl ester (10 µg/mL)	

Mix #2

M-8085-H2-M

At stated conc. in MtBE

1 x 5 mL
13 comps.

Dalapon methyl ester (4 µg/mL)	loxynil 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)
Dichloroprop methyl ester (5.5 µg/mL)	Triclopyr methyl ester (4 µg/mL)
Diclofop methyl (7.5 µg/mL)	

Surrogates

M-8085-PEST-SS

At stated conc. in MtBE

1 x 5 mL
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



EPA Method 8000 Series

Method 8085-8091

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.

Dibutylchloroendate 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)
loxynil 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	1,4-Naphthoquinone
Isophorone	Nitrobenzene

M-809B-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-Naphthoquinone (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	1,4-Naphthoquinone
2,4-Dinitrotoluene	Nitrobenzene
2,6-Dinitrotoluene	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	3,5-Dichloronitrobenzene
1-Chloro-3,4-dinitrobenzene	3,4-Dichloronitrobenzene
1-Chloro-2-nitrobenzene	2,5-Dichloronitrobenzene
1-Chloro-4-nitrobenzene	2,3,5,6-Tetrachloronitrobenzene
2-Chloro-6-nitrotoluene	2,3,4,5-Tetrachloronitrobenzene
4-Chloro-2-nitrotoluene	1,2,3-Trichloro-4-nitrobenzene
4-Chloro-3-nitrotoluene	1,2,4-Trichloro-5-nitrobenzene
2,3-Dichloronitrobenzene	2,4,6-Trichloronitrobenzene
2,4-Dichloronitrobenzene	

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

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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 5 x 1 mL
 100 µg/mL each in AcCN:MeOH (50:50) 10 comps.

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

Explosive Stock Solution B

M-8095-SSB-100X 1 x 1 mL
M-8095-SSB-100X-PAK 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 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 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 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 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂:Benzene (50:50) 17 comps.

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

PAH Additions to Method 8100 by GC/FID

M-8100-R 1 x 1 mL
 1.0 mg/mL each in CH₂Cl₂ 8 comps.

Benzo[j]fluoranthene	Dibenzo[a,e]pyrene
Dibenz[a,h]acridine	Dibenzo[a,h]pyrene
Dibenz[a,j]acridine	Dibenzo[a,i]pyrene
7H-Dibenzo[c,g]carbazole	3-Methylcholanthrene

PAH QC Mix

M-8100-QC 1 x 1 mL
M-8100-QC-PAK 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 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂ 2 comps.

2-Fluorobiphenyl	1-Fluoronaphthalene
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Method 8110 Haloethers by GC/FID

Haloethers

M-8111-10X 1 x 1 mL
 2.0 mg/mL each in MeOH 5 comps.

4-Bromophenyl phenyl ether	bis(2-Chloro-1-methylethyl) ether
bis(2-Chloroethoxy)methane	4-Chlorophenyl phenyl ether
bis(2-Chloroethyl) ether	



EPA Method 8000 Series

Method 8111-8131

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-Chloro-1-methylethyl) ether
bis(2-Chloroethyl) 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 Hexachlorobenzene
Benzotrichloride Hexachlorobutadiene
Benzyl chloride Hexachlorocyclopentadiene
α-BHC Hexachloroethane
β-BHC Pentachlorobenzene
γ-BHC 1,2,3,4-Tetrachlorobenzene
δ-BHC 1,2,3,5-Tetrachlorobenzene
2-Chloronaphthalene 1,2,4,5-Tetrachlorobenzene
1,2-Dichlorobenzene 1,2,3-Trichlorobenzene
1,3-Dichlorobenzene 1,2,4-Trichlorobenzene
1,4-Dichlorobenzene 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 1,3,5-Tribromobenzene
α,α'-Dibromo-*m*-xylene

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) α,2,6-Trichlorotoluene (10 µg/mL)
2,3,4,5,6-Pentachlorotoluene (1 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 2,6-Dibromo-4-nitroaniline
4-Bromoaniline 3,4-Dichloroaniline
2-Bromo-6-chloro-4-nitroaniline 2,6-Dichloro-4-nitroaniline
2-Bromo-4,6-dinitroaniline 2,4-Dinitroaniline
2-Chloroaniline 2-Nitroaniline
3-Chloroaniline 3-Nitroaniline
4-Chloroaniline 4-Nitroaniline
2-Chloro-4,6-dinitroaniline 2,4,6-Trichloroaniline
2-Chloro-4-nitroaniline 2,4,5-Trichloroaniline
4-Chloro-2-nitroaniline



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)		
Azinphosmethyl (<i>Guthion</i>) (01)	Diazinon (06)	
Bolstar (02)	Dichlorovos (07)	
Chlorpyrifos (03)	Disulfoton (<i>Di-Syston</i>) (08)	
Coumaphos (04)	Ethoprop (09)	
Demeton (05)	Fensulfothion (10)	

Organophosphorous Pesticide Set

M-8140-SET	20 x 1 mL
Individual solutions listed below, each at 1.0 mg/mL in Hexane	

Fenthion (11)	Phorate (<i>Thimet</i>) (16)
Merphos (12)	Ronnel (17)
Methyl parathion (13)	Stirophos (18)
Mevinphos (<i>Phosdrin</i>) (14)	Tokuthion (19)
Naled (<i>Dibrom</i>) (15)	Trichloronate (<i>Agritox</i>) (20)

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		
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	

Industrial Chemicals & Triazine Herbicides

M-8141A-IC		1 x 1 mL
0.2 mg/mL each in Hexane		
Hexamethylphosphoramide (<i>HMPA</i>)	Tri-o-cresylphosphate (<i>TOCP</i>)	2 comps.

M-8141A-TH		1 x 1 mL
M-8141A-TH-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Acetone		
Atrazine	Simazine	2 comps.

M-8141B-HSD		1 x 1 mL
M-8141B-HSD-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Hexane		

Chlorpyrifos	Ronnel
Coumaphos	Stirophos
Dichlorvos	Trichloronate
EPN	Tokuthion
Naled	

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		
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		
M-8141A-2-SET		9 x 1 mL
Individual solutions, Each at 1.0 mg/mL in Hexane		

Aspon (01)	Fenitrothion (06)
Chlorpyrifos methyl ester (02)	Fonophos (07)
Crotoxyphos (03)	Thionazin (08)
Dichlofenthion (04)	Trichlorfon (09)
Dicrotophos (05)	

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		

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		
Tributylphosphate	Triphenylphosphate	2 comps.

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.



EPA Method 8000 Series

Method 8150/8151

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

At stated conc. (ng/mL) in Isooctane

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

7 x 1 mL
11 comps.

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

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

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
Dichloroprop	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	5 x 1 mL

250 µg/mL in Acetone

4,4'-Dibromooctafluorobiphenyl

SAVE

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)

Internal Standard - Herbicide Solution 2

M-8151-IS-2	1 x 1 mL
M-8151-IS-2-PAK	5 x 1 mL

250 µg/mL in Acetone

1,4-Dichlorobenzene

SAVE

Prep Note

To verify QA/QC for the analytical batch, 1 mL of matrix spike is added to an herbicide sample.

Laboratory Performance Check Solution

M-8150/51-LPC-5ML	1 x 5 mL
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At stated conc. in Isooctane

3,5-Dichlorobenzoic acid	(600 ng/mL)
Dinoseb	(4 ng/mL)
4-Nitrophenol	(1600 ng/mL)
DCAA	(500 ng/mL)
DBOB	(250 ng/mL)

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

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		
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 Solutions (Varied Concentration)

M-8150		1 x 1 mL
0.1 mg/mL in MeOH, except MCPA and MCPP		
2,4-D ME	Dinoseb ME	
Dalapon ME	MCPA ME (10 mg/mL)	
2,4-DB ME	MCPP ME (10 mg/mL)	
Dicamba ME	2,4,5-TP ME	
Dichlorprop ME	2,4,5-T ME	

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		
2,4-D	Dinoseb	
Dalapon	MCPA	
2,4-DB	MCPP	
Dicamba	2,4,5-TP	
Dichlorprop	2,4,5-T	

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		
2,4-D ME	Dichlorprop ME	
Dalapon ME	Dinoseb ME	
2,4-DB ME	2,4,5-TP ME	
Dicamba ME	2,4,5-T ME	

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		

M-8150M-2		1 x 1 mL
M-8150M-2-PAK	SAVE	5 x 1 mL
2,000 µg/mL each in Hexane		
MCPA ME	MCPP ME	2 comps.

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		

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		

* ColdPAK required to maintain integrity of product.



EPA Method 8000 Series

Method 8151-8240

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		
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		
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		
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	* cis (1.06 x conc.)
1,2-Dichloroethane	m-Xylene	** trans (0.94 x conc.)
1,1-Dichloroethene	p-Xylene	
trans-1,2-Dichloroethene		+ 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)	1,1-Dichloropropene (33)
Bromobenzene (02)	<i>cis</i> -1,3-Dichloropropene (34A) *
Bromodichloromethane (04)	<i>trans</i> -1,3-Dichloropropene (34B) **
Bromoform (05)	Ethylbenzene (35)
<i>n</i> -Butylbenzene (07)	Hexachlorobutadiene (36)
<i>sec</i> -Butylbenzene (08)	Isopropylbenzene (37)
<i>tert</i> -Butylbenzene (09)	<i>p</i> -Isopropyltoluene (38)
Carbon tetrachloride (10)	Methylene chloride (39)
Chlorobenzene (11)	Naphthalene (40)
Chloroform (13)	<i>n</i> -Propylbenzene (41)
2-Chlorotoluene (15)	Styrene (42)
4-Chlorotoluene (16)	1,1,1,2-Tetrachloroethane (43)
Dibromochloromethane (17)	1,1,2,2-Tetrachloroethane (44)
1,2-Dibromo-3-chloropropane (18)	Tetrachloroethene (45)
1,2-Dibromoethane (19)	Toluene (46)
Dibromomethane (20)	1,2,3-Trichlorobenzene (47)
1,2-Dichlorobenzene (21)	1,2,4-Trichlorobenzene (48)
1,3-Dichlorobenzene (22)	1,1,1-Trichloroethane (49)
1,4-Dichlorobenzene (23)	1,1,2-Trichloroethane (50)
1,1-Dichloroethane (25)	Trichloroethene (51)
1,2-Dichloroethane (26)	1,2,3-Trichloropropane (53)
1,1-Dichloroethene (27)	1,2,4-Trimethylbenzene (54)
<i>cis</i> -1,2-Dichloroethene (28)	1,3,5-Trimethylbenzene (55)
<i>trans</i> -1,2-Dichloroethene (29)	<i>o</i> -Xylene (57)
1,2-Dichloropropane (30)	<i>m</i> -Xylene (58)
1,3-Dichloropropane (31)	<i>p</i> -Xylene (59)
2,2-Dichloropropane (32)	

6 Gas Components

Bromomethane (06)	Dichlorodifluoromethane (24)
Chloroethane (12)	Trichlorofluoromethane (52)
Chloromethane (14)	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		

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		

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		

Appendix IX Volatiles

M-8240C 1 x 1 mL
0.2 mg/mL each in MeOH 17 comps.

Acetonitrile	Methyl methacrylate
Allyl chloride	Nitrobenzene
1,2-Dibromo-3-chloropropane	Pentachloroethane
Dibromomethane	Propionitrile
1,2-Dibromoethane	Pyridine
1,4-Dioxane	1,1,1,2-Tetrachloroethane
Ethyl methacrylate	1,2,4-Trichlorobenzene
Isobutyl alcohol	1,2,3-Trichloropropane
Methacrylonitrile	

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)
<i>cis</i> -1,4-Dichloro-2-butene (0.2 mg/mL)	Methacrylonitrile (2.0 mg/mL)
<i>trans</i> -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 (20 mg/mL)	Isobutyl alcohol (40 mg/mL)
<i>cis</i> -1,4-Dichloro-2-butene (2.0 mg/mL)	Methacrylonitrile (20 mg/mL)
<i>trans</i> -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)
<i>cis</i> -1,4-Dichloro-2-butene (2.0 mg/mL)	Methacrylonitrile (20 mg/mL)
<i>trans</i> -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-Hexanone
2-Butanone	Iodomethane
Carbon disulfide	4-Methyl-2-pentanone
2-Chloroethylvinyl ether	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
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* ColdPAK required to maintain integrity of product.

See also Method 8240 & 8260



EPA Method 8000 Series

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)	2,2-Dichloropropane (32)
Bromobenzene (02)	1,1-Dichloropropane (33)
Bromochloromethane (03)	<i>cis</i> -1,3-Dichloropropene (34A) *
Bromodichloromethane (04)	<i>trans</i> -1,3-Dichloropropene (34B) **
Bromoform (05)	Ethylbenzene (35)
<i>n</i> -Butylbenzene (07)	Hexachlorobutadiene (36)
<i>sec</i> -Butylbenzene (08)	Isopropylbenzene (<i>Cumene</i>) (37)
<i>tert</i> -Butylbenzene (09)	<i>p</i> -Isopropyltoluene (<i>p-Cymene</i>) (38)
Carbon tetrachloride (10)	Methylene chloride (39)
Chlorobenzene (11)	Naphthalene (40)
Chloroform (13)	<i>n</i> -Propylbenzene (41)
2-Chlorotoluene (15)	Styrene (42)
4-Chlorotoluene (16)	1,1,1,2-Tetrachloroethane (43)
Dibromochloromethane (17)	1,1,2,2-Tetrachloroethane (44)
1,2-Dibromo-3-chloropropane (18)	Tetrachloroethene (45)
1,2-Dibromoethane (19)	Toluene (46)
Dibromomethane (20)	1,2,3-Trichlorobenzene (47)
1,2-Dichlorobenzene (21)	1,2,4-Trichlorobenzene (48)
1,3-Dichlorobenzene (22)	1,1,1-Trichloroethane (49)
1,4-Dichlorobenzene (23)	1,1,2-Trichloroethane (50)
1,1-Dichloroethane (25)	Trichloroethene (51)
1,2-Dichloroethane (26)	1,2,3-Trichloropropane (53)
1,1-Dichloroethene (27)	1,2,4-Trimethylbenzene (54)
<i>cis</i> -1,2-Dichloroethene (28)	1,3,5-Trimethylbenzene (55)
<i>trans</i> -1,2-Dichloroethene (29)	<i>o</i> -Xylene (57)
1,2-Dichloropropane (30)	<i>m</i> -Xylene (58)
1,3-Dichloropropane (31)	<i>p</i> -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)	Dichlorodifluoromethane (24)
Chloroethane (12)	Trichlorofluoromethane (52)
Chloromethane (14)	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)
<i>cis</i> -1,4-Dichloro-2-butene (2.0 mg/mL)	Methacrylonitrile (20 mg/mL)
<i>trans</i> -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	5 x 1 mL
2000 µg/mL each in MeOH	11 comps.

Benzyl chloride	2-Nitropropane
1-Chlorobutane	Dibromofluoromethane
1-Chlorohexane	Methyl acrylate
1,2,3,4-Diepoxybutane	MtBE
Diethyl ether	Pentafluorobenzene
Nitrobenzene	

M-8260B-02 *	1 x 1 mL
M-8260B-02-PAK *	5 x 1 mL
2000 µg/mL each in MeOH	10 comps.

Allyl alcohol	Ethyl acetate
1-Butanol	Hexachloroethane
Chloroacetonitrile	2-Hydroxypropionitrile
3-Chloropropionitrile	Malonitrile
Epichlorohydrin	Pyridine

M-8260B-03	1 x 1 mL
M-8260B-03-PAK	5 x 1 mL
2000 µg/mL each in MeOH:Water (90:10)	4 comps.

N-Nitrosodi- <i>n</i> -butylamine	Propylamine
2-Picoline	<i>o</i> -Toluidine

M-8260B-04	1 x 1 mL
M-8260B-04-PAK	5 x 1 mL
2000 µg/mL each in MeOH	6 comps.

<i>t</i> -Butanol	1-Propanol
2-Chloroethanol	Isopropanol
1,3-Dichloro-2-propanol	Propargyl alcohol

M-8260B-06-PAK *	5 x 1 mL
2000 µg/mL each in MeOH	3 comps.

Bromoacetone	<i>b</i> -Propiolactone
2-Pentanone	

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 ₂ O	

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-Dichlorobenzene-d ₄
1,4-Difluorobenzene	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-Dichlorobenzene-d ₄
1,4-Difluorobenzene	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	Fluorobenzene
1,4-Dichlorobenzene-d ₄	

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	1,2-Dichloroethane-d ₄
Chlorobenzene-d ₅	Fluorobenzene
Dibromofluoromethane	Toluene-d ₈
1,4-Dichlorobenzene-d ₄	

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	Toluene-d ₈
Dibromofluoromethane	

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	1,2-Dichloroethane-d ₄
Dibromofluoromethane	Toluene-d ₈

**Tens of thousands of Standards
Ready-to-Ship**





EPA Method 8000 Series

Method 8240 & 8260

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	1,4-Difluorobenzene	
Chlorobenzene-d ₅	Pentafluorobenzene	
1,4-Dichlorobenzene-d ₄		

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	1,2-Dichloroethane-d ₂	
Dibromofluoromethane	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	1,2-Dichloroethane-d ₂	
p-Bromofluorobenzene	1,4-Difluorobenzene	
Chlorobenzene-d ₅	Pentafluorobenzene	
Dibromofluoromethane	Toluene-d ₈	
1,4-Dichlorobenzene-d ₄		

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	Ethylbenzene	
1,1-Dichloroethene	Toluene	
1,2-Dichloropropane	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	1,1-Dichloroethane	
Chlorobenzene	1,1,2,2-Tetrachloroethane	
Chloromethane		

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	Toluene	
Chlorobenzene	Trichloroethene	
1,1-Dichloroethene		



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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	4-Chlorophenyl phenyl ether	Hexachlorobenzene
Acenaphthylene	Chrysene	Hexachlorobutadiene
Anthracene	Dibenz[a,h]anthracene	Hexachlorocyclopentadiene
Azobenzene	Di- <i>n</i> -butyl phthalate	Hexachloroethane
Benz[a]anthracene	1,2-Dichlorobenzene	Indeno[1,2,3- <i>cd</i>]pyrene
Benzo[b]fluoranthene	1,3-Dichlorobenzene	Isophorone
Benzo[k]fluoranthene	1,4-Dichlorobenzene	Naphthalene
Benzo[g,h,i]perylene	Diethyl phthalate	Nitrobenzene
Benzo[a]pyrene	Dimethyl phthalate	N-Nitrosodimethylamine
4-Bromophenyl phenyl ether	2,4-Dinitrotoluene	N-Nitrosodiphenylamine
Butyl benzyl phthalate	2,6-Dinitrotoluene	N-Nitrosodi- <i>n</i> -propylamine
bis(2-Chloroethoxy)methane	Di- <i>n</i> -octyl phthalate	Phenanthrene
bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)phthalate	Pyrene
bis(2-Chloro-1-methylethyl) ether	Fluoranthene	1,2,4-Trichlorobenzene
2-Chloronaphthalene	Fluorene	

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

2.0 mg/mL each in Benzene:CH₂Cl₂:AcCN (40:40:20)

CLP-HC-BN-R-PAK

2.0 mg/mL each in Benzene:CH₂Cl₂:AcCN (40:40:20)

1 x 1 mL

44 comps.

5 x 1 mL

44 comps.

Base-Neutral and Benzidine Sets

CLP-HC-BN-SET

2.0 mg/mL each in Benzene:CH₂Cl₂:AcCN (40:40:20)

2 x 1 mL

(CLP-HC-BN-R, Z-014F)

CLP-HC-BN-SET-PAK

2.0 mg/mL each in Benzene:CH₂Cl₂:AcCN (40:40:20)

5 x (2 x 1 mL)

5 x (CLP-HC-BN-R, Z-014F)

Benzidine

Z-014F

2.0 mg/mL each in MeOH

1 x 1 mL

2 comps.

Additional Analyte Solutions

Acid Composite Mixture

CLP-HC-A-R

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

19 comps.

Benzoic acid
4-Chloro-3-methylphenol
2-Chlorophenol
<i>o</i> -Cresol
<i>p</i> -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

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

8 comps.

Aniline	2-Methylnaphthalene
Benzyl alcohol	2-Nitroaniline
4-Chloroaniline	3-Nitroaniline
Dibenzofuran	4-Nitroaniline

Composite #2

Z-014E-R

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

9 comps.

Aniline	2-Nitroaniline
Benzyl alcohol	3-Nitroaniline
4-Chloroaniline	4-Nitroaniline
Dibenzofuran	Pyridine
2-Methylnaphthalene	

Composite #3A

CLP-HC-X1

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

19 comps.

Acetophenone
4-Aminobiphenyl
1-Chloronaphthalene
Dibenz[a,j]acridine
<i>p</i> -Dimethylaminoazobenzene
7,12-Dimethylbenz[a]anthracene
α,α -Dimethylphenethylamine
Diphenylamine
3-Methylcholanthrene
1-Naphthylamine
2-Naphthylamine
N-Nitrosodi- <i>n</i> -butylamine
N-Nitrosopiperidine
Pentachlorobenzene
Pentachloronitrobenzene
Phenacetin
2-Picoline
Pronamide
1,2,4,5-Tetrachlorobenzene

M-8270-07

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

15 comps.

Aramite	Kepone
Chlorobenzilate	Methyl parathion
Diallate	Parathion
2,4-D	Phorate
Dimethoate	Silvex (2,4,5-TP)
Dinoseb	Sulfotep
Disulfoton	Thionazin
Famphur	

M-8270-08

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

9 comps.

3,3'-Dimethyl benzidine	N-Nitrosopyrrolidine
4-Nitroquinoline-1-oxide	5-Nitro- <i>o</i> -toluidine
N-Nitrosodiethylamine	<i>p</i> -Phenylenediamine
N-Nitrosomethylethylamine	<i>o</i> -Toluidine
N-Nitrosomorpholine	

M-8270-09

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL

10 comps.

2-Acetyl aminofluorene	Isosafrole
<i>m</i> -Dinitrobenzene	Methapyrilene
Hexachlorophene	1,4-Naphthoquinone
Hexachloropropene	Safrole
Isodrin	0,0,0-Triethyl phosphorothioate



EPA Method 8000 Series

Method 8270

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 ₂ Cl ₂		6 comps.
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄	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 ₂ Cl ₂		6 comps.
2-Fluorobiphenyl	Phenol-d ₅	
2-Fluorophenol	<i>p</i> -Terphenyl-d ₁₄	
Nitrobenzene-d ₅	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 ₂ Cl 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	N-nitroso-di- <i>n</i> -propylamine	
1,4-Dichlorobenzene	Pyrene	
2,4-Dinitrotoluene	1,2,4-Trichlorobenzene	

Acids

CLP-007B		1 x 1 mL
2.0 mg/mL each in MeOH		5 comps.
2-Chlorophenol	Pentachlorophenol	
4-Chloro-3-methylphenol	Phenol	
4-Nitrophenol		

GC/MS Tuning Standard

M-625-TS-20X		1 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂		4 comps.
Benzidine	DFTPP	
<i>p,p'</i> -DDT	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 ₂ Cl ₂		7 comps.
Acenaphthene	Hexachlorobutadiene	
Benzo[a]pyrene	Fluoranthene	
1,4-Dichlorobenzene	N-nitroso-diphenylamine	
Di- <i>n</i> -octyl phthalate		

Acids

CLP-011B		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		6 comps.
4-Chloro-3-methylphenol	Pentachlorophenol	
2,4-Dichlorophenol	Phenol	
2-Nitrophenol	2,4,6-Trichlorophenol	

System Performance Check Compounds (SPCC)

CLP-010		1 x 1 mL
0.2 mg/mL each in CH ₂ Cl ₂		4 comps.
CLP-010-10X		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		4 comps.
2,4-Dinitrophenol	4-Nitrophenol	
Hexachlorocyclopentadiene	N-nitroso- <i>di-n</i> -propylamine	

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	



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
M-8270-R-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)
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	M-8270-02	1 x 1 mL	M-8270-03	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	17 comps.	2.0 mg/mL each in CH ₂ Cl ₂	18 comps.	2.0 mg/mL each in CH ₂ Cl ₂	24 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		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		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 ₂ Cl 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 ₂ Cl 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 ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂	6 comps.
Azobenzene Diphenylamine N-Nitrosodiphenylamine Pentachloronitrobenzene Phenacetin Pronamide	

M-8270-07	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂	10 comps.
2-Acetyl aminofluorene 1,3-Dinitrobenzene Hexachlorophene Hexachloropropene Isodrin	Isosafrole Methapyrilene 1,4-Naphthoquinone Safrole 0,0,0-Triethylphosphorothioate



EPA Method 8000 Series

Method 8270

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 CH₂Cl₂ 12 comps.
 4-Aminoazobenzene 4,4'-Methylenebis(N,N-dimethylaniline)
 3-Amino-9-ethylcarbazole 4,4'-Methylene bis(2-chloroaniline)
 o-Anisidine 4,4'-Oxydianiline
 5-Chloro-2-methylaniline 2-Picoline
 p-Cresidine Pyridine
 2,4-Diaminotoluene 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-1,3-phenylenediamine
 4-Chloro-1,2-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 CH₂Cl₂ 6 comps.
 m-Cresol Thiophenol
 o-Cresol tris(2,3-Dibromopropyl)phosphate
 Resorcinol Tri-p-tolyl phosphate

M-8270-14B 1 x 1 mL
 2.0 mg/mL each in THF 5 comps.
 p-Benzoquinone Phthalic anhydride
 Hydroquinone Trimethyl phosphate
 Maleic anhydride

M-8270-14C * 1 x 1 mL
 2.0 mg/mL each in CH₂Cl₂:MeOH (75:25) 5 comps.
 1-Acetyl-2-thiourea 3-Picolyl chloride HCL
 Diethyl sulfate Toluene diisocyanate
 Hexamethylphosphoramide

M-8270-15 1 x 1 mL
 1.0 mg/mL each in CH₂Cl₂:MeOH (90:10) 13 comps.
 Dibenzo[a,e]pyrene Nicotine
 1,2-Dibromo-3-chloropropane 5-Nitroacenaphthene
 Diethyl stilbestrol 5-Nitro-o-anisidine
 1,2-Dinitrobenzene 4-Nitrobiphenyl
 1,4-Dinitrobenzene Propylthiouracil
 5,5-Diphenylhydantoin Strychnine
 Mestranol

Pesticides

M-8270-16 1 x 1 mL
 1000 µg/mL each in CH₂Cl₂ 10 comps.
 Anilazine Dioxathion
 Azinphos methyl Mirex
 Barbamate Sulfoxide
 Demeton (mixed isomers) Sulfallate
 Dichlone Trifluralin

M-8270-17 1 x 1 mL
 1000 µg/mL each in CH₂Cl₂ 7 comps.
 Brominal Dinocap
 Captafol Fluchloralin
 Captan Nitrofen
 Dinex

Carbamates/Pesticides

M-8270-18 1 x 1 mL
 1000 µg/mL each in CH₂Cl₂ 6 comps.
 Carbaryl Mexacarbate
 Carbofuran Schradan (Octamethylpyrophosphoramide)
 Ethyl carbamate Phenobarbital

Pesticides

M-8270-19 1 x 1 mL
 1000 µg/mL each in CH₂Cl₂ 12 comps.
 Carbophenothion Leptophos
 Coumaphos Malathion
 EPN Phosalone
 Ethion Imidan (Phosmet)
 Fensulfthion Terbufos
 Fenthion Tetrachlorvinphos

M-8270-20 1 x 1 mL
 1000 µg/mL each in CH₂Cl₂ 9 comps.
 Chlorfenvinphos Monocrotophos
 Ciodrin (Crotoxyphos) Naled
 Dichlorvos Phosphamidon
 Dicrotophos TEPP (Tetraethyl pyrophosphate)
 Mevinphos

Azo Dye

RAC-12-10X 1 x 1 mL
 1.0 mg/mL in CH₂Cl₂
 3,3'-Dimethoxybenzidine

Pesticide Mix

Z-014C-R 1 x 1 mL
Z-014C-R-PAK 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps. **SAVE**

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

* ColdPAK required to maintain integrity of product.

EPA Method 8000 Series

Ready-to-Inject Working Level Semi-Volatile Standards



Method 8270

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	Carbazole	Di- <i>n</i> -butyl phthalate	bis(2-Ethylhexyl)phthalate	Nitrobenzene
Acenaphthylene	4-Chloroaniline	1,2-Dichlorobenzene	Fluoranthene	2-Nitrophenol
Aniline	bis(2-Chloroethoxy)methane	1,3-Dichlorobenzene	Fluorene	4-Nitrophenol
Anthracene	bis(2-Chloroethyl) ether	1,4-Dichlorobenzene	Hexachlorobenzene	N-Nitrosodimethylamine
Azobenzene	bis(2-Chloro-1-methylethyl) ether	3,3'-Dichlorobenzidine	Hexachlorobutadiene	N-Nitrosodiphenylamine
Benz[a]anthracene	4-Chloro-3-methylphenol	2,4-Dichlorophenol	Hexachlorocyclopentadiene	N-Nitrosodi- <i>n</i> -propylamine
Benzidine	2-Chloronaphthalene	Diethyl phthalate	Hexachloroethane	Pentachlorophenol
Benzo[b]fluoranthene	2-Chlorophenol	2,4-Dimethylphenol	Indeno[1,2,3- <i>cd</i>]pyrene	Phenanthrene
Benzo[k]fluoranthene	4-Chlorophenyl phenyl ether	Dimethyl phthalate	Isophorone	Phenol
Benzoic acid	Chrysene	4,6-Dinitro-2-methylphenol	2-Methylnaphthalene	Pyrene
Benzo[g,h,i]perylene	<i>o</i> -Cresol	2,4-Dinitrophenol	Naphthalene	Pyridine
Benzo[a]pyrene	<i>p</i> -Cresol	2,4-Dinitrotoluene	2-Nitroaniline	1,2,4-Trichlorobenzene
Benzyl alcohol	Dibenz[a,h]anthracene	2,6-Dinitrotoluene	3-Nitroaniline	2,4,5-Trichlorophenol
4-Bromophenyl phenyl ether	Dibenzofuran	Di- <i>n</i> -octyl phthalate	4-Nitroaniline	2,4,6-Trichlorophenol
Butyl benzyl phthalate				

Internal Standard Analytes

Acenaphthene- <i>d</i> ₁₀	Naphthalene- <i>d</i> ₈
Chrysene- <i>d</i> ₁₂	Perylene- <i>d</i> ₁₂
1,4-Dichlorobenzene- <i>d</i> ₄	Phenanthrene- <i>d</i> ₁₀

Surrogates Analytes

2-Fluorobiphenyl	Phenol- <i>d</i> ₈
2-Fluorophenol	<i>p</i> -Terphenyl- <i>d</i> ₁₄
Nitrobenzene- <i>d</i> ₅	2,4,6-Tribromophenol

Working Level Semi-Volatiles Curve

With Internal Standards

M-8270-CAL-IS-SET

All solutions in CH₂Cl₂

5 x 1 mL

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 CH₂Cl₂

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

All solutions in CH₂Cl₂

5 x 1 mL

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 CH₂Cl₂





EPA Method 8000 Series

Ready-to-Inject Working Level Semi-Volatile Standards

Method 8270C/D

Method 8270C/D (Continued)

Matrix Spike (SW 846)

CLP-007-WL-50ML		1 x 50 mL
<i>At stated conc. in MeOH</i>		
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)

CLP-007R-WL-50ML		1 x 50 mL
<i>At stated conc. in MeOH</i>		
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)		

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
<i>4.0 mg/mL each in CH₂Cl₂</i>		
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
<i>2.0 mg/mL in CH₂Cl₂</i>		
Benzidine		

GC/MS Tuning Solution

M-625-TS		1 x 1 mL
M-625-TS-PAK	SAVE	5 x 1 mL
<i>50 µg/mL each in CH₂Cl₂</i>		
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
<i>25 µg/mL in CH₂Cl₂</i>		
Decafluorotriphenylphosphine (DFTPP)		

Technical Note

Benzidine and 3,3'-Dichlorobenzidine are easily oxidized and are light sensitive.

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
<i>At stated conc. in CH₂Cl₂:MeOH (80:20)</i>		
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
<i>At stated conc. in CH₂Cl₂:MeOH (80:20)</i>		

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
<i>At stated conc. in MeOH</i>		
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.

EPA Method 8000 Series

Alternate Source Line (ASL)



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.

Method 8270C/D

M-8270-ASL-SET		Alternate Source		Alternate Source Method 8270C/D Set		17 x 1 mL
M-8270-01-ASL	Ethers & Phthalates Mix	M-8270-08-ASL	Phenols Mix	The set includes the following 17 products		
M-8270-02-ASL	Chlorinated Hydrocarbons Mix	M-8270-09-ASL	Organochlorine Pesticide Mix	Z-014J	Internal Standards Mix	
M-8270-03-ASL	Nitrosamines Mix	M-8270-10-ASL	Pesticide Mix	CLP-BNS	Base/Neutrals Surrogate Standard	
M-8270-04-ASL	Base/Neutrals Mix	M-8270-11-ASL	Toxic Substances Mix	CLP-AS	Acid Surrogate Standard	
M-8270-05-ASL	Base/Neutrals Mix	M-8270-12-ASL	Phenols Mix			
M-8270-06-ASL	PAH Mix	M-8270-13-ASL	Polynuclear Aromatic Hydrocarbon Mix			
M-8270-07-ASL	Pyridines Mix	M-8270-14-ASL	Organochlorine Pesticide Mix			

ASL Method 8270C/D Alternate Method 8270 Formulations

Ethers & Phthalates Mix		1 x 1 mL
M-8270-01-ASL		11 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
bis(2-Chloroethoxy)methane	4-Chlorophenyl phenyl ether	
bis(2-Chloroethyl)ether	Diethyl phthalate	
bis(2-Ethylhexyl)phthalate	Dimethyl phthalate	
bis(2-Chloro-1-methylethyl)ether	Dibutyl phthalate	
4-Bromophenyl phenyl ether	Di-n-octyl phthalate	
Benzyl butyl phthalate		

Chlorinated Hydrocarbons Mix		1 x 1 mL
M-8270-02-ASL		13 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
2-Chloronaphthalene	Hexachloroethane	
1,2-Dichlorobenzene	Hexachloropropene	
1,3-Dichlorobenzene	Pentachlorobenzene	
1,4-Dichlorobenzene	Pentachloroethane	
Hexachlorobenzene	1,2,4,5-Tetrachlorobenzene	
Hexachlorobutadiene	1,2,4-Trichlorobenzene	
Hexachlorocyclopentadiene		

Nitrosamines Mix		1 x 1 mL
M-8270-03-ASL		9 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
N-Nitrosodi-n-butylamine	N-Nitrosomethylethylamine	
N-Nitrosodiethylamine	N-Nitrosomorpholine	
N-Nitrosodimethylamine	N-Nitrosopiperidine	
N-Nitrosodiphenylamine	N-Nitrosopyrrolidine	
N-Nitrosodi-n-propylamine		

Base/Neutrals Mix		1 x 1 mL
M-8270-04-ASL		13 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
2-Acetylaminofluorene	1-Naphthylamine	
4-Aminobiphenyl	2-Naphthylamine	
3,3'-Dichlorobenzidine	5-Nitro-o-toluidine	
4-Dimethylaminoazobenzene	Phenacetin	
3,3'-Dimethylbenzidine	p-Phenylenediamine	
α,α-Dimethylphenethylamine	o-Toluidine	
Diphenylamine		

Base/Neutrals Mix		1 x 1 mL
M-8270-05-ASL		13 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
Acetophenone	Methyl methanesulfonate	
1,3-Dinitrobenzene	1,4-Naphthoquinone	
2,4-Dinitrotoluene	Nitrobenzene	
2,6-Dinitrotoluene	Pentachloronitrobenzene	
Ethyl methanesulfonate	Safrole	
Isophorone	1,3,5-Trinitrobenzene	
Isosafrole		

PAH Mix		1 x 1 mL
M-8270-06-ASL		2 comps.
2.0 mg/mL each CH ₂ Cl ₂ :Benzene (50:50)		
7,12-Dimethylbenz[a]anthracene		
3-Methylcholanthrene		

Pyridine Mix		1 x 1 mL
M-8270-07-ASL		4 comps.
2.0 mg/mL each in Acetone		
Methapyrilene	2-Picoline	
4-Nitroquinoline-1-oxide	Pyridine	

Phenol Mix		1 x 1 mL
M-8270-08-ASL		8 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
o-Cresol	Dinoseb	
m-Cresol	Hexachlorophene	
p-Cresol	2,3,4,6-Tetrachlorophenol	
2,6-Dichlorophenol	2,4,5-Trichlorophenol	

Organophosphorous Pesticide Mix		1 x 1 mL
M-8270-09-ASL		9 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
Dimethoate	o,o,o-Triethylphosphorothioate	
Disulfoton	Methyl parathion	
Famphur	Parathion	
Thionazin	Phorate	
Sulfotep		

Pesticide Mix		1 x 1 mL
M-8270-10-ASL		6 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
Aramite	Isodrin	
Chlorobenzilate	Kepone	
Diallate	Pronamide	

Toxic Substance Mix		1 x 1 mL
M-8270-11-ASL		8 comps.
2.0 mg/mL each in CH ₂ Cl ₂		
Aniline	2-Methylnaphthalene	
Benzyl alcohol	2-Nitroaniline	
4-Chloroaniline	3-Nitroaniline	
Dibenzofuran	4-Nitroaniline	

Internal Standard Mix		1 x 1 mL
Z-014J		5 x 1 mL
Z-014J-PAK		6 comps.
4.0 mg/mL each in CH ₂ Cl ₂		
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀	

Alternate Method 8270C/D Formulations continued on the next page



EPA Method 8000 Series

Alternate Source Line (ASL)

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	2,4,6-Tribromophenol	
Phenol-d ₅		

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 ₂ Cl ₂		3 comps.
2-Fluorobiphenyl	p-Terphenyl-d ₁₄	
Nitrobenzene-d ₅		

Phenol Mixture

M-8270-12-ASL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		11 comps.
4-Chloro-3-methylphenol	2-Nitrophenol	
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
2-Methyl-4,6-dinitrophenol		

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 ₂ Cl ₂		10 comps.
4-aminoazobenzene	2,4-Diaminotoluene	
3-Amino-9-ethylcarbazole	4,4'-Methylenebis(N,N-dimethylaniline)	
o-Anisidine	4,4'-Methylenebis(2-chloroaniline)	
5-Chloro-2-methylaniline	4,4'-Oxydianiline	
p-Cresidine	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-1,3-phenylenediamine	
4-Chloro-1,2-phenylenediamine		

M-8270-14A-R1		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		7 comps.
Benzoic acid	Thiophenol	
1-Chloronaphthalene	tris-(2,3-Dibromopropyl)phosphate	
Dibenz[a,j]acridine	Tri-p-tolyl phosphate	
Resorcinol		

M-8270-14B		1 x 1 mL
2.0 mg/mL each in THF		5 comps.
p-Benzoquinone	Phthalic anhydride	
Hydroquinone	Trimethyl phosphate	
Maleic anhydride		

M-8270-14C *		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :MeOH (75:25)		5 comps.
1-Acetyl-2-thiourea	3-Picolyl chloride HCL	
Diethyl sulfate	Toluene diisocyanate	
Hexamethylphosphoramide		

Polynuclear Aromatic Hydrocarbon Mixture

M-8270-13-ASL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :Benzene (50:50)		16 comps.
Acenaphthene	Chrysene	
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benz[a]anthracene	Fluorene	
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	Pyrene	

Organochlorine Pesticide Mix

M-8270-14-ASL		1 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		

M-8270-15		1 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂ :MeOH (90:10)		13 comps.
Dibenzo[a,e]pyrene	Nicotine	
1,2-Dibromo-3-chloropropane	5-Nitroacenaphthene	
Diethyl stilbestrol	5-Nitro-o-anisidine	
1,2-Dinitrobenzene	4-Nitrobiphenyl	
1,4-Dinitrobenzene	Propylthiouracil	
5,5-Diphenylhydantoin	Strychnine	
Mestranol		

Pesticides

M-8270-16		1 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		10 comps.
Anilazine	Dichlone	Sulfoxide
Azinphos methyl	Dioxathion	Sulfalate
Barbamate	Mirex	Trifluralin
Demeton (mixed isomers)		

M-8270-17		1 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		7 comps.
Brominal	Dinex	Fluchloralin
Captafol	Dinocap	Nitrofen
Captan		

Carbamates/Pesticides

M-8270-18		1 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		6 comps.
Carbaryl	Mexacarbate	
Carbofuran	Schradan (Octamethylpyrophosphoramidate)	
Ethyl carbamate	Phenobarbital	

Method 8270C/D

EPA Method 8000 Series

Alternate Source Line (ASL)



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 CH₂Cl₂ 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 CH₂Cl₂ 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 CH₂Cl₂ 2 comps.

Benzidine	3,3'-Dimethoxybenzidine
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APP-9-126-10X 1 x 1 mL
1.0 mg/mL in CH₂Cl₂

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 CH₂Cl₂:Benzene (75:25) 64 comps.

Acenaphthene	2,4-Dinitrophenol
Acenaphthylene	Dimethyl phthalate
Anthracene	2,4-Dinitrotoluene
Azobenzene	2,6-Dinitrotoluene
Benz[a]anthracene	Di- <i>n</i> -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- <i>cd</i>]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	<i>n</i> -Nitrosodimethylamine
Dibutyl phthalate	<i>N</i> -Nitrosodi- <i>n</i> -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 CH₂Cl₂ 39 comps.

Aniline	4-Nitroquinoline-N-oxide
Acetophenone	<i>N</i> -Nitrosodi- <i>n</i> -butylamine
2-Acetamidofluorene	<i>N</i> -Nitrosodiethylamine
4-Aminobiphenyl	<i>N</i> -Nitrosomethylethylamine
Benzyl alcohol	<i>N</i> -Nitrosomorpholine
2,6-Dichlorophenol	<i>N</i> -Nitrosopiperidine
4-Dimethylaminoazobenzene	<i>N</i> -Nitrosopyrrolidine
7,12-Dimethylbenz[a]anthracene	5-Nitro- <i>o</i> -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	<i>o</i> -Toluidine
2-Naphthylamine	



EPA Method 8000 Series

Alternate Source Line (ASL)

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate **Source**

Method 8270C/D

M-8270-07 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 15 comps.

Aramite	Dinoseb	Parathion
Chlorobenzilate	Disulfoton	Phorate
Diallate	Famphur	Silvex (2,4,5-TP)
2,4-D	Kepone	Sulfotep
Dimethoate	Methyl parathion	Thionazin

Additions to Method 8270

M-8270-13A-R 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 12 comps.

4-Aminoazobenzene	4,4'-Methylenebis(N,N-dimethylaniline)
3-Amino-9-ethylcarbazole	4,4'-Methylene bis(2-chloroaniline)
<i>o</i> -Anisidine	4,4'-Oxydianiline
5-Chloro-2-methylaniline	2-Picoline
<i>p</i> -Cresidine	Pyridine
2,4-Diaminotoluene	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-1,3-phenylenediamine
4-Chloro-1,2-phenylenediamine	

M-8270-14A-R1 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 7 comps.

Benzoic acid	Thiophenol
1-Chloronaphthalene	tris-(2,3-Dibromopropyl)phosphate
Dibenz[a,j]acridine	Tri- <i>p</i> -tolyl phosphate
Resorcinol	

M-8270-14B 1 x 1 mL
2.0 mg/mL each in THF 5 comps.

<i>p</i> -Benzoquinone	Phthalic anhydride
Hydroquinone	Trimethyl phosphate
Maleic anhydride	

M-8270-14C 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂:MeOH (75:25) 5 comps.

1-Acetyl-2-thiourea	3-Picolyl chloride HCL
Diethyl sulfate	Toluene diisocyanate
Hexamethylphosphoramide	

M-8270-15 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂:MeOH (90:10) 13 comps.

Dibenz[a,e]pyrene	Nicotine
1,2-Dibromo-3-chloropropane	5-Nitroacenaphthene
Diethyl stilbestrol	5-Nitro- <i>o</i> -anisidine
1,2-Dinitrobenzene	4-Nitrobiphenyl
1,4-Dinitrobenzene	Propylthiouracil
5,5-Diphenylhydantoin	Strychnine
Mestranol	

Pesticides

M-8270-16 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 10 comps.

Anilazine	Dichlone	Sulfoxide
Azinphos methyl	Dioxathion	Sulfallate
Barbamate	Mirex	Trifluralin
Demeton (mixed isomers)		

M-8270-17 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 7 comps.

Brominal	Dinex	Fluchloralin
Captafol	Dinocap	Nitrofen
Captan		

Carbamates/Pesticides

M-8270-18 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 6 comps.

Carbaryl	Mexacarbate
Carbofuran	Schradan (Octamethylpyrophosphoramidate)
Ethyl carbamate	Phenobarbital

Pesticides

M-8270-19 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 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 CH₂Cl₂ 9 comps.

Chlorfenvinphos	Monocrotophos
Ciodrin (Crotoxyphos)	Naled
Dichlorvos	Phosphamidon
Dicrotophos	TEPP (Tetraethyl pyrophosphate)
Mevinphos	

Semi-Volatile additions

M-8270-22 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 2 comps.

Benzidine	3,3'-Dimethoxybenzidine
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Pesticides - Mix #2

Z-014C-R 1 x 1 mL
Z-014C-R-PAK 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	

Semi-Volatile additions

M-8270-23-R1 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 4 comps.

3,3'-Dichlorobenzidine	<i>a,a</i> -Dimethylphenethylamine
3,3'-Dimethylbenzidine	<i>p</i> -Phenylenediamine

M-8270-24 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 4 comps

Hexachlorophene	Pronamide
Isodrin	<i>o,o,o</i> -Triethylphosphorothioate

AS-E0060 1 x 1 mL
5.0 mg/mL in MeOH

N-Nitrosodiphenylamine



Method 8272 PAHs (GC/MS)

M-8272			1 x 1 mL
<i>At stated conc. in Dichloromethane</i>			
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
<i>At stated conc. in Acetone</i>			
Naphthalene-d ₈	5	Phenanthrene-d ₁₀	0.96
1-Methylnaphthalene-d ₁₀	6	Fluoranthene-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
<i>1.0 mg/mL each in Acetone</i>			
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
<i>4.0 mg/mL each in CH₂Cl₂</i>			
Acenaphthene-d ₁₀		Naphthalene-d ₈	
Chrysene-d ₁₂		Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄		Phenanthrene-d ₁₀	

Method 8280A Dioxins & Furans by HRGC/LRMS

Dioxin Mixture

M-8280A			1 x 1 mL
M-8280A-PAK	SAVE		5 x 1 mL
<i>5 µg/mL each in Toluene</i>			
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
<i>5 µg/mL each in Toluene</i>			
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
<i>5 µg/mL each in Toluene</i>			
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
<i>5.0 µg/mL each in Toluene</i>			
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

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EPA Method 8000 Series

Method 8310, Florida

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	Chrysene
Acenaphthylene	Dibenz[a,h]anthracene
Anthracene	Fluoranthene
Benz[a]anthracene	Fluorene
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene
Benzo[b]fluoranthene	Naphthalene
Benzo[g,h,i]perylene	Phenanthrene
Benzo[k]fluoranthene	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 CH₂Cl₂:Benzene (50:50) 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

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 ₂ O		2 comps.
Acetaldehyde	Formaldehyde	

Aldehyde Individuals

Acetaldehyde (1.0 mg/mL in H ₂ O)	M-8315-01	1 x 1 mL
Formaldehyde (1.0 mg/mL in H ₂ O)	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	Heptanal
Butanal (<i>Butyraldehyde</i>)	Hexanal (<i>Hexaldehyde</i>)
Crotonaldehyde	Nonanal
Cyclohexanone	Octanal
Decanal	Pentanal (<i>Valeraldehyde</i>)
Formaldehyde	Propanal (<i>Propionaldehyde</i>)

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	Heptanal
Butanal (<i>Butyraldehyde</i>)	Hexanal (<i>Hexaldehyde</i>)
Crotonaldehyde	Nonanal
Cyclohexanone	Octanal
Decanal	Pentanal (<i>Valeraldehyde</i>)
Formaldehyde	Propanal (<i>Propionaldehyde</i>)

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	Hexanal (<i>Hexaldehyde</i>)
Acetone	Isovaleraldehyde
Acrolein	Pentanal (<i>Valeraldehyde</i>)
Benzaldehyde	Propanal (<i>Propionaldehyde</i>)
Butanal (<i>Butyraldehyde</i>)	<i>m</i> -Tolualdehyde
Crotonaldehyde	<i>o</i> -Tolualdehyde
2,5-Dimethylbenzaldehyde	<i>p</i> -Tolualdehyde
Formaldehyde	

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	Hexanal (<i>Hexaldehyde</i>)
Acetone	Isovaleraldehyde
Acrolein	Pentanal (<i>Valeraldehyde</i>)
Benzaldehyde	Propanal (<i>Propionaldehyde</i>)
Butanal (<i>Butyraldehyde</i>)	<i>m</i> -Tolualdehyde
Crotonaldehyde	<i>o</i> -Tolualdehyde
2,5-Dimethylbenzaldehyde	<i>p</i> -Tolualdehyde
Formaldehyde	

Carbonyl Compound Set

M-8315-R3-10X-SET		20 x 1 mL
Each at 1.0 mg/mL in AcCN		

Acetaldehyde (01)	Heptanal (11)
Acetone (02)	Hexanal (12)
Acrolein (03)	Isovaleraldehyde (13)
Benzaldehyde (04)	Nonanal (14)
Butanal (05)	Octanal (15)
Crotonaldehyde (06)	Pentanal (16)
Cyclohexanone (07)	Propanal (17)
Decanal (08)	<i>m</i> -Tolualdehyde (18)
2,5-Dimethylbenzaldehyde (09)	<i>o</i> -Tolualdehyde (19)
Formaldehyde (10)	<i>p</i> -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)	Heptanal (11)
Acetone (02)	Hexanal (<i>Hexaldehyde</i>) (12)
Acrolein (03)	Isovaleraldehyde (13)
Benzaldehyde (04)	Nonanal (14)
Butanal (<i>Butyraldehyde</i>) (05)	Octanal (15)
Crotonaldehyde (06)	Pentanal (<i>Valeraldehyde</i>) (16)
Cyclohexanone (07)	Propanal (<i>Propionaldehyde</i>) (17)
Decanal (08)	<i>m</i> -Tolualdehyde (18)
2,5-Dimethylbenzaldehyde (09)	<i>o</i> -Tolualdehyde (19)
Formaldehyde (10)	<i>p</i> -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	Acrylonitrile
Acrylamide	

* 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)	3-Hydroxycarbofuran (06)
Aldicarb sulfone (02)	Methiocarb (07)
Carbaryl (03)	Methomyl (08)
Carbofuran (04)	Promecarb (09)
Dioxacarb (05)	Propoxur (10)



EPA Method 8000 Series

Method 8321-8323

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 CH₂Cl₂ 4 comps.

Butyltin trichloride	Tetrabutyltin
Dibutyltin dichloride	Tributyltin chloride

Tri-n-propyltin Surrogate Standard

OMT-003 1 x 1 mL
OMT-003-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Tri-n-propyltin 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 CH₂Cl₂

Tetra-n-propyl tin

Organometallic Phenyltin Chloride Standard

OMT-002 1 x 1 mL
OMT-002-PAK **SAVE** 5 x 1 mL
2000 µg/mL each in CH₂Cl₂ 4 comps.

Diphenyltin dichloride	Tetraphenyltin
Phenyltin trichloride	Triphenyltin chloride

Triphenyltin Chloride Surrogate Standard

OMT-004 1 x 1 mL
OMT-004-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Triphenyltin chloride

Tetraphenyltin Internal Standard

OMT-006 1 x 1 mL
OMT-006-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Tetraphenyltin



Thousands of Standards, just a click away

AccuStandard.com

* ColdPAK required to maintain integrity of product.

EPA Method 8000 Series Explosives



Method 8330

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 Hexamethylenetriperoxide diamine (HMTD)	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-(picrylamine)-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



EPA Method 8000 Series

Method 8330-8440

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

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

Internal Standard

M-8330-IS	1 x 1 mL
M-8330-IS-PAK	5 x 1 mL
1.0 mg/mL in MeOH	
3,4-Dinitrotoluene	SAVE

Method 8410 Semi-Volatiles by GC/FTIR

Internal Standard

M-8410-IS	1 x 1 mL
M-8410-IS-PAK	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
1-Fluoronaphthalene	<i>p</i> -Terphenyl-d ₁₀

Method 8430 bis(2-Chloroethyl)ether & Hydrolysis Products

M-8430	1 x 1 mL
1.0 mg/mL each in Water	
bis(2-Chloroethyl) ether	Diethylene glycol
2-Chloroethanol	Ethylene glycol
2-(2-Chloroethoxy)-ethanol	

* 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)	

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

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

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)	

4-Amino-2,6-dinitrotoluene	2-Nitrotoluene
Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	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	5 x 1 mL
At stated conc. in Tetrachloroethene	
Chlorobenzene (0.10 w/w %)	Isooctane (0.15 w/w %)
<i>n</i> -Hexadecane (0.15 w/w %)	

Silica Gel Cleanup Calibration Solution

M-8440-SGC	1 x 1 mL
M-8440-SGC-PAK	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	5 x 1 mL
At stated conc. in Tetrachloroethene	
Chlorobenzene (25.0 vol %)	Isooctane (37.5 vol %)
<i>n</i> -Hexadecane (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
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Regional Standards Canadian Methodologies

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
<i>At stated conc. in Isooctane</i>	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 #3

C-CAN-03	1 x 1 mL
<i>At stated conc. in Isooctane</i>	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'-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 #2

C-CAN-02	1 x 1 mL
<i>At stated conc. in Isooctane</i>	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',4,5,6-Heptachlorobiphenyl (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',4,4',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 #4

C-CAN-04	1 x 1 mL
<i>At stated conc. in Isooctane</i>	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
<i>At stated conc. in Isooctane</i>	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',3,4,4',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',4,4',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',3,3',4,4',5-Hexachlorobiphenyl (138)	2000
2,2',3,4,4',5'-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',4,4',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',4,4',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',4,4',5,5',6'-Nonachlorobiphenyl (208)	2000
Decachlorobiphenyl (209)	2000

Dioxins: Calibration & Window Defining Mixtures (Canadian Environmental Methods)

Custom Window Defining Mixture

D-WD
20,000 ng/mL in Toluene

D-WD-2.5X

50,000 ng/mL in Toluene

1 x 1 mL

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

Custom Calibration Mixture

D-CAL
20,000 ng/mL in Toluene

D-CAL-2.5X

50,000 ng/mL in Toluene

1 x 1 mL

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



PAH Mixture

Quebec Ministry of Environment

PAH Standard

H-QME-01 1 x 1 mL
500 µg/mL each in CH₂Cl₂: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



Canadian Methods

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-Tetracontane	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:CH₂Cl₂ (85:15) 11 comps.

Acenaphthene	n-Dotriacontane
Anthracene	n-Heneicosane
Benzo[a]pyrene	n-Hexadecane
Chrysene	n-Octacosane
n-Decan	Naphthalene
n-Dodecane	

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-EPH/SS 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 2 comps.

- n-Dotriacontane
- Isobutylbenzene

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



Regional Standards

Municipal & Industrial Strategy for Abatement (MISA) - Canadian

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 0.5 mg/mL each in MeOH	1 x 1 mL	SAVE	5 x 1 mL 22 comps.
Bromoform	<i>trans</i> -1,2-Dichloroethene		
Carbon tetrachloride	1,1-Dichloroethene		
Chlorobenzene	1,2-Dichloropropane		
Chloroform	<i>cis</i> -1,3-Dichloropropene*		
Dibromochloromethane	<i>trans</i> -1,3-Dichloropropene**		
1,2-Dibromoethane	Methylene chloride		
1,2-Dichlorobenzene	1,1,2,2-Tetrachloroethane		
1,3-Dichlorobenzene	Tetrachloroethene		
1,4-Dichlorobenzene	1,1,1-Trichloroethane		
1,2-Dichloroethane	1,1,2-Trichloroethane	* <i>cis</i> (1.06 x conc.)	
1,1-Dichloroethane	Trichloroethene	** <i>trans</i> (0.94 x conc.)	

MISA-VH-2 **1 x 1 mL**
MISA-VH-2-PAK **5 x 1 mL**
0.5 mg/mL each in MeOH **SAVE** 5 comps.

Bromomethane	Trichlorofluoromethane
Chloroethane	Vinyl chloride
Chloromethane	

Group 17: Volatiles, Non-Halogenated

MISA-VNH **1 x 1 mL**
MISA-VNH-PAK **5 x 1 mL**
0.5 mg/mL each in MeOH **SAVE** 7 comps.

Benzene	<i>o</i> -Xylene
Ethylbenzene	<i>m</i> -Xylene
Styrene	<i>p</i> -Xylene
Toluene	

Group 18: Volatiles, Water Soluble

MISA-VWS **1 x 1 mL**
2.0 mg/mL each in Water 2 comps.

Acrolein	Acrylonitrile
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Group 19: Extractables, Base-Neutral

Z-014G **1 x 1 mL**
Z-014G-PAK **5 x 1 mL**
2.0 mg/mL each in CH₂Cl₂: Benzene (50:50) **SAVE** 16 comps.

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

MISA-BN-1 **1 x 1 mL**
2.0 mg/mL each in CH₂Cl₂ 8 comps.

Biphenyl	1-Methylnaphthalene
Camphene	2-Methylnaphthalene
1-Chloronaphthalene	5-Nitroacenaphthene
2-Chloronaphthalene	Perylene

MISA-BN-2 **1 x 1 mL**
2.0 mg/mL each in CH₂Cl₂ 8 comps.

Benzylbutylphthalate	4-Chlorophenyl phenyl ether
4-Bromophenyl phenyl ether	Di-n-butyl phthalate
bis(2-Chloroethyl) ether	Di-n-octyl phthalate
bis(2-Chloroisopropyl) ether	bis(2-Ethylhexyl)phthalate

MISA-BN-3 **1 x 1 mL**
2.0 mg/mL each in CH₂Cl₂ 8 comps.

bis(2-Chloroethoxy)methane	Diphenylether
2,4-Dinitrotoluene	Indole
2,6-Dinitrotoluene	N-Nitroso-diphenylamine
Diphenylamine	N-Nitroso-di-n-propyl amine

Group 20: Extractables, Acid (Phenolics)

MISA-A **1 x 1 mL**
MISA-A-PAK **5 x 1 mL**
2.0 mg/mL each in CH₂Cl₂ **SAVE** 20 comps.

4-Chloro-3-methylphenol	4-Nitrophenol
2-Chlorophenol	Pentachlorophenol
2-Cresol	Phenol
3-Cresol	2,3,4,5-Tetrachlorophenol
4-Cresol	2,3,4,6-Tetrachlorophenol
2,4-Dichlorophenol	2,3,5,6-Tetrachlorophenol
2,6-Dichlorophenol	2,3,4-Trichlorophenol
2,4-Dimethylphenol	2,3,5-Trichlorophenol
4,6-Dinitro-2-cresol	2,4,5-Trichlorophenol
2,4-Dinitrophenol	2,4,6-Trichlorophenol

Group 22: Organochlorine Pesticides

MISA-PEST **1 x 1 mL**
MISA-PEST-PAK **5 x 1 mL**
2.0 mg/mL each in Acetone **SAVE** 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 isomer B
Dieldrin	Methoxychlor

Group 23: Extractables, Chlorinated Neutrals

MISA-NC **1 x 1 mL**
2.0 mg/mL each in CH₂Cl₂ 12 comps.

Hexachlorobenzene	1,2,3,4-Tetrachlorobenzene
Hexachlorobutadiene	1,2,3,5-Tetrachlorobenzene
Hexachlorocyclopentadiene	1,2,4,5-Tetrachlorobenzene
Hexachloroethane	1,2,3-Trichlorobenzene
Octachlorostyrene	1,2,4-Trichlorobenzene
Pentachlorobenzene	2,4,5-Trichlorotoluene

Group 27: Polychlorinated Biphenyls Solutions and Sets

Each at 35 μ g/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.



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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 Dichloromethane
Trichloroethene Tetrachloromethane
Tetrachloroethene

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 1,4-Dichlorobenzene
Toluene *o*-Xylene
Ethylbenzene *m*-Xylene
Chlorobenzene *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 1,2-Dichloropropane
Trichloromethane 1,3-Dichloropropane
Carbon tetrachloride 1,3-Dichloropropene
1,1-Dichloroethane Dibromomethane
1,2-Dichloroethane Tribromoethene
1,1,1-Trichloroethane Bromochloromethane
1,1,2-Trichloroethane Bromodichloromethane
Trichloroethene Dibromochloromethane
Tetrachloroethene

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 1,1,1-Trichloroethane
Tetrachloroethene Trichloroethene
Tetrachloromethane

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 Tetrachloromethane
Dichloromethane 1,1,1-Trichloroethane
Tetrachloroethene Trichloroethene

Chlorinated Organic Volatile

Calibration Standards

Appendix 2, Drinking Water Regulation of May 22, 1986.

Compound	Each at 100 µg/mL in MeOH	
	Cat. No.	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 3,4-Dinitrotoluene
2-Nitrotoluene 2-Amino-6-nitrotoluene
4-Nitrotoluene 4-Amino-2-nitrotoluene
1,3-Dinitrobenzene 4-Amino-2,6-dinitrotoluene
2,6-Dinitrotoluene 2-Amino-4,6-dinitrotoluene
2,4-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 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

PAHs

DIN 38407-8 PAH Mix (WHO 6 List)

Determination of PAH in water, wastewater and sludge by HPLC.

DIN38407-8-PAH

2 µg/mL each in Acetonitrile

1 x 1 mL

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

10 µg/mL each in Acetonitrile

1 x 1 mL

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	Benzo[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

10 µg/mL each in Acetonitrile

1 x 1 mL

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	Benzo[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)
Benzo[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

At stated conc. (ng/mL) in Isooctane

7 x 1 mL
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	3,3'-Dimethyl-4,4'-diaminodiphenylmethane
4-Aminobiphenyl	4,4'-Methylenebis(2-chloroaniline)
2-Amino-4-nitrotoluene	2-Naphthylamine
Benzidine	4,4'-Oxydianiline
4-Chloroaniline	4,4'-Thiodianiline
4-Chloro-o-toluidine	o-Toluidine
p-Cresidine	2,4,5-Trimethylaniline
4,4'-Diaminodiphenylmethane	p-Aminoazobenzene
2,4-Diaminotoluene	2-Aminobiphenyl
3,3'-Dichlorobenzidine	o-Anisidine
3,3'-Dimethoxybenzidine	3-Chloro-o-toluidine
3,3'-Dimethylbenzidine	

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 photographic 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

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
 Chloroacetic acid
 Trichloroacetic acid



Service with a smile

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
<i>At stated conc. (µg/mL) in Toluene</i> 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
<i>10 µg/mL each in Toluene</i> 22 comps.	
Anilazine	Tecnacene
Captan	Tetradifon
Chlorthalonil	Tetrasul
Clorfenson	Tridiametofon
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
<i>At stated conc. (µg/mL) in Toluene</i> 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
<i>At stated conc. (µg/mL) in Toluene</i> 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
<i>At stated conc. (µg/mL) in Ethyl acetate</i> 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
<i>1000 µg/mL in Acetonitrile</i>	
Tetrachlorvinphos	

Pesticide Mix #6

AE-00015	1 x 1 mL
AE-00015-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 8 comps.	
Chlorpyrifos-methyl	100
Diazinon	100
Ethion	100
Etrifos	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
<i>At stated conc. (µg/mL) in Toluene</i> 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
<i>At stated conc. (µg/mL) in Toluene:Acetone:Hexane (90:5:5)</i> 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
<i>At stated conc. (µg/mL) in Toluene</i> 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
<i>At stated conc. (µg/mL) in Toluene</i> 7 comps.	
Benalaxyl	500
Carbaryl	500
Oxadixyl	500
Terbutylazine	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.

Carbophenithion	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
Chlorpyrifos	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, BGBl, 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
Desethylterbutylazine	Sebuthylazin
Dimefuron	Simazine
Diuron	Terbutryn
Isoproturon	Terbutylazine
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-Dichlorpropene	Simazine
Endosulfan I	Terbutylazine
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	Terbutylazine

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	Sebutylazin
Linuron	Simazine
	Terbutylazine

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	Terbutylazine

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	p,p'-DDT
β-BHC	Methoxychlor
γ-BHC	Aldrin
δ-BHC	Dieldrin
o,p'-DDE	Endrin
p,p'-DDE	Heptachlor
o,p'-DDD	Heptachlor epoxide (Isomer A)
p,p'-DDD	Heptachlor epoxide (Isomer B)
o,p'-DDT	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	Propazine
Cyanazine	Sebutylazin
Metazachlor	Simazine
Parathion	Terbutylazine
Methyl parathion	Trifluralin
Pendimethalin	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	Endrin
p,p'-DDD	Heptachlor
o,p'-DDE	Heptachlor epoxide (Isomer A)
p,p'-DDE	Heptachlor epoxide (Isomer B)
o,p'-DDT	α-BHC
p,p'-DDT	β-BHC
Dieldrin	γ-BHC
Endosulfan I	Methoxychlor
Endosulfan II	

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	Methabenzthiazuron
Chlortoluron	Metobromuron
Cyanazine	Metolachlor
Desethyl atrazine	Metoxuron
Hexazinone	Monolinuron
Isoproturon	Sebutylazin
Karmex (Diuron)	Simazine
Linuron	Terbutylazine
Metazachlor	

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	Monuron
Atrazine	Parathion
Chlorfenvinphos	Pendimethalin
Chlortoluron	Propazine
Cyanazine	Sebutylazin
2,4-D	Simazine
MCPA acid	2,4,5-T
Metazachlor	Terbutylazine
Metobromuron	Trifluralin
Metolachlor	Vinclozolin
Metoxuron	

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	Lindane
Atrazine	MCPA *
Bentazone *	Mecoprop *
Chlortoluron	Metazachlor
Cyanazine	Metobromuron
2,4-D *	Metoxuron
Dichlorprop *	Sebutylazine
1,3-Dichloropropene	Simazine
Endosulfan I	Terbutylazine
Endosulfan II	
Isoproturon	* 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

At stated conc. (µg/mL) in Ethanol

1 x 1 mL
 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

500 µg/mL each in Acetone

1 x 1 mL
 14 comps.

2,4-Dinitrophenol	2-Nitrophenol
2,5-Dinitrophenol	3-Nitrophenol
2,6-Dinitrophenol	4-Nitrophenol
2-Methyl-4,6-dinitrophenol	4-Methyl-2-nitrophenol
2,6-Dimethyl-4-nitrophenol	3-Methyl-4-nitrophenol
2,4-Dichlor-6-nitrophenol	5-Methyl-2-nitrophenol
2,6-Dichlor-4-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-Tetracontane
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

Floril 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
Butanal-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



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Regional Standards

Pacific Rim Methodologies

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

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

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

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*₂
 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
Acetone	3.0 µg/mL
Acrolein	3.0 µg/mL
Benzaldehyde	3.0 µg/mL
2-Butanone (MEK)	3.0 µg/mL
n-Butyraldehyde	3.0 µg/mL
Crotonaldehyde	3.0 µg/mL
Formaldehyde	3.0 µg/mL
Hexanal	3.0 µg/mL
Methacrolein	3.0 µg/mL
Propionaldehyde	3.0 µg/mL
m-Toluialdehyde	3.0 µg/mL
Valeraldehyde	3.0 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 CH₂Cl₂: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 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 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
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Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL 1 x 1 mL
M-8310-FL-PAK 5 x 1 mL **SAVE**
 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 5 x 1 mL **SAVE**
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

M-502A-R-PAK

0.2 mg/mL each in MeOH

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) * *cis* (1.06 x conc.) (34A)
p-Xylene (59) ** *trans* (0.94 x conc.) (34B)

SAVE

1 x 1 mL
5 x 1 mL
54 comps.

Gases

M-465B-10X

M-465B-10X-PAK

0.2 mg/mL each in MeOH

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane

Dichlorofluoromethane
Trichlorofluoromethane
Vinyl chloride

SAVE

1 x 1 mL
5 x 1 mL
7 comps.

M-465D-ADD-R *

0.2 mg/mL each in MeOH

Acetone
Allyl chloride
Ethyl ether
Methyl ethyl ketone

Methyl isobutyl ketone
Methyl-*t*-butyl ether
Tetrahydrofuran
Trichlorotrifluoroethane

1 x 1 mL
8 comps.

* 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

MDA-PEST-01-R1-PAK

500 µg/mL each in CH₂Cl₂

Acetochlor Dimethenamid
Alachlor Dursban
Atrazine Dyfonate
Atrazine-desisopropyl EPTC
Cyanazine Ethalfuralin
Desethyl atrazine Metolachlor

SAVE

1 x 1 mL
5 x 1 mL
22 comps.

Metribuzin Propazine
Pendimethalin Simazine
Phorate Terbufos
Propachlor Triallate
Prometon Trifluralin

List 2 - Herbicide Acids Standards

MDA-HERB-01

At stated conc. in Acetone

2,4-D (0.1 mg/mL)
2,4-DB (0.1 mg/mL)
2,4,5-T (0.1 mg/mL)
Silvex (0.1 mg/mL)
Bentazon (0.1 mg/mL)

Dicamba (0.1 mg/mL)
MCPA (10 mg/mL)
Picloram (0.1 mg/mL)
Triclopyr (0.1 mg/mL)

1 x 1 mL
9 comps.

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

2.0 mg/mL each in MeOH

Benzene
Bromobenzene
Bromodichloromethane
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

1 x 1 mL
52 comps.



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.

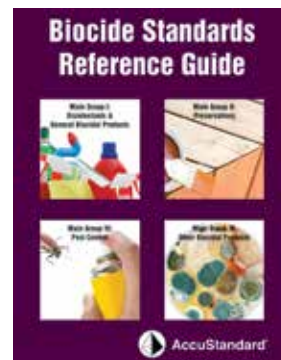


One such regulation is the Biological Products Directive 98/8/EC (BPD) which has been recently revised and is now designated as EU Biocides Regulation 528/2012 (EU BPR). Under this legislation, active compounds are submitted for approval on the list of Approved Active Substances. This regulation went into effect in September 2013, and classifies biocides into 22 biocide product types, grouped into four main areas.

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



Biocide Guide include chemical structures and physical data.

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
Acetamidiprid	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	1 mL
			19.3% wt. in Water	
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	1 mL 100 µg/mL in Acetonitrile
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	100 mL 1000 µg/mL in tr. Nitric acid
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	1 mL 100 µg/mL in Methanol
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
Didecylmethylammonium 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	1 mL 100 µg/mL in Dichloromethane
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 butylacetylaminopropionate	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

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	1 mL 100 µg/mL in Methanol
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	100 mL 1000 µg/mL in tr. Nitric acid in H ₂ O
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
Terbutylazine	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
Tolyfluanide	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	1 mL 100 µg/mL in Acetonitrile
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

Compound	CAS	All in 10 µg/mL in AcCN	
		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 ₂ Cl 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 ₂ Cl 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	



Methods Other Than EPA

USP 467 VOCs, F-List Hazardous Waste

USP 467 VOCs, F-List Haz Waste

Method USP 467 VOCs from Stack Gas Effluents

USP/National Formulary VOC Mixtures

NF-467 NF-467-PAK At stated conc. in MeOH	SAVE	1 x 1 mL 5 x 1 mL 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-R4 NF-467-R4-PAK At stated conc. in Dimethyl sulfoxide	SAVE	1 x 1 mL 5 x 1 mL 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-R NF-467-R-PAK At stated conc. in DMSO	SAVE	1 x 1 mL 5 x 1 mL 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-R6 NF-467-R6-PAK At stated conc. in Dimethyl sulfoxide	SAVE	1 x 1 mL 5 x 1 mL 5 comps.
Benzene (100 µg/mL)	Dichloromethane (500 µg/mL)	
Chloroform (50 µg/mL)	Trichloroethene (100 µg/mL)	
p-Dioxane (100 µg/mL)		

NF-467-R3 NF-467-R3-PAK At stated conc. in MeOH	SAVE	1 x 1 mL 5 x 1 mL 5 comps.
Benzene (2 µg/mL)	Dichloromethane (600 µg/mL)	
Chloroform (60 µg/mL)	Trichloroethene (80 µg/mL)	
p-Dioxane (380 µg/mL)		

F-List Hazardous Waste from Non-Specific Sources

F001 & F002 Solvent List Components

FL-0102 2.0 mg/mL each in MeOH	1 x 1 mL 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

F004 List Component Mixes

FL-0004-CR 2.0 mg/mL in MeOH	1 x 1 mL 3 comps.
m-Cresol	p-Cresol
o-Cresol	

F003 List Components (excluding MeOH as analyte)

FL-0003 2.0 mg/mL in MeOH	1 x 1 mL 10 comps.
Acetone	Ethyl ether
n-Butanol	Methyl isobutyl ketone
Cyclohexanone	m-Xylene
Ethyl acetate	o-Xylene
Ethylbenzene	p-Xylene

FL-0004-CA 2.0 mg/mL in MeOH	1 x 1 mL
Cresylic acid (technical mixture of phenol, cresols & xylenes)	

F005 List Components (includes Nitrobenzene)

FL-0005-NB 2.0 mg/mL each in MeOH	1 x 1 mL 9 comps.
Benzene	Nitrobenzene
Carbon disulfide	2-Nitropropane
2-Ethoxyethanol	Pyridine
Isobutanol	Toluene
Methyl ethyl ketone	

Additional Alcohol Solvents

FL-OADD 2.0 mg/mL each in H ₂ O	1 x 1 mL 3 comps.
Ethanol	Methanol
Isopropanol	



Petrochemical Standards

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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.

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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				
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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			
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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

Physical Properties

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.	Unit
	D-611-SET	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.	Unit
	D-611E-SET	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

	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7
	Target Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	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

	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

FIA-OLE-5ML

	Vol. %	Vol. %	
1-Pentene	33.3	1-Heptene	33.3
2,3-Dimethyl-2-butene	33.3		

D1319
Meets
EPA Guidelines
for RFG
Analysis

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.

FIA Paraffin Standard

FIA-PAR

FIA-PAR-5ML

1 x 1 mL

1 x 5 mL

8 comps.

	Vol. %		Vol. %
<i>n</i> -Pentane	8	2,3-Dimethylpentane	14
<i>n</i> -Hexane	9	Isooctane	16
Cyclohexane	15	<i>n</i> -Octane	14
<i>n</i> -Heptane	14	<i>n</i> -Decane	7

FIA Aromatic Standard

FIA-ARO

FIA-ARO-5ML

1 x 1 mL

1 x 5 mL

10 comps.

	Vol. %		Vol. %
Benzene	4	<i>m</i> -Xylene	16
Toluene	32	1,2,4-Trimethylbenzene	8
Ethylbenzene	8	1,3,5-Trimethylbenzene	8
<i>p</i> -Xylene	8	1,2,4,5-Tetramethylbenzene	4
<i>o</i> -Xylene	8	Naphthalene	4

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 ampoules 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.



Karl Fischer titrator

Value Added Paks (Cat. No.'s ending in -VAP) provide multiple single units packaged together for both greater stability and cost savings.

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		100 mL		PAK 5 x 20 mL	
µg/g	Wt. %	Cat. No.		Cat. No.	
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** At stated concentration
19 x 100 mL 5 x 20 mL ea

Sulfur in Light Weight Mineral Oil (20 cSt) Ready-to-Use

Concentration		100 mL		PAK 5 x 20 mL	
µg/g	Wt. %	Cat. No.		Cat. No.	
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** At stated concentration
19 x 100 mL 5 x 20 mL

Sulfur in #2 Diesel Fuel Ready-to-Use

Concentration		100 mL		PAK 5 x 20 mL	
µg/g	Wt. %	Cat. No.		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** **SDF-CAL-20ML-SET**
19 x 100 mL 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		100 mL		PAK 5 x 20 mL	
µg/g	Wt. %	Cat. No.		Cat. No.	
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 ▲** At stated conc.
12 x 100 mL 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			Concentration				
µg/g	Wt. %	Cat. No.	100 mL	µg/g	Wt. %	Cat. No.	100 mL
Blank	0.000	SK-HD-BL-100ML		3,000	0.30	SK-HD-30X-100ML	
100	0.010	SK-HD-1X-100ML		4,000	0.40	SK-HD-40X-100ML	
200	0.020	SK-HD-2X-100ML		5,000	0.50	SK-HD-50X-100ML	
300	0.030	SK-HD-3X-100ML		7,000	0.70	SK-HD-70X-100ML	
400	0.040	SK-HD-4X-100ML		10,000	1.00	SK-HD-100X-100ML	
500	0.050	SK-HD-5X-100ML		15,000	1.50	SK-HD-150X-100ML	
750	0.075	SK-HD-7.5X-100ML		20,000	2.00	SK-HD-200X-100ML	
1,000	0.10	SK-HD-10X-100ML		30,000	3.00	SK-HD-300X-100ML	
1,500	0.15	SK-HD-15X-100ML		40,000	4.00	SK-HD-400X-100ML	
2,000	0.20	SK-HD-20X-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

Individual Bottles

13 x 100 mL

In Isooctane

STP-CAL-100ML-SET ▲

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)

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

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)

Standards of Interest

We can provide **Ready-to-Inject** working level calibration standards to meet unique laboratory applications.



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, Sulfur 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. %
<i>n</i> -Pentane	9.4375
<i>n</i> -Hexane	9.5661
<i>n</i> -Heptane	9.8048
<i>n</i> -Octane	9.5518
<i>n</i> -Nonane	9.0482
<i>n</i> -Decane	9.2517
<i>n</i> -Undecane	9.3172
<i>n</i> -Dodecane	9.1855
<i>n</i> -Tridecane	8.9332
<i>n</i> -Tetradecane	8.7989
<i>n</i> -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-Ethylheptane	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
<i>m</i> -Xylene	2.2259
<i>p</i> -Xylene	4.4815
<i>o</i> -Xylene	2.2519
Isopropylbenzene	2.2248
<i>n</i> -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
<i>tert</i> -Butylbenzene	4.5310
Isobutylbenzene	4.4216
<i>sec</i> -Butylbenzene	2.2368
1-Methyl-3-isopropylbenzene	1.1066
1-Methyl-4-isopropylbenzene	1.0668
1-Methyl-2-isopropylbenzene	1.1241
1-Methyl-3- <i>n</i> -propylbenzene	2.1135
1-Methyl-4- <i>n</i> -propylbenzene	2.2336
<i>n</i> -Butylbenzene	2.2087
1,2-Diethylbenzene	1.0947
1-Methyl-2- <i>n</i> -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- <i>tert</i> -Butyl-2-methylbenzene	0.7641
<i>n</i> -Pentylbenzene	4.4828
1- <i>tert</i> -Butyl,3,5-dimethylbenzene	2.1641
1- <i>tert</i> -Butyl-4-ethylbenzene	2.2322
1,3,5-Triethylbenzene	4.5671
1,2,4-Triethylbenzene	1.1087
<i>n</i> -Hexylbenzene	4.5029

PIANO Naphthenes Mix

ASTM-P-0034-R1

100 µL

30 Naphthenes 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
<i>cis</i> -1,3-Dimethylcyclopentane	0.5963
<i>trans</i> -1,2-Dimethylcyclopentane	1.4715
<i>trans</i> -1,3-Dimethylcyclopentane	2.7531
Methylcyclohexane	5.6091
Ethylcyclopentane	3.5534
<i>ctc</i> -1,2,3-Trimethylcyclopentane	1.5859
<i>cct</i> -1,2,4-Trimethylcyclopentane	3.7208
<i>ctc</i> -1,2,4-Trimethylcyclopentane	1.6467
<i>trans</i> -1,4-Dimethylcyclohexane	3.6499
1-Ethyl-1-methylcyclopentane	1.0554
<i>trans</i> -1,2-Dimethylcyclohexane	1.6537
<i>ccc</i> -1,2,3-Trimethylcyclopentane	0.7971
Isopropylcyclopentane	3.5042
<i>cis</i> -1,2-Dimethylcyclohexane	3.7159
<i>n</i> -Propylcyclopentane	3.6438
<i>ccc</i> -1,3,5-Trimethylcyclohexane	3.5263
1,1,4-Trimethylcyclohexane	3.6791
<i>ctt</i> -1,2,4-Trimethylcyclohexane	3.6107
<i>ctc</i> -1,2,4-Trimethylcyclohexane	3.5069
1,1,2-Trimethylcyclohexane	3.3354
Isobutylcyclopentane	3.7123
Isopropylcyclohexane	5.7233
<i>n</i> -Butylcyclopentane	3.6944
Isobutylcyclohexane	5.6729
<i>t</i> -1-Methyl-2-propylcyclohexane	3.8434
<i>t</i> -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
<i>trans</i> -2-Pentene	1.8034
<i>cis</i> -2-Pentene	1.9792
4-Methylpentene-1	3.4372
1-Hexene	7.0484
<i>trans</i> -2-Hexene	1.7302
2-Methylpentene-2	3.3901
<i>cis</i> -2-Hexene	3.8765
1-Heptene	7.6134
<i>trans</i> -3-Heptene	3.3469
<i>cis</i> -3-Heptene	5.8657
<i>trans</i> -2-Heptene	3.7217
<i>cis</i> -2-Heptene	5.7679
1-Octene	7.6901
<i>trans</i> -2-Octene	1.9432
<i>cis</i> -2-Octene	3.9502
1-Nonene	7.6425
<i>trans</i> -3-Nonene	1.9972
<i>cis</i> -3-Nonene	4.0042
<i>trans</i> -2-Nonene	1.9848
<i>cis</i> -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

Detailed Hydrocarbon Analysis

ASTM D2789 Hydrocarbon Types in Low Olefinic Gas by MS

Hydrocarbon Mixture

D-2789-CTM
D-2789-CTM-PAK

SAVE

1 x 1 mL
5 x 1 mL
9 comps.

Technical Note

Actual volume percent ratio and the final weight fractions for each analyte will be listed on the certificate.

	Vol. %		Vol. %
2-Methylpentane	7.2	<i>cis</i> -1,2-Dimethylcyclohexane	15.5
2,4-Dimethylpentane	9.4	Benzene	7.7
<i>n</i> -Octane	16.6	Toluene	10
Methylcyclopentane	7.1	<i>p</i> -Xylene	16.5
Methylcyclohexane	10		

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Mixture

DRH-002N
DRH-002N-10X

100 mg
1 gm
17 comps.

	Wt. %		Wt. %
<i>n</i> -Hexane	6	<i>n</i> -Octadecane	5
<i>n</i> -Heptane	6	<i>n</i> -Eicosane	2
<i>n</i> -Octane	8	<i>n</i> -Tetracosane	2
<i>n</i> -Nonane	8	<i>n</i> -Octacosane	1
<i>n</i> -Decane	12	<i>n</i> -Dotriacontane	1
<i>n</i> -Undecane	12	<i>n</i> -Hexatriacontane	1
<i>n</i> -Dodecane	12	<i>n</i> -Tetracontane	1
<i>n</i> -Tetradecane	12	<i>n</i> -Tetratetracontane	1
<i>n</i> -Hexadecane	10		

Hydrocarbon Window Defining Standard

DRH-008S-R2
DRH-008S-R2-PAK SAVE

1 x 1 mL
5 x 1 mL
35 comps.

500 µg/mL each in Chloroform

Octane	Nonadecane	Triacontane
Nonane	Phytane	<i>n</i> -Hentriacontane
Decane	Eicosane	Dotriacontane
Undecane	Heneicosane	Tritriacontane
Dodecane	Docosane	Tetraatriacontane
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 C₁₇/Pristane & C₁₈/Phytane ratios

DRH-005S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂:CS₂ (1:1) 4 comps.
DRH-005S-R1-10X 1 x 1 mL
DRH-005S-R1-10X-PAKSAVE 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 C₈ to C₃₀ odd and even alkanes. Measuring the C₁₇/pristane and C₁₈/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 C₁₇/pristane and C₁₈/phytane ratio (DRH-005S-10X).

Column Test Mixture

D-2887
1% w/v in *n*-Octane

1 x 1 mL
2 comps.

n-Hexadecane *n*-Octadecane

Reference Gas Oil Sample Lot #2

D-2887-REFOIL

1 x 1 mL

Calibration Solutions

DRH-002S-R1
DRH-002S-R1-PAK

At stated conc. in Chloroform



SAVE

1 x 1 mL
5 x 1 mL
17 comps.

	µg/mL		µg/mL
<i>n</i> -Hexane	600	<i>n</i> -Octadecane	500
<i>n</i> -Heptane	600	<i>n</i> -Eicosane	200
<i>n</i> -Octane	800	<i>n</i> -Tetracosane	200
<i>n</i> -Nonane	800	<i>n</i> -Octacosane	100
<i>n</i> -Decane	1200	<i>n</i> -Dotriacontane	100
<i>n</i> -Undecane	1200	<i>n</i> -Hexatriacontane	100
<i>n</i> -Dodecane	1200	<i>n</i> -Tetracontane	100
<i>n</i> -Tetradecane	1200	<i>n</i> -Tetratetracontane	100
<i>n</i> -Hexadecane	1000		

DRH-002S-R2
DRH-002S-R2-PAK

0.1 % Wt./Wt. each in Chloroform



SAVE

1 x 1 gm
5 x 1 gm
20 comps.



Reformulated to ship by Air

<i>n</i> -Tetratetracontane	<i>n</i> -Octadecane	<i>n</i> -Octane
<i>n</i> -Tetracontane	<i>n</i> -Hexadecane	<i>n</i> -Heptane
<i>n</i> -Hexatriacontane	<i>n</i> -Tetradecane	<i>n</i> -Hexane
<i>n</i> -Dotriacontane	<i>n</i> -Dodecane	<i>n</i> -Pentane
<i>n</i> -Octacosane	<i>n</i> -Undecane	<i>n</i> -Pentadecane
<i>n</i> -Tetracosane	<i>n</i> -Decane	<i>n</i> -Heptadecane
<i>n</i> -Eicosane	<i>n</i> -Nonane	

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. %
<i>n</i> -Pentane	6.66	<i>n</i> -Dodecane	13.33
<i>n</i> -Hexane	6.66	<i>n</i> -Tetradecane	6.66
<i>n</i> -Heptane	6.66	<i>n</i> -Pentadecane	6.66
<i>n</i> -Octane	6.66	<i>n</i> -Hexadecane	6.66
<i>n</i> -Nonane	6.66	<i>n</i> -Heptadecane	6.66
<i>n</i> -Decane	6.66	<i>n</i> -Octadecane	6.66
<i>n</i> -Undecane	6.66	<i>n</i> -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. %
<i>n</i> -Pentane	0.0333	<i>n</i> -Tetradecane	0.0333
<i>n</i> -Hexane	0.0333	<i>n</i> -Pentadecane	0.0333
<i>n</i> -Heptane	0.0333	<i>n</i> -Hexadecane	0.0333
<i>n</i> -Octane	0.0333	<i>n</i> -Heptadecane	0.0333
<i>n</i> -Nonane	0.0333	<i>n</i> -Octadecane	0.0333
<i>n</i> -Decane	0.0333	<i>n</i> -Eicosane	0.0333
<i>n</i> -Undecane	0.0333	Polywax 500	0.5
<i>n</i> -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	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6
Target Wt. %	Target Wt. %	Target Wt. %	Target Wt. %	Target Wt. %	Target Wt. %	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. %
<i>n</i> -Decane	1.0
<i>n</i> -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. %
<i>n</i> -Hexadecane	1.0
<i>n</i> -Octadecane	1.0

ASTM D3605 Trace Metals in Gas Turbine Fuels by AA & Flame Emission & Spectroscopy

see page 405

ASTM D3120-D3605 SIM DIS



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	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7
Calibr. range	Target Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %
Benzene	0.06 - 5.0	5.00	2.50	1.25	0.67	0.33	0.12
Toluene	0.5 - 20	20.00	15.00	10.00	5.00	2.50	1.00
Isooctane		75.00	82.50	88.75	94.33	97.17	98.88



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	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7
Calibr. range	Target Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %
Benzene	0.06 - 5.0	4.8	2.4	1.2	0.6432	0.3168	0.1152
Toluene	0.5 - 20	19.2	14.4	9.6	4.8000	2.4000	0.9600
Isooctane		72.0	79.2	85.2	90.5568	93.2832	94.9248
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	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7
Calibr. range	Target Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %
Benzene	0.06 - 5.0	4.8	2.4	1.2	0.6432	0.3168	0.1152
Toluene	0.5 - 20	19.2	14.4	9.6	4.8000	2.4000	0.9600
Isooctane		72.0	79.2	85.2	90.5568	93.2832	94.9248
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	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7
Calibr. range	Target Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %	Vol. %
Benzene	0.06 - 5.0	5	4.2	3.4	2.6	1.7	0.9
Toluene	0.5 - 20	20	17	14	11	8	5
Isooctane		75	78.8	82.6	86.4	90.3	94.1
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
D-3710-QUAL-PAK **SAVE** 1 x 1 mL
5 x 1 mL
19 comps.

Approx. Wt./ Wt. %	Approx. Wt./ Wt. %
<i>n</i> -Butane	4.5
<i>n</i> -Butylbenzene	3.2
<i>n</i> -Decane	3.2
2,4-Dimethylpentane	5.4
<i>n</i> -Dodecane	3.2
<i>n</i> -Heptane	9.7
<i>n</i> -Hexane	5.4
2-Methylbutane	9.7
2-Methylpentane	5.4
2-Methylpropane	1.5
<i>n</i> -Octane	5.4
<i>n</i> -Pentadecane	2.2
<i>n</i> -Pentane	7.6
<i>n</i> -Propane	1.5
<i>n</i> -Propylbenzene	4.3
<i>n</i> -Tetradecane	2.2
Toluene	10.8
<i>n</i> -Tridecane	2.2
<i>p</i> -Xylene	13

Quantitative Calibration Standard

D-3710
D-3710-PAK **SAVE** 1 x 1 mL
5 x 1 mL
16 comps.

Vol./Vol. %	Vol./Vol. %
<i>n</i> -Butylbenzene	3.5
<i>n</i> -Decane	3.5
2,4-Dimethylpentane	5.8
<i>n</i> -Dodecane	3.5
<i>n</i> -Heptane	10.5
<i>n</i> -Hexane	5.8
2-Methylbutane	10.5
2-Methylpentane	5.8
<i>n</i> -Octane	5.8
<i>n</i> -Pentadecane	2.3
<i>n</i> -Pentane	8.1
<i>n</i> -Propylbenzene	4.7
<i>n</i> -Tetradecane	2.3
Toluene	11.6
<i>n</i> -Tridecane	2.3
<i>p</i> -Xylene	14.0

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Solution

DRH-002S-R1
DRH-002S-R1-PAK
At stated conc. in Chloroform

SAVE

1 x 1 mL
5 x 1 mL
17 comps.

Reformulated to ship by Air

µg/mL	µg/mL	µg/mL	µg/mL
<i>n</i> -Hexane	600	<i>n</i> -Undecane	1200
<i>n</i> -Heptane	600	<i>n</i> -Dodecane	1200
<i>n</i> -Octane	800	<i>n</i> -Tetradecane	1200
<i>n</i> -Nonane	800	<i>n</i> -Hexadecane	1000
<i>n</i> -Decane	1200	<i>n</i> -Octadecane	500
		<i>n</i> -Eicosane	200
		<i>n</i> -Tetracosane	200
		<i>n</i> -Octacosane	100
		<i>n</i> -Dotriacontane	100
		<i>n</i> -Hexatriacontane	100
		<i>n</i> -Tetracontane	100
		<i>n</i> -Tetratetracontane	100

ASTM D3798 Analysis of *p*-Xylene by GC

p-Xylene Impurity Standards

With Internal Standard

D-3798-IS
D-3798-IS-PAK **SAVE** 1 x 1 mL
5 x 1 mL
At stated conc. by weight 11 comps.

Wt./Wt. %	Wt./Wt. %
<i>n</i> -Pentane	0.15
<i>n</i> -Octane	0.15
Benzene	0.15
Toluene	0.15
Ethylbenzene	0.15
<i>p</i> -Xylene	98.65
<i>m</i> -Xylene	0.15
<i>o</i> -Xylene	0.15
Cumene	0.15
Propylbenzene	0.15
Total Analytes	100
plus <i>n</i> -Undecane* (ISTD)	0.500
grams	

Without Internal Standard

D-3798-10ML
D-3798-10ML-PAK **SAVE** 1 x 10 mL
5 x 10 mL
At stated conc. by weight 10 comps.

Wt./Wt. %	Wt./Wt. %
<i>n</i> -Pentane	0.15
<i>n</i> -Octane	0.15
Benzene	0.15
Toluene	0.15
Ethylbenzene	0.15
<i>p</i> -Xylene	98.65
<i>m</i> -Xylene	0.15
<i>o</i> -Xylene	0.15
Cumene	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 specific 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 #	Conc.	Individual	PAK SAVE	Aroclor #	Conc.	Individual	PAK SAVE
CAS No.	ppm w/w	Cat. No.	5 x 1 mL	CAS No.	ppm w/w	Cat. No.	5 x 1 mL
Aroclor 1016	50	C-216-ST-1	C-216-ST-1-PAK	Aroclor 1262	50	C-262-ST-1	C-262-ST-1-PAK
12674-11-2	500	C-216-ST-2	C-216-ST-2-PAK		500	C-262-ST-2	C-262-ST-2-PAK
Aroclor 1221	50	C-221-ST-1	C-221-ST-1-PAK	Aroclor 1268	50	C-268-ST-1	C-268-ST-1-PAK
11104-28-2	500	C-221-ST-2	C-221-ST-2-PAK	11100-14-4	500	C-268-ST-2	C-268-ST-2-PAK
Aroclor 1232	50	C-232-ST-1	C-232-ST-1-PAK	Neats (Individuals)			
11141-16-5	500	C-232-ST-2	C-232-ST-2-PAK	Aroclor #	Cat. No.	Unit	
Aroclor 1242	50	C-242-ST-1	C-242-ST-1-PAK	Aroclor 1016	C-216N	100 mg	
53469-21-9	500	C-242-ST-2	C-242-ST-2-PAK	Aroclor 1221	C-221N-50MG	50 mg	
Aroclor 1248	50	C-248-ST-1	C-248-ST-1-PAK	Aroclor 1242	C-242N-50MG	50 mg	
12672-29-6	500	C-248-ST-2	C-248-ST-2-PAK	Aroclor 1248	C-248N-50MG	50 mg	
Aroclor 1254	50	C-254-ST-1	C-254-ST-1-PAK	Aroclor 1254	C-254N-50MG	50 mg	
11097-69-1	500	C-254-ST-2	C-254-ST-2-PAK	Aroclor 1260	C-260N-50MG	50 mg	
Aroclor 1260	50	C-260-ST-1	C-260-ST-1-PAK	Aroclor 1262	C-262N-50MG	50 mg	
11096-82-5	500	C-260-ST-2	C-260-ST-2-PAK				

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 5 x 1 mL
 2000 µg/mL in water
 Ethylene glycol

SAVE

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

Analyte	set of 7 x 1 mL						
	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 5 x 1 mL
 SAVE 5 comps.
 Vol. %
 Benzene 3.00
 Toluene 10.00
 Total Xylenes (C₈ aromatics) 15.00
 n-Butylbenzene(C₉ + 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

Nitrogen introduced using Pyridine

8 x 1 mL

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

Nitrogen introduced using Carbazole

set of 8 x 1 mL

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

Nitrogen introduced using Aniline

6 x 1 mL

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

The Nitrogen is introduced using Aniline and the Sulfur is introduced using di-n-butyl sulfide

4 x 1 mL

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 Without Internal Standard

D-4815-10ML-SET

set of 5 x 10 mL of 5 component mix

Analyte	Target Concentrations				
	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Ethanol	3.00	0.10	6.00	9.00	12.00
<i>t</i> -Butanol	0.10	3.00	6.00	8.00	12.00
Methyl <i>t</i> -butyl ether (<i>MtBE</i>)	20.0	15.00	10.00	5.00	0.10
<i>t</i> -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

D-4815/IS-SET-PAK

set of 5 x 1 mL
set of 5 x (5 x 1 mL)

Analyte	Calibration Range	Target Concentrations				
		Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Ethanol	0.1 - 11.40	2.85	0.095	5.70	8.55	11.40
<i>t</i> -Butanol	0.1 - 11.40	0.095	2.85	5.70	7.60	11.40
Methyl <i>t</i> -butyl ether (<i>MtBE</i>)	0.1 - 19.0	19.00	14.25	9.50	4.75	0.095
<i>t</i> -Pentanol	0.1 - 4.79	1.19	4.75	2.38	3.56	0.095
1,2-Dimethoxyethane (<i>DME</i>) (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 Oxygenates & 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
<i>tert</i> -Butanol	7.30
<i>n</i> -Propanol	7.30
Methyl <i>tert</i> -butyl ether (<i>MtBE</i>)	4.00
<i>sec</i> -Butanol	7.30
Diisopropyl ether (<i>DIPE</i>)	4.00
Isobutanol	7.30
Ethyl <i>tert</i> -butyl ether (<i>EtBE</i>)	4.00
<i>tert</i> -Pentanol	7.30
1,2-Dimethoxyethane (ISTD)	6.00
<i>n</i> -Butanol	7.30
Benzene	5.00
<i>tert</i> -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 (<i>DIPE</i>)	10.00
Ethyl <i>tert</i> -butyl ether (<i>EtBE</i>)	10.00
Methyl <i>tert</i> -butyl ether (<i>MtBE</i>)	10.00
<i>n</i> -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			Cat. No.	100 mL
g Pb/US gal	g Pb/ UK gal	mg Pb/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 ▲	

Internal Standard

D-5059-IS-100ML

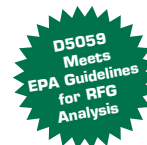
1 x 100 mL

D-5059-IS-10ML-PAK

5 x 10 mL ampules

0.793 mg/mL in Mineral Oil

Bismuth



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			Cat. No.	100 mL
g Pb/US gal	g Pb/ UK gal	µg Pb/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 ▲	

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.

Linearity Check Mix

D-5134-92-LCM-PAK

10% w/w each component

5 x 50 mg

10 comps.

	Wt. / Wt. %	Wt. / Wt. %		
Toluene	0.5	4-Methylheptane	1.0	Benzene
n-Heptane	1.0	n-Octane	1.0	2,4-Dimethylheptane
2,3,3-Trimethylpentane	1.0	2-Methylpentane	94.5	2,4-Dimethylhexane
2-Methylheptane	1.0			n-Heptane
				n-Octane
				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.

<i>n</i> -Decane	<i>n</i> -Octadecane
<i>n</i> -Undecane	<i>n</i> -Eicosane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane
<i>n</i> -Tridecane	<i>n</i> -Octacosane
<i>n</i> -Tetradecane	<i>n</i> -Dotriacontane
<i>n</i> -Pentadecane	<i>n</i> -Hexatriacontane
<i>n</i> -Hexadecane	<i>n</i> -Tetracontane
<i>n</i> -Heptadecane	<i>n</i> -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	<i>n</i> -Heptane	15
Butane	15	<i>n</i> -Octane	15
<i>n</i> -Pentane	15	<i>n</i> -Nonane	15
<i>n</i> -Hexane	15		

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. %
<i>n</i> -Hexadecane	1.0	<i>n</i> -Octane	98.0
<i>n</i> -Octadecane	1.0		

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. %
<i>n</i> -Tetradecane	25	<i>n</i> -Hexadecane	25
<i>n</i> -Pentadecane	25	<i>n</i> -Heptadecane	25





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 C₄ to C₁₂ 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	

Methanol	MtBE
Isobutylene	2,3-Dimethyl-1-butene
n-Butane	4-Methyl-cis-2-pentene
trans-2-butene	2-Methylpentane
cis-2-butene	Methylethyl ketone
3-Methyl-1-butene	3-Methylpentane
Acetone	sec-Butyl methyl ether
Isopentane	ETBE
2-Propanol	TAME
1-Pentene	3,5-Dimethyl-1-hexene
2-Methyl-1-butene	2,4,4-Trimethyl-1-pentene
n-Pentane	2,4,4-Trimethyl-2-pentene
trans-2-Pentene	3,4,4-Trimethyl-trans-2-pentene
t-Butanol	2,3,4-Trimethyl-2-pentene
cis-2-Pentene	4,4-Dimethyl-2-neopentyl-1-pentene
2-Methyl-2-butene	2,2',4,6,6'-Pentamethyl-3-heptene
Cyclopentene	

Quantitative Standard

D-5441-QUANT-R1	1 x 1 mL
0.1% Wt./Wt. each in n-Dodecane	

Methanol (0.04 Wt/Wt)	2-Methylpentane
3-Methyl-1-butene	Methyl ethyl ketone
Acetone	3-Methylpentane
Isopentane	sec-Butyl methyl ether
2-Propanol	Ethyl tert-butyl ether
1-Pentene	TAME
2-Methyl-1-butene	3,5-Dimethyl-1-hexene
n-Pentane	2,4,4-Trimethyl-1-pentene
trans-2-Pentene	2,4,4-Trimethyl-2-pentene
t-Butanol	3,4,4-Trimethyl-trans-2-pentene
cis-2-Pentene	2,3,4-Trimethyl-2-pentene
2-Methyl-2-butene	4,4-Dimethyl-2-neopentyl-1-pentene
Cyclopentene	2,2',4,6,6'-Pentamethyl-3-heptene
MtBE	
2,3-Dimethyl-1-butene	
4-Methyl-cis-2-pentene	

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



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, contact Technical Service for an updated product.



ASTM D5442 Analysis of Petroleum Waxes by GC

Quantitative Wax Standard

D-5442 1 x 1 mL
D-5442-PAK 5 x 1 mL
 At stated Wt. % in Cyclohexane 16 comps.

SAVE

Wt./Wt. %		Wt./Wt. %	
<i>n</i> -Dodecane	0.02	<i>n</i> -Octacosane	0.12
<i>n</i> -Tetradecane	0.03	<i>n</i> -Triacontane	0.10
<i>n</i> -Hexadecane	0.04	<i>n</i> -Dotriacontane	0.08
<i>n</i> -Octadecane	0.05	<i>n</i> -Hexatriacontane	0.06
<i>n</i> -Eicosane	0.06	<i>n</i> -Tetracontane	0.05
<i>n</i> -Docosane	0.08	<i>n</i> -Tetratetracontane	0.04
<i>n</i> -Tetracosane	0.10	<i>n</i> -Pentacontane	0.03
<i>n</i> -Hexacosane	0.12	<i>n</i> -Hexacontane	0.02

Column Resolution Standard

D-5442-CR-PAK 5 x 1 mL
 At stated Wt. % in Cyclohexane 2 comps.

Wt./Wt. %	
<i>n</i> -Eicosane	0.05
<i>n</i> -Tetracontane	0.05

Hydrocarbon Standard Brownfield Regulation

D-5442-R1 1 x 1 mL
 100 µg/mL each in Cyclohexane 18 comps.

<i>n</i> -Decane	<i>n</i> -Octacosane
<i>n</i> -Dodecane	<i>n</i> -Triacontane
<i>n</i> -Tetradecane	<i>n</i> -Dotriacontane
<i>n</i> -Hexadecane	<i>n</i> -Tetracontane
<i>n</i> -Octadecane	<i>n</i> -Hexatriacontane
<i>n</i> -Eicosane	<i>n</i> -Octatriacontane
<i>n</i> -Docosane	<i>n</i> -Tetracontane
<i>n</i> -Tetracosane	<i>n</i> -Tetratetracontane
<i>n</i> -Hexacosane	<i>n</i> -Pentacontane

Retention Time Standard Mix 1

D-5442-RT1 500 mg
 Equal parts by weight 12 comps.

<i>n</i> -Hexadecane (c16)	<i>n</i> -Octacosane (c28)
<i>n</i> -Octadecane (c18)	<i>n</i> -Triacontane (c30)
<i>n</i> -Eicosane (c20)	<i>n</i> -Dotriacontane (c32)
<i>n</i> -Docosane (c22)	<i>n</i> -Hexatriacontane (c36)
<i>n</i> -Tetracosane (c24)	<i>n</i> -Tetracontane (c40)
<i>n</i> -Hexacosane (c26)	<i>n</i> -Tetratetracontane (c44)

Retention Time Standard Mix 2

D-5442-RT2 500 mg
 Equal parts by weight 16 comps.

<i>n</i> -Dodecane (c12)	<i>n</i> -Octacosane (c28)
<i>n</i> -Tetradecane (c14)	<i>n</i> -Triacontane (c30)
<i>n</i> -Hexadecane (c16)	<i>n</i> -Dotriacontane (c32)
<i>n</i> -Octadecane (c18)	<i>n</i> -Hexatriacontane (c36)
<i>n</i> -Eicosane (c20)	<i>n</i> -Tetracontane (c40)
<i>n</i> -Docosane (c22)	<i>n</i> -Tetratetracontane (c44)
<i>n</i> -Tetracosane (c24)	<i>n</i> -Pentacontane (c50)
<i>n</i> -Hexacosane (c26)	<i>n</i> -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	<i>trans</i> -Decahydronaphthelene	4.25
<i>n</i> -Pentane	1.00	Isooctane	5.00	<i>n</i> -Tetradecane	4.50
Cyclohexane	2.00	<i>n</i> -Octane	5.00	Ethylbenzene	4.50
2,3-Dimethylbutane	2.00	1cis,2 cis,4-Trimethylcyclohexane	4.25	<i>o</i> -Xylene	4.25
<i>n</i> -Hexane	2.00	<i>n</i> -Nonane	4.50	<i>n</i> -Propylbenzene	5.00
<i>n</i> -Hexene	1.50	<i>n</i> -Decane	4.25	1,2,4-Trimethylbenzene	4.50
Methylcyclohexane	4.25	<i>n</i> -Undecane	3.50	1,2,3-Trimethylbenzene	5.00
4-Methyl-1-hexene	1.50	<i>n</i> -Dodecane	3.25	1,2,4,5-Tetramethylbenzene	5.00
<i>n</i> -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 disulfide	5 comps.
D-5480-CR-100X-PAK	5 x 1 mL
1000 µg/mL each in Carbon disulfide	5 comps.
<i>n</i> -Decane	<i>n</i> -Octadecane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane
<i>n</i> -Hexadecane	

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 disulfide	
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	
<i>n</i> -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.
<i>n</i> -Decane	<i>n</i> -Dodecane
<i>n</i> -Undecane	



Carbon disulfide can not ship by air. When possible alternate solvents can be used. Please contact our Technical Service Department for other options.

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	

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 Method D5501-12 Update

D-5501-12-SET							5 x 1 mL
	D-5501-12-01	D-5501-12-02	D-5501-12-03	D-5501-12-04	D-5501-12-05		
	Wt./ Wt.%	Wt./ Wt.%	Wt./ Wt.%	Wt./ Wt.%	Wt./ Wt.%	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		





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

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.

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



ASTM D5599 Oxygenates in Gas by GC & O-FID

Oxygenates Calibration Curves

With Internal Standard

M-GRO-CAL/IS-SET

M-GRO-CAL/IS-SET-PAK

of 15 Comp. Mix

SAVE

8 x 1 mL
5 x (8 x 1) mL

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

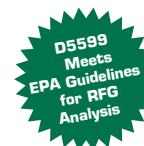
M-GRO-CAL/IS-R1-SET

8 x 1 mL

M-GRO-CAL/IS	Analyte	01-R1 Wt. %	02-R1 Wt. %	03-R1 Wt. %	04-R1 Wt. %	05-R1 Wt. %	06-R1 Wt. %	07-R1 Wt. %	08-R1 Wt. %
	Calibration range								
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.



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	<i>Di</i> -isopropyl ether	3
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	79

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	<i>Di</i> -isopropyl ether	1
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	81



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.

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	<i>Di</i> -isopropyl ether	3
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	79

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	<i>Di</i> -isopropyl ether	1
Ethanol	1	iso-Butanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
Propanol	1	Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	81

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/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)

O-FID Gasoline Refinery Blank

RFA-BLNK-10ML 1 x 10 mL
 RFA-BLNK-10ML-PAK **SAVE** 5 x 10 mL

RFA Gasoline (neat)

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 comps.

5 x 10 mL

	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
<i>t</i> -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

6 comps.

5 x 1 mL

	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
<i>t</i> -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

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.

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 <i>tert</i> -butyl ether	12.0
Ethanol	8.0	RFA gasoline	71.0
<i>tert</i> -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 <i>tert</i> -butyl ether	11.40
Ethanol	7.60	RFA gasoline	67.45
<i>tert</i> -Butanol	4.75	DME (Internal Standard)	5.0

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.

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	<i>tert</i> -Butanol	14.3
Ethanol	28.6	Methyl <i>tert</i> -butyl ether	42.8

Oxygenate Free Gasoline Refinery Blank

RFA-BLNK-10ML

1 x 10 mL

RFA-BLNK-10ML-PAK **SAVE**

5 x 10 mL

RFA Gasoline (neat)

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)

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	

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

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

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.	Std. 1 Target 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
<i>m</i> -Xylene	6	3.00	1.50	0.750	0.3750
<i>p</i> -Xylene	6	3.00	1.50	0.750	0.3750
<i>o</i> -Xylene	6	3.00	1.50	0.750	0.3750
Isopropylbenzene	3	1.50	0.75	0.375	0.1875
<i>n</i> -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
<i>n</i> -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

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
<i>m</i> -Xylene	4.50
<i>p</i> -Xylene	4.50
<i>o</i> -Xylene	4.50
Isopropylbenzene	2.25
<i>n</i> -Propylbenzene	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
<i>n</i> -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

CD Provided

CALAMTS™

Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

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

Internal Standard (M-GRA-IS)

Benzene-d ₆	2
Ethylbenzene-d ₁₀	2
Naphthalene-d ₈	1

Daily Quality Control Standard

Without Internal Standard

M-GRA-QC-10ML

M-GRA-QC-10ML-PAK **SAVE**

1 x 10 mL

5 x 10 mL

13 comps.

Wt. Ratio	Compound	Wt. Ratio
<i>n</i> -Hexane	12 Toluene	9
<i>n</i> -Heptane	17 Ethylbenzene	3
<i>n</i> -Octane	17 <i>m</i> -Xylene	3
<i>n</i> -Decane	12 <i>o</i> -Xylene	3
<i>n</i> -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-5ML

M-GRA-QC/IS-5ML-PAK **SAVE**

1 x 5 mL

5 x 5 mL

16 comps.

Wt. Ratio	Compound	Wt. Ratio
<i>n</i> -Hexane	12 Toluene	9
<i>n</i> -Heptane	17 Ethylbenzene	3
<i>n</i> -Octane	17 <i>m</i> -Xylene	3
<i>n</i> -Decane	12 <i>o</i> -Xylene	3
<i>n</i> -Dodecane	5 1,2,4-Trimethylbenzene	3
Isooctane	12 1,2,4,5-Tetramethylbenzene	3
Benzene	1	
	13 comp. Core Mix	100

Technical Note

Use with any M-GRA Calibration Curve.

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

M-GRA-ST-PAK **SAVE**

100 µg/mL in Isooctane

1 x 1 mL

5 x 1 mL

1,4-Diethylbenzene

3 Comp. Deuterated Internal Std. Mix

M-GRA-IS-5ML

M-GRA-IS-5ML-PAK **SAVE**

1 x 5 mL

5 x 5 mL

3 comps.

Mix Ratio	Compound	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

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.	Std. 1 Target 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
<i>m</i> -Xylene	6.27	3.50	1.86	0.962	0.4891
<i>p</i> -Xylene	6.33	3.50	1.86	0.962	0.4891
<i>o</i> -Xylene	6.51	3.56	1.89	0.980	0.4981
Isopropylbenzene	3.06	1.74	0.93	0.480	0.2439
<i>n</i> -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
<i>n</i> -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

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
<i>m</i> -Xylene	4.87
<i>p</i> -Xylene	4.87
<i>o</i> -Xylene	4.96
Isopropylbenzene	2.43
<i>n</i> -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
<i>n</i> -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

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.

Internal Standard

(M-GRA-IS-R) Mix Ratio

	(2 mL)	16.57	16.57	16.57	16.57	16.57
Benzene- d_6	(2 mL)	16.57	16.76	16.76	16.76	16.76
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

Internal Standard

(M-GRA-IS-R) Mix Ratio

	(2 mL)	16.57
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

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	
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -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	
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -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
D-5769-CAL-10ML-SET

set of 5 x 5 mL
set of 5 x 10 mL

Core Calibr. Mix 23 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
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -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
<i>n</i> -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
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -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
<i>n</i> -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	
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -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

Core Calibr. Mix 24 Comps.	5 x 1 mL				
	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
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -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
<i>n</i> -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

Core Calibration Mix 24 Comps.	1 x 1 mL
	Target Wt. %
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -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
<i>n</i> -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

	Mix ratio
Benzene-d ₆	2 mL
Ethylbenzene-d ₁₀	2 mL
Naphthalene-d ₈	1 gm

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.

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		Wt. Ratio	
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	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-d₈)

Calibration Curve with Deuterated Toluene

With Internal Standard

D-5769-CAL/IS-R-SET

Core Calibr. Mix 24 Comps.	5 x 1 mL				
	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
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -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
<i>n</i> -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
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -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
<i>n</i> -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

D-5769-QC/IS-R-5ML-PAK **SAVE**

1 x 5 mL

5 x 5 mL

18 comps.

Wt. Ratio		Wt. Ratio	
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -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

M-GRA-ST-PAK

SAVE

1 x 1 mL

5 x 1 mL

100 µg/mL in Isooctane

1,4-Diethyl benzene

Resolution Standard

M-GRA-RES

M-GRA-RES-PAK

SAVE

1 x 1 mL

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

M-GRA-IS-R-10ML-PAK **SAVE**

1 x 10 mL

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

M-GRA-FP-PAK

SAVE

1 x 1 mL

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
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -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
<i>n</i> -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
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -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
<i>n</i> -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
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -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	
<i>n</i> -Hexane	12	Ethylbenzene	3
<i>n</i> -Heptane	17	<i>m</i> -Xylene	3
<i>n</i> -Octane	17	<i>o</i> -Xylene	3
<i>n</i> -Decane	12	1,2,4-Trimethylbenzene	3
<i>n</i> -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

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

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	
<i>n</i> -Hexane	12	Ethylbenzene	3
<i>n</i> -Heptane	17	<i>m</i> -Xylene	3
<i>n</i> -Octane	17	<i>o</i> -Xylene	3
<i>n</i> -Decane	12	1,2,4-Trimethylbenzene	3
<i>n</i> -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.

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	
<i>n</i> -Hexane	12	Ethylbenzene	3
<i>n</i> -Heptane	17	<i>m</i> -Xylene	3
<i>n</i> -Octane	17	<i>o</i> -Xylene	3
<i>n</i> -Decane	12	1,2,4-Trimethylbenzene	3
<i>n</i> -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 Revision 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 Revision 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-d₈ 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

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		

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

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-piperazinecarboxamide] 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-piperazinecarboxamide] (2,6-TDIP)	D-5836-02-DER 2840 µg/mL in DMSO	
N,N'-1,6-Hexanediybis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-27-0 (1,6-HDIP)	D-5836-03-DER 2900 µg/mL in DMSO	
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 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 CH₂Cl₂

4 x 5 mL

Individual Derivatized Diisocyanates

N,N'-(4-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 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-piperazinecarboxamide] (2,6-TDIP)	D-5836-02A-DER 1000 µg/mL in DMSO
N,N'-1,6-Hexanediybis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-27-0 (1,6-HDIP)	D-5836-03A-DER 1000 µg/mL in DMSO
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 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**M-GRA-QC-10ML-PAK****SAVE****1 x 10 mL****5 x 10 mL**

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".

	Wt. Ratio		Wt. Ratio
<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1	13 Comp. Core Mix	100

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 Cat. No.	1 mL	35 µg/mL in MeOH Cat. No.	1 mL	1000 µg/mL in Hexane Cat. No.	1 mL
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

ASTM-P-0080-PAK

SAVE

1 x 1 mL

5 x 1 mL

33 comps.

	Wt./Wt. %		Wt./Wt. %
Cyclopentane	1.5	Benzene	2.5
<i>n</i> -Pentane	1.5	Toluene	2.5
Cyclohexane	2.0	<i>trans</i> -Decahydronaphthelene	3.5
2,3-Dimethylbutane	2.0	<i>n</i> -Tetradecane	2.0
<i>n</i> -Hexane	2.0	Ethylbenzene	3.5
1-Hexene	1.5	<i>o</i> -Xylene	3.0
Methylcyclohexane	3.5	<i>n</i> -Propylbenzene	3.5
4-Methyl-1-hexene	1.5	1,2,4-Trimethylbenzene	3.0
<i>n</i> -Heptane	3.0	1,2,3-Trimethylbenzene	2.0
<i>cis</i> -1,2-Dimethylcyclohexane	4.5	1,2,4,5-Tetramethylbenzene	2.0
Isooctane	4.0	Pentamethylbenzene	2.5
<i>n</i> -Octane	4.0	Ethanol	5.0
1,2,4-Trimethylcyclohexane	3.5	<i>t</i> -Butanol	4.0
<i>n</i> -Nonane	3.0	MtBE	8.0
<i>n</i> -Decane	3.5	ETBE	3.0
<i>n</i> -Undecane	2.0	TAME	5.0
<i>n</i> -Dodecane	2.0		

O-PONA Olefin Mix

ASTM-P-0081

ASTM-P-0081-PAK

At stated conc. in Hexane:Heptane (50:50)
5 comps.

1 x 1 mL

5 x 1 mL

	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

ASTM-P-0082-PAK

At stated conc. in Hexane:Heptane (50:50)
2 comps.

1 x 1 mL

5 x 1 mL

	Wt./Wt. %
<i>n</i> -Nonane	5.0
<i>n</i> -Decane	2.0

	Wt./Wt. %
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.
<i>n</i> -Nonane	3.0
<i>n</i> -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 700°C by GC

Polywax 500®

ASTM-P-0051N-2G		2 grams
		Polywax 500

Polywax 850®

ASTM-P-0137N-2G		2 grams
		Polywax 850

Polywax 655®

ASTM-P-0053N-2G		2 grams
		Polywax 655

Polywax 1000®

ASTM-P-0138N-2G		2 grams
		Polywax 1000

Hydrocarbon Window Defining Standard

DRH-008S-R2		1 x 1 mL
DRH-008S-R2-PAK	SAVE	5 x 1 mL
		35 comps.

Octane	Nonadecane	Triacontane
Nonane	Phytane	<i>n</i> -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	

Calibration Mix

DRH-002N		100 mg
DRH-002N-10X		1 gm
		17 comps.

	Wt. %		Wt. %
<i>n</i> -Hexane	6	<i>n</i> -Octadecane	5
<i>n</i> -Heptane	6	<i>n</i> -Eicosane	2
<i>n</i> -Octane	8	<i>n</i> -Tetracosane	2
<i>n</i> -Nonane	8	<i>n</i> -Octacosane	1
<i>n</i> -Decane	12	<i>n</i> -Dotriacontane	1
<i>n</i> -Undecane	12	<i>n</i> -Hexatriacontane	1
<i>n</i> -Dodecane	12	<i>n</i> -Tetracontane	1
<i>n</i> -Tetradecane	12	<i>n</i> -Tetraetracontane	1
<i>n</i> -Hexadecane	10		

Column Test Mixture

D-2887		1 x 1 mL
		2 comps.
	1% w/v in <i>n</i> -Octane	
<i>n</i> -Hexadecane		<i>n</i> -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		
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		
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. %			
	Wt. %	Wt. %	Wt. %
1-Nonene	2.5	2-Methyl-1,3-butadiene	5
Cyclohexene	5	4-Methyl-1-pentene	5
1-Hexene	5	1,5-Hexadiene	3
1-Octene	5	3-Methyl-1,3-pentadiene	2
1-Decene	5	2-Methyl-1-butene	25
		2-Methyl-2-pentene	10
		1-Heptene	10
		2-Methyl-1-octene	2.5
		2-Methyl-1-heptene	5
		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 ₂ Cl ₂	BF-FU-030-D	/ 2 mL
	20 mg/mL	CH ₂ Cl ₂	BF-FU-030-D-40X	/ 2 mL
Biofuel 100 Consumer grade	0.5 mg/mL	CH ₂ Cl ₂	BF-FU-029-D	/ 2 mL
	20 mg/mL	CH ₂ Cl ₂	BF-FU-029-40X	/ 2 mL
Biofuel 100	0.5 mg/mL	CH ₂ Cl ₂	BF-FU-032-D	/ 2 mL
	20 mg/mL	CH ₂ Cl ₂	BF-FU-032-D-40X	/ 2 mL

ASTM D6584 Mixture

BF-D-6584-MIX *	1 x 5 mL
<i>At stated conc. in Pyridine</i>	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



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
<i>o</i> -Xylene	5.0
Dibenzothiophene	0.5
9-Methylantracene	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
<i>o</i> -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 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	

Sulfur in Biodiesel 20%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
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.

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 nominal values and the actual value will be recorded on the certificate.



UOP (Universal Oil Products) methods were developed to facilitate the refining industry in analyzing refinery feeds, products and process streams for composition, purity and physical and chemical properties. In addition 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



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Skinner List for Refinery Waste

Semi-Volatiles

Base/Neutral Extractables

M-005B		1 x 1 mL
M-005B-PAK	SAVE	5 x 1 mL
<i>0.2 mg/mL each in CH₂Cl₂</i>		
M-005B-10X		1 x 1 mL
M-005B-10X-PAK	SAVE	5 x 1 mL
<i>2.0 mg/mL each in CH₂Cl₂</i>		
Anthracene	7,12-Dimethylbenz[a]anthracene	
Benzo[a]anthracene	Dimethyl phthalate	
Benzo[b]fluoranthene	Di- <i>n</i> -butyl phthalate	
Benzo[k]fluoranthene	Di- <i>n</i> -octyl phthalate	
Benzo[a]pyrene	Indene	
bis(2-Ethylhexyl)phthalate	Fluoranthene	
Butyl benzyl phthalate	6-Methylchrysene	
Chrysene	1-Methylnaphthalene	
Dibenz[a,h]acridine	Naphthalene	
Dibenz[a,h]anthracene	Phenanthrene	
<i>o</i> -Dichlorobenzene	Pyrene	
<i>m</i> -Dichlorobenzene	Pyridine	
<i>p</i> -Dichlorobenzene	Quinoline	
Diethyl phthalate		

Acid Extractables

M-005A		1 x 1 mL
M-005A-PAK	SAVE	5 x 1 mL
<i>0.2 mg/mL each in CH₂Cl₂</i>		
M-005A-10X		1 x 1 mL
M-005A-10X-PAK	SAVE	5 x 1 mL
<i>2.0 mg/mL each in CH₂Cl₂</i>		
<i>o</i> -Cresol	2,4-Dinitrophenol	
<i>m</i> -Cresol	4-Nitrophenol	
<i>p</i> -Cresol	Phenol	
2,4-Dimethylphenol	Thiophenol	

Volatiles

M-005V		1 x 1 mL
M-005V-PAK	SAVE	5 x 1 mL
<i>0.2 mg/mL each in MeOH</i>		
M-005V-10X		1 x 1 mL
M-005V-10X-PAK	SAVE	5 x 1 mL
<i>2.0 mg/mL each in MeOH</i>		
Benzene	Ethylene dibromide	
Carbon disulfide	Methyl ethyl ketone	
Chlorobenzene	Styrene	
Chloroform	Toluene	
1,2-Dichloroethane	<i>o</i> -Xylene	
1,4-Dioxane	<i>m</i> -Xylene	
Ethyl benzene	<i>p</i> -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
<i>2.0 mg/mL each in CH₂Cl₂</i>		
Decane	Hexadecane	Tetradecane
Dodecane	Hexane	Toluene
Eicosane	Octadecane	1,2,4-Trimethylbenzene
2-Ethyltoluene	Octane	<i>p</i> -Xylene
3-Ethyltoluene		

ASTM E1618 Test Mix for Fire Debris Analysis

ASTM-E1618		1 x 1 mL
ASTM-E1618-PAK	SAVE	5 x 1 mL
<i>0.05% v/v (0.50 µL/mL) each in CH₂Cl₂</i>		
<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Tetradecane
<i>n</i> -Dodecane	<i>n</i> -Hexane	Toluene
<i>n</i> -Eicosane	<i>n</i> -Octadecane	1,2,4-Trimethylbenzene
<i>o</i> -Ethyltoluene	<i>n</i> -Octane	<i>p</i> -Xylene
<i>m</i> -Ethyltoluene		

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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 ₂ Cl ₂	BF-FU-030-D	2 mL
	20	mg/mL	CH ₂ Cl ₂	BF-FU-030-D-40X	2 mL
Biofuel 100 Consumer grade	0.5	mg/mL	CH ₂ Cl ₂	BF-FU-029-D	2 mL
	20	mg/mL	CH ₂ Cl ₂	BF-FU-029-40X	2 mL
Biofuel 100	0.5	mg/mL	CH ₂ Cl ₂	BF-FU-032-D	2 mL
	20	mg/mL	CH ₂ Cl 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
Triolein	5 mg/mL
Triolein (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



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.

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.

Percent Methanol Calibration Standard Set (EN 14110)

BF-MEOH-SET	5 x 1 mL
BF-MEOH-1X (100 µg/g)	BF-MEOH-25X (2500 µg/g)
BF-MEOH-5X (500 µg/g)	BF-MEOH-50X (5000 µg/g)
BF-MEOH-10X (1000 µg/g)	
Methanol in Water	

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 Eruate	5% Wt.
18:2 Linoleate	12% Wt.
18:3 Linolenate	5% Wt.
20:1 Eicosenoate	1% 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.

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 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 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 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.

Compound	Neat (100 mg)		Solution (10 mg/mL in Hexane)	
	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 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	

Sulfur in Biodiesel 20%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
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

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 nominal 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) Na (Sodium)
 K (Potassium) P (Phosphorus)
 Mg (Magnesium)

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



Ethanol Impurities Solution A

EN-15721-A 1 mL
 1% w/w each in Ethanol 10 comps.

Methanol 2-Butanol
 Acetaldehyde 1-Butanol
 3-Methyl-1-butanol 1-Propanol
 2-Methyl-1-butanol Ethyl acetate
 2-Methyl-1-propanol 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	Compound	Conc.	Matrix	Cat. No.	1 mL	
5-alpha Androstane 438-22-2	1 mg/mL	CH ₂ Cl ₂	GRH-IS		Gasoline Regular, unleaded	0.5 mg/mL	MeOH	GA-001		
	10 mg/mL	CH ₂ Cl ₂	GRH-IS-10X			5 mg/mL	MeOH	GA-001-10X		
Aviation (gas) (grade 100-LL)	0.5 mg/mL	MeOH	GA-004			20 mg/mL	MeOH	GA-001-40X		
	20 mg/mL	MeOH	GA-004-40X		20 mg/mL	CH ₂ Cl ₂	GA-001-D-40X			
Biodiesel 20	0.5 mg/mL	CH ₂ Cl ₂	FU-030-D		Gasoline Premium	0.5 mg/mL	MeOH	GA-003		
	20 mg/mL	CH ₂ Cl ₂	FU-030-D-40X		20 mg/mL	MeOH	GA-003-40X			
Biodiesel 100	0.5 mg/mL	CH ₂ Cl ₂	FU-029-D		Hydraulic Fluid 64742-54-7	0.5 mg/mL	Hexane	FU-020-H		
	20 mg/mL	CH ₂ Cl ₂	FU-029-D-40X			20 mg/mL	CH ₂ Cl ₂	GA-003-D-40X		
Biodiesel 100 (refinery grade)	0.5 mg/mL	CH ₂ Cl ₂	FU-032-D			20 mg/mL	Hexane	FU-020-H-40X		
	20 mg/mL	CH ₂ Cl ₂	FU-032-D-40X		20 mg/mL	CH ₂ Cl ₂	FU-020-D-40X			
p-Bromofluorobenzene 460-00-4	2.5 mg/mL	Acetone	GARH-SS		Jet Reference Fuel Type I	0.5 mg/mL	MeOH	FU-011		
1-Chloro-4-fluorobenzene 352-33-0	2 mg/mL	MeOH	AK-101.0-IS-10X		20 mg/mL	MeOH	FU-011-40X			
					20 mg/mL	CH ₂ Cl ₂	FU-011-D-40X			
1-Chlorooctadecane 3386-33-2	1 mg/mL	Hexane	DRH-007-SS		JP-4 Jet Fuel (weathered)	0.5 mg/mL	MeOH	FU-010		
					20 mg/mL	MeOH	FU-010-40X			
1-Chloro-4-fluorobenzene 352-33-0	1 mg/mL	CH ₂ Cl ₂	GARH-IS		20 mg/mL	CH ₂ Cl ₂	FU-010-D-40X			
2,5-Dibromotoluene 615-59-8	50 µg/mL	MeOH	GRH-004-SS		JP-5 Fuel	0.5 mg/mL	MeOH	FU-012		
	500 µg/mL	MeOH	GRH-004-SS-10X		20 mg/mL	MeOH	FU-012-40X			
	5 mg/mL	MeOH	GRH-004-SS-100X		20 mg/mL	CH ₂ Cl ₂	FU-012-D-40X			
Diesel	0.5 mg/mL	MeOH	FU-009		JP-7 Fuel	0.5 mg/mL	MeOH	FU-014		
	5 mg/mL	CH ₂ Cl ₂	FU-009-D-10X		20 mg/mL	MeOH	FU-014-40X			
	20 mg/mL	MeOH	FU-009-40X		20 mg/mL	CH ₂ Cl ₂	FU-014-D-40X			
	20 mg/mL	CH ₂ Cl ₂	FU-009-D-40X		JP-8 Fuel	0.5 mg/mL	MeOH	FU-015		
#1 Diesel - Low Sulfur	0.5 mg/mL	MeOH	FU-013		20 mg/mL	MeOH	FU-015-40X			
	20 mg/mL	MeOH	FU-013-40X		20 mg/mL	CH ₂ Cl ₂	FU-015-D-40X			
	20 mg/mL	CH ₂ Cl ₂	FU-013-D-40X		JP-TS Aviation Fuel 64742-47-8	0.5 mg/mL	MeOH	FU-016		
#2 Diesel 68334-30-5	50 mg/mL	Acetone	AK-102-LCS-R1-10X		20 mg/mL	MeOH	FU-016-40X			
					20 mg/mL	CH ₂ Cl ₂	FU-016-D-40X			
#2 Diesel (Extra Low Sulfur) 68476-43-6	0.5 mg/mL	MeOH	FU-017		JP-10 Aviation Fuel 2825-82-3	0.5 mg/mL	MeOH	FU-022		
	5 mg/mL	CH ₂ Cl ₂	FU-017-D-10X		20 mg/mL	MeOH	FU-022-40X			
	5 mg/mL	Acetone	AK-102.0-LCS-10X		20 mg/mL	CH ₂ Cl ₂	FU-022-D-40X			
	50 mg/mL	Acetone	AK-102.0-LCS-10X		Kerosene 25% Weathered	5 mg/mL	CH ₂ Cl ₂	FK-W25-10X		
	20 mg/mL	MeOH	FU-017-40X		Kerosene 50% Weathered	5 mg/mL	CH ₂ Cl ₂	FK-W50-10X		
	20 mg/mL	CH ₂ Cl ₂	FU-017-D-40X		Kerosene 75% Weathered	5 mg/mL	CH ₂ Cl ₂	FK-W75-10X		
#2 Diesel (Low Sulfur) 25% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W25-10X		Kerosene 8008-20-6	0.5 mg/mL	MeOH	FU-005		
#2 Diesel (Low Sulfur) 50% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W50-10X		20 mg/mL	MeOH	FU-005-40X			
#2 Diesel (Low Sulfur) 75% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W75-10X		5 mg/mL	CH ₂ Cl ₂	FU-005-D-10X			
#2 Diesel 25% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W25-R1-10X		20 mg/mL	CH ₂ Cl ₂	FU-005-D-40X			
#2 Diesel 50% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W50-R1-10X		Lacquer Thinner	1 gram	Neat	HS-001N		
#2 Diesel 75% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W75-R1-10X		0.5 mg/mL	MeOH	HS-001S			
Docosane 629-97-0	50 % w/w	Toluene	D-5186-91-PM		20 mg/mL	MeOH	HS-001S-40X			
n-Dodecane 112-40-3	5 mg/mL	MeOH	AS-E0238		20 mg/mL	CH ₂ Cl ₂	HS-001S-D-40X			
	1.5 % w/w	Isocetane	M-GRA-SCS-AS		Mineral Spirits 8030-30-6	1 gram	Neat	HS-002N		
#1 Fuel oil 70892-10-3	0.5 mg/mL	MeOH	FU-001		0.5 mg/mL	MeOH	HS-002S			
	20 mg/mL	MeOH	FU-001-40X		20 mg/mL	MeOH	HS-002S-40X			
	20 mg/mL	CH ₂ Cl ₂	FU-001-D-40X		20 mg/mL	CH ₂ Cl ₂	HS-002S-D-40X			
#2 Fuel oil 68476-30-2	0.5 mg/mL	MeOH	FU-002		Naphtha 64742-89-8	1 gram	Neat	HS-003N		
	20 mg/mL	MeOH	FU-002-40X		0.5 mg/mL	MeOH	HS-003S			
	20 mg/mL	CH ₂ Cl ₂	FU-002-D-40X		20 mg/mL	MeOH	HS-003S-40X			
#3 Fuel oil	0.5 mg/mL	Hexane	FU-003		20 mg/mL	CH ₂ Cl ₂	HS-003S-D-40X			
	20 mg/mL	Hexane	FU-003-40X		Nonatriacontane 7194-86-7	750 µg/mL	Chloroform	DRH-FL-SS-R1		
	20 mg/mL	CH ₂ Cl ₂	FU-003-D-40X		1 mg/mL	CS ₂	DRH-FL-SS			
#4 Fuel oil 68476-31-3	0.5 mg/mL	Hexane	FU-004		3 mg/mL	CS ₂	DRH-FL-SS-3X			
	20 mg/mL	Hexane	FU-004-40X		n-Pentadecane 629-62-9	5 mg/mL	MeOH	AS-E0241		
	20 mg/mL	CH ₂ Cl ₂	FU-004-D-40X		RFA Gasoline (oxygenate-free)	0.5 mg/mL	MeOH	GA-005		
#6 Fuel Oil 68553-00-4	0.5 mg/mL	Hexane	FU-008		20 mg/mL	MeOH	GA-005-40X			
	20 mg/mL	Hexane	FU-008-40X		20 mg/mL	CH ₂ Cl ₂	GA-005-D-40X			
	20 mg/mL	CH ₂ Cl ₂	FU-008-D-40X		Regular Leaded Gasoline	0.5 mg/mL	MeOH	GA-002		
					20 mg/mL	MeOH	GA-002-40X			
					20 mg/mL	CH ₂ Cl 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	Compound	Conc.	Matrix	Cat. No.	1 mL	
SAE 5W30 Motor oil	0.5 mg/mL	Hexane	FU-025-H		o-Terphenyl 84-15-1	200 µg/mL	Acetone	AK-102.0-SS		
	20 mg/mL	Hexane	FU-025-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-025-D-40X							
SAE 10W30 Motor oil	0.5 mg/mL	Hexane	FU-026-H		n-Tetradecane 629-59-4	5 mg/mL	MeOH	AS-E0240		
	20 mg/mL	Hexane	FU-026-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-026-D-40X							
SAE 10W40 Motor oil	0.5 mg/mL	Hexane	FU-027-H		Tetracosane (5 mL) 646-31-1	500 µg/mL	CS ₂	D-5480-C40-5ML		
	20 mg/mL	Hexane	FU-027-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-027-D-40X							
SAE 20W50 Motor oil	0.5 mg/mL	Hexane	FU-028-H		n-Tridecane 629-50-5	5 mg/mL	MeOH	AS-E0239		
	20 mg/mL	Hexane	FU-028-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-028-D-40X							
SAE 30W Motor oil	0.5 mg/mL	Hexane	FU-018-H		1,2,3-Trimethylbenzene 526-73-8	1 mg/mL	CH ₂ Cl ₂	V-028S-D-10X		
	20 mg/mL	Hexane	FU-018-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-018-D-40X							
SAE 40W Motor oil	0.5 mg/mL	Hexane	FU-019-H		n-Triacontane-d ₆₂ 93952-07-9	500 µg/mL	Acetone	AK-103.0-SS		
	20 mg/mL	Hexane	FU-019-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-019-D-40X							
SAE 50W Motor oil	5 mg/mL	Acetone	AK-103.0-LCS		Turbine (Jet) fuel	0.5 mg/mL	MeOH	FU-006		
	20 mg/mL	Hexane	FU-019-H-40X							
	20 mg/mL	CH ₂ Cl ₂	FU-019-D-40X							
	25 mg/mL	Acetone:CH ₂ Cl ₂	AK-103.0-LCS-5X							
	20 mg/mL	CH ₂ Cl ₂	FU-021-D-40X							
Stoddard solvent 8052-41-3	1 gram	Neat	HS-005N		Turpentine 8006-64-2	1 gram	Neat	HS-004N		
	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 ₂ Cl ₂	HS-005S-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

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 ₂ Cl ₂	FU-009-D-40X
#1 Diesel (low sulfur)	20	CH ₂ Cl ₂	FU-013-D-40X
#2 Diesel (extra low sulfur)	20	CH ₂ Cl ₂	FU-017-D-40X
SAE 30W Motor oil	20	CH ₂ Cl ₂	FU-018-D-40X
SAE 40W Motor oil	20	CH ₂ Cl ₂	FU-019-D-40X
SAE 50W Motor oil	20	CH ₂ Cl ₂	FU-021-D-40X
Biodiesel 20	20	CH ₂ Cl ₂	FU-030-D-40X
Biodiesel 100 (consumer grade)	20	CH ₂ Cl 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 ₂ Cl ₂	FU-001-D-40X
#2 Fuel oil	20	CH ₂ Cl ₂	FU-002-D-40X
#3 Fuel oil	20	CH ₂ Cl ₂	FU-003-D-40X
#4 Fuel oil	20	CH ₂ Cl ₂	FU-004-D-40X
#6 Fuel oil	20	CH ₂ Cl ₂	FU-008-D-40X
Kerosene	20	CH ₂ Cl 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 ₂ Cl ₂	GA-004-D-40X
JP-4 Fuel (weathered)	20	CH ₂ Cl ₂	FU-010-D-40X
JP-5 Fuel	20	CH ₂ Cl ₂	FU-012-D-40X
JP-7 Fuel	20	CH ₂ Cl ₂	FU-014-D-40X
JP-8 Fuel	20	CH ₂ Cl ₂	FU-015-D-40X
JP-10 Fuel (Cruise Missile)	20	CH ₂ Cl ₂	FU-022-D-40X
JP-TS	20	CH ₂ Cl ₂	FU-016-D-40X
Jet Fuel (type 1)	20	CH ₂ Cl ₂	FU-011-D-40X
Turbine (Jet A) Fuel	20	CH ₂ Cl ₂	FU-006-D-40X
Hydraulic oil	20	CH ₂ Cl 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 ₂ Cl ₂	HS-001S-D-40X
Mineral Spirits	20	CH ₂ Cl ₂	HS-002S-D-40X
Naphtha	20	CH ₂ Cl ₂	HS-003S-D-40X
Turpentine	20	CH ₂ Cl ₂	HS-004S-D-40X
Stoddard solvent	20	CH ₂ Cl 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 ₂ Cl 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 ₂ Cl 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 ₂ Cl 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 ₂ Cl ₂	FU-028-D-40X
Composite Standard	20.0	CH ₂ Cl ₂	MO-COMP-D-40X



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 ₂ Cl 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 ₂ Cl 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 ₂ Cl 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.

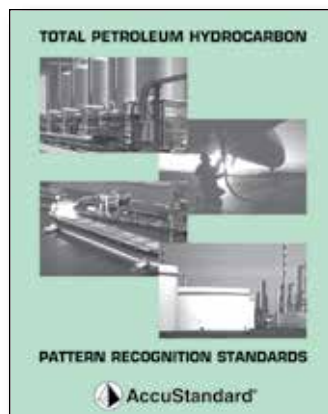
Total Petroleum Hydrocarbon Pattern Recognition Standards

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

At stated conc. ($\mu\text{g/mL}$) in MeOH

	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

At stated conc. ($\mu\text{g/mL}$) in n-Hexane

	CCME-MHPF-0.1X	CCME-MHPF-0.5X	CCME-MHPF
n-Decane	40	200	400
n-Hexadecane	40	200	400
n-Tetracontane	40	200	400

Performance Check Standard

CCME-QC

1 x 1 mL

CCME-QC-PAK SAVE

5 x 1 mL

At 40 $\mu\text{g/mL}$ each in n-Hexane:Cyclohexane

2 comps.

n-Pentacontane
n-Tetracontane

Hydrocarbon Standard

D-5442-R1

100 $\mu\text{g/mL}$ each in Cyclohexane

1 x 1 mL

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-Tetracontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane
n-Tetracontane
n-Pentacontane

Spike Standard

CCME-SPIKE

1 x 1 mL

At 2500 $\mu\text{g/mL}$ each in n-Hexane

2 comps.

SAE 30W Motor Oil - Non-Detergent Formula
#2 Diesel - 50% Weathered

Canadian Atlantic RBCA EPH Mix

CCME-EPH

1 x 1 mL

1000 $\mu\text{g/mL}$ each in Hexane: CH_2Cl_2 85:15

11 comps.

Acenaphthene
Anthracene
Benzo[a]pyrene
Chrysene
n-Decane
n-Dodecane
n-Dotriacontane
n-Heneicosane
n-Hexadecane
n-Octacosane
Naphthalene

Surrogate Standard

CCME-EPH/SS

1 x 1 mL

1000 $\mu\text{g/mL}$ each in CH_2Cl_2

2 comps.

n-Dotriacontane
Isobutylbenzene

Canadian Atlantic RBCA VPH Mix

CCME-VPH

1 x 1 mL

1000 $\mu\text{g/mL}$ 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 $\mu\text{g/mL}$ in MeOH

Isobutylbenzene

ISO/DIS 9377 Hydrocarbon Oil Index

Diesel #2/Mineral Oil Standard

ENISO9377-2-1

1 x 1 mL

10000 $\mu\text{g/mL}$ total hydrocarbons in Hexane

2 comps.

#2 Diesel (5000 $\mu\text{g/mL}$)
Mineral Oil (5000 $\mu\text{g/mL}$)

Extraction Solvent Stock Soln.

ENISO9377-2-3

1 x 5 mL

At stated conc. in Hexane

2 comps.

n-Decane (20 $\mu\text{g/L}$)
n-Tetracontane (20 mg/L)

Quality Control Standard Mix

ISO/DIS9377-4-1

1 x 1 mL

1000 $\mu\text{g/mL}$ total hydrocarbons in Acetone

2 comps.

#2 Diesel (500 $\mu\text{g/mL}$)
Mineral Oil (500 $\mu\text{g/mL}$)

Stearyl Stearate Test Solution

ISO/DIS9377-4-2

1 x 10 mL

2000 $\mu\text{g/mL}$ in Cyclohexane

Stearyl stearate

Florasil Cartridge QC Std. Mix

ENISO9377-2-4

1 x 10 mL

2000 $\mu\text{g/mL}$ total hydrocarbons in Hexane

2 comps.

#2 Diesel (1000 $\mu\text{g/mL}$)
Mineral Oil (1000 $\mu\text{g/mL}$)

System Performance Standard of n-alkanes

ENISO9377-2-2

1 x 1 mL

50 $\mu\text{g/mL}$ 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-Tetracontane
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 $\mu\text{g/mL}$ 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

Multi-State LUFT/LUST (UST)

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
DRH-008S-R2-PAK
500 µg/mL each in Chloroform

SAVE

1 x 1 mL
5 x 1 mL
35 comps.

Technical Note

We offer a hydrocarbon window defining standard with the C₈ to C₄₀ 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 C₁₇ (Pristane) and C₁₈ (Phytane) ratio be used to estimate subsurface degradation of fuel oil spills.

Octane	Heptadecane	Tetracosane	Tritriacontane
Nonane	Pristane	Pentacosane	Tetraatriacontane
Decane	Octadecane	Hexacosane	Pentatriacontane
Undecane	Phytane	Heptacosane	Hexatriacontane
Dodecane	Nonadecane	Octacosane	Heptatriacontane
Tridecane	Eicosane	Nonacosane	Octatriacontane
Tetradecane	Heneicosane	Triacosane	Nonatriacontane
Pentadecane	Docosane	n-Hentriacontane	Tetracontane
Hexadecane	Tricosane	Dotriacontane	



LUFT/LUST Standards

Arizona / California Methods

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 ₂ Cl ₂		
<i>n</i> -Decane	<i>n</i> -Hexadecane	
<i>n</i> -Dodecane	<i>n</i> -Octacosane	
<i>n</i> -Docosane	<i>n</i> -Octadecane	
<i>n</i> -Dotriacontane	<i>n</i> -Tetracosane	
<i>n</i> -Eicosane	<i>n</i> -Tetradecane	
<i>n</i> -Hexacosane	<i>n</i> -Triacontane	

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 ₂ Cl ₂		
<i>n</i> -Decane	<i>n</i> -Dotriacontane	
<i>n</i> -Docosane		

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		
<i>o</i> -Terphenyl		

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 ₂ Cl ₂		
#2 Diesel	10W 30 Motor Oil	2 comps.

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		
Benzene	<i>o</i> -Xylene	
Ethylbenzene	<i>m</i> -Xylene	
Methyl t-butyl ether	<i>p</i> -Xylene	
Toluene		

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		
Benzene	Toluene	
Chlorobenzene	<i>o</i> -Xylene	
1,2-Dichlorobenzene	<i>p</i> -Xylene	
1,3-Dichlorobenzene	<i>m</i> -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		
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	

Method 1004 Carbonyl Compounds as DNP Derivatives by HPLC

M-1004	1 x 1 mL
At stated conc. in AcCN	
M-1004-10X	1 x 1 mL
At 10 times the stated conc. in AcCN	

Carbonyl Compound	DNP Derivative
Acetaldehyde	(15.3 µg/mL)
Acetone	(12.3 µg/mL)
Acrolein	(12.7 µg/mL)
Benzaldehyde	(8.1 µg/mL)
2-Butanone (MEK)	(10.5 µg/mL)
<i>n</i> -Butyraldehyde	(10.5 µg/mL)
Crotonaldehyde	(10.7 µg/mL)
Formaldehyde	(21.0 µg/mL)
Hexanal	(8.4 µg/mL)
Methacrolein	(10.7 µg/mL)
Propionaldehyde	(12.3 µg/mL)
<i>m</i> -Tolualdehyde	(7.5 µg/mL)
Valeraldehyde	(9.3 µg/mL)

CAR-DNPH

At stated conc. in AcCN as DNP derivatives				1 x 1 mL
				7 comps.
Acetaldehyde	(1000 µg/mL)	Butyraldehyde	(500 µg/mL)	
Acetone	(500 µg/mL)	Formaldehyde	(1500 µg/mL)	
Acrolein	(500 µg/mL)	Propionaldehyde	(500 µg/mL)	
Benzaldehyde	(500 µg/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 DNP 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 5 x 1 mL
 1000 µg/mL in CH₂Cl₂ 15 comps. **SAVE**

<i>n</i> -Nonane	<i>n</i> -Tetracosane
<i>n</i> -Decane	<i>n</i> -Hexacosane
<i>n</i> -Dodecane	<i>n</i> -Octacosane
<i>n</i> -Tetradecane	<i>n</i> -Triacosane
<i>n</i> -Hexadecane	<i>n</i> -Dotriacontane
<i>n</i> -Octadecane	<i>n</i> -Tetraatriacontane
<i>n</i> -Eicosane	<i>n</i> -Hexatriacontane
<i>n</i> -Docosane	

Internal Standard

GRH-IS 1 x 1 mL
 GRH-IS-PAK 5 x 1 mL
 1.0 mg/mL in CH₂Cl₂ **SAVE**
 5- α Androstane

Surrogate Standard

GRH-SS 1 x 1 mL
 GRH-SS-PAK 5 x 1 mL
 2.0 mg/mL in Acetone **SAVE**
o-Terphenyl (OTP)

Mississippi Method

DRO Defining Mix

DRO-AK-102-NAS-10X 1 x 1 mL
 DRO-AK-102-NAS-10X-PAK 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂ 16 comps. **SAVE**

<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane
<i>n</i> -Pentadecane		

New Jersey Method

DEP (NJ) Aliphatic Hydrocarbon Standard

DRH-NJ-001S 1 x 1 mL
 1.0 mg/mL each in Hexane 20 comps.

<i>n</i> -Nonane	<i>n</i> -Heneicosane	<i>n</i> -Tetraatriacontane
<i>n</i> -Decane	<i>n</i> -Docosane	<i>n</i> -Hexatriacontane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane	<i>n</i> -Octatriacontane
<i>n</i> -Tetradecane	<i>n</i> -Hexacosane	<i>n</i> -Tetracontane
<i>n</i> -Hexadecane	<i>n</i> -Octacosane	Naphthalene
<i>n</i> -Octadecane	<i>n</i> -Triacosane	2-Methylnaphthalene
<i>n</i> -Eicosane	<i>n</i> -Dotriacontane	

DEP (NJ) Aromatic Hydrocarbon Standard

DRH-NJ-002S 1 x 1 mL
 2.0 mg/mL each in CH₂Cl₂ 18 comps.

Acenaphthene	Benzo(g,h,i)perylene	Indeno(1,2,3-cd)pyrene
Acenaphthylene	Benzo(k)fluoranthene	2-Methylnaphthalene
Anthracene	Chrysene	Naphthalene
Benzo(a)anthracene	Dibenz(a,h)anthracene	Phenanthrene
Benzo(a)pyrene	Fluoranthene	Pyrene
Benzo(b)fluoranthene	Fluorene	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 5 x 1 mL
 2000 µg/mL each in CH₂Cl₂ 5 comps. **SAVE**

Benz[a]anthracene	Naphthalene
Benzo[a]pyrene	Phenanthrene
Fluorene	

PA Volatile Petroleum Standard

GRH-PA-001 1 x 1 mL
 GRH-PA-001-PAK 5 x 1 mL
 At stated conc. in MeOH 9 comps. **SAVE**

Benzene (1000 µg/mL)	<i>o</i> -Xylene (1000 µg/mL)
Ethylbenzene (1000 µg/mL)	<i>m</i> -Xylene (1000 µg/mL)
MtBE (2000 µg/mL)	<i>p</i> -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 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂ 16 comps. **SAVE**

<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane
<i>n</i> -Pentadecane		

Wisconsin Method

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S 1 x 1 mL
 GRH-003S-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 10 comps. **SAVE**

Benzene	Toluene	<i>o</i> -Xylene
Ethylbenzene	1,2,4-Trimethylbenzene	<i>m</i> -Xylene
MtBE	1,3,5-Trimethylbenzene	<i>p</i> -Xylene
Naphthalene		

CT, MS, NJ, PA, TN, WI LUFT/LUST



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		
<i>n</i> -Hexane	<i>n</i> -Octane	<i>n</i> -Decane
<i>n</i> -Heptane	<i>n</i> -Nonane	

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		
<i>p</i> -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		
Benzene	<i>o</i> -Xylene	<i>m</i> -Ethyltoluene
Toluene	1,2,3-Trimethylbenzene	<i>p</i> -Ethyltoluene
Ethylbenzene	1,2,4-Trimethylbenzene	<i>o</i> -Ethyltoluene
<i>m</i> -Xylene	1,3,5-Trimethylbenzene	<i>n</i> -Propylbenzene
<i>p</i> -Xylene	Isopropylbenzene	

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		
	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		
	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 ₂ Cl 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 ₂ Cl ₂		

	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 ₂ Cl ₂		

	Wt. Vol.		Wt. Vol.
Diesel Fuel (Arctic)	16.6 mg/mL	#2 Diesel	16.7 mg/mL
#1 Diesel (Low Sulfur)	16.7 mg/mL	(Conventional)	

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)

LUFT/LUST Standards

Alaska DRO/RRO Methods



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 ₂ Cl ₂		
16 comps.		
<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane
<i>n</i> -Pentadecane		

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 ₂ Cl 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 ₂ Cl ₂		
10 comps.		
<i>n</i> -Undecane	<i>n</i> -Tetracosane	Fluorene
<i>n</i> -Pentadecane	Naphthalene	Pyrene
<i>n</i> -Heptadecane	Acenaphthene	Anthracene
<i>n</i> -Octadecane		

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 ₂ Cl ₂		
3 comps.		
Squalane		5,6,7,8-Tetrahydro-1-naphthol
o-Terphenyl		

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 ₂ Cl ₂		
3 comps.		
<i>n</i> -Decane		<i>n</i> -Hexatriacontane
<i>n</i> -Pentacosane		

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 ₂ Cl ₂		
3 comps.		
SAE 30W Motor oil (1.66 mg)	SAE 50W Motor Oil (1.67 mg)	
SAE 40W 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 ₂ Cl ₂		
3 comps.		
SAE 30W Motor oil (16.6 mg)	SAE 50W Motor Oil (16.7 mg)	
SAE 40W 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 ₂ Cl 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)		
<i>n</i> -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 ₂ Cl ₂		
9 comps.		
<i>n</i> -Hexacosane	Benzo[b]fluoranthene	
<i>n</i> -Octacosane	Benzo[a]pyrene	
<i>n</i> -Triacontane	Benzo[g,h,i]perylene	
<i>n</i> -Dotriacontane	Dibenz[a,h]anthracene	
<i>n</i> -Tetracontane		

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 ₂ Cl ₂		
3 comps.		
Squalane		5,6,7,8-Tetrahydro-1-naphthol
o-Terphenyl		

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 ₂ Cl ₂		
3 comps.		
<i>n</i> -Decane		<i>n</i> -Hexatriacontane
<i>n</i> -Pentacosane		



LUFT/LUST Standards

Florida Methods

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					5 x 1 mL
1.0 mg/mL each in Chloroform					
Octane	C ₈	Eicosane	C ₂₀	Dotriacontane	C ₃₂
Decane	C ₁₀	Docosane	C ₂₂	Tetraatriacontane	C ₃₄
Dodecane	C ₁₂	Tetracosane	C ₂₄	Hexatriacontane	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					5 x 1 mL
500 µg/mL each in Hexane					
DRH-FTRPH-0.1X					1 x 1 mL
50 µg/mL each in Hexane					
<i>n</i> -Octane		<i>n</i> -Eicosane		<i>n</i> -Dotriacontane	
<i>n</i> -Decane		<i>n</i> -Docosane		<i>n</i> -Tetraatriacontane	
<i>n</i> -Dodecane		<i>n</i> -Tetracosane		<i>n</i> -Hexatriacontane	
<i>n</i> -Tetradecane		<i>n</i> -Hexacosane		<i>n</i> -Octatriacontane	
<i>n</i> -Hexadecane		<i>n</i> -Octacosane		<i>n</i> -Tetracontane	
<i>n</i> -Octadecane		<i>n</i> -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					5 x 1 mL
1.0 mg/mL in CH ₂ Cl ₂					
5-alpha Androstane					

Surrogate Standards

DRH-SS					1 x 1 mL
DRH-SS-PAK					5 x 1 mL
5.0 mg/mL in THF					
<i>n</i> -Triacontane-d ₃₂					

GRH-SS					1 x 1 mL
GRH-SS-PAK					5 x 1 mL
2.0 mg/mL in Acetone					
<i>o</i> -Terphenyl (OTP)					

FTRPH Surrogate Standard

DRH-FL-SS-3X					1 x 1 mL
DRH-FL-SS-3X-PAK					5 x 1 mL
3.0 mg/mL in Carbon disulfide					
DRH-FL-SS					1 x 1 mL
DRH-FL-SS-PAK					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					5 x 1 mL
5.0 mg/mL in Carbon disulfide					
Nonatriacontane			<i>o</i> -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					5 x 1 mL
At stated conc. in Carbon disulfide					
Nonatriacontane (6000 µg/mL)			<i>o</i> -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.

LUFT/LUST Standards

Massachusetts Methods - Ready-to-Inject Working Level EPH Standards



Massachusetts Method Determination of Extractable Petroleum Hydrocarbons (EPH)

Aromatic Hydrocarbons Calibration Set

DRH-006-CAL-SET

At stated conc. in CH₂Cl₂

5 x 1 mL
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

At stated conc. in CH₂Cl₂ : n-Hexane (1:1)

5 x 1 mL
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

DRH-MS-ASL-PAK

25 µg/mL each in Hexane

SAVE

1 x 1 mL
5 x 1 mL
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

DRH-MA-FSS-50X

DRH-MA-FSS-50X-PAK

40 µg/mL in Hexane

2.0 mg/mL in Hexane

2.0 mg/mL in Hexane

SAVE

1 x 10 mL
1 x 1 mL
5 x 1 mL
2 comps.

2-Fluorobiphenyl	2-Bromonaphthalene
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Aromatic Surrogate

DRH-006-SS

DRH-006-SS-PAK

1.0 mg/mL in CH₂Cl₂

SAVE

1 x 1 mL
5 x 1 mL

o-Terphenyl

DEP (MA) - Aromatic Hydrocarbons

DRH-006S

DRH-006S-PAK

1.0 mg/mL each in CH₂Cl₂

SAVE

1 x 1 mL
5 x 1 mL
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

DRH-007S-PAK

1.0 mg/mL each in CH₂Cl₂ : Hexane (1:1)

SAVE

1 x 1 mL
5 x 1 mL
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

DRH-007-SS-PAK

1.0 mg/mL in Hexane

SAVE

1 x 1 mL
5 x 1 mL

1-Chlorooctadecane

EPH Surrogate Spike

DRH-MA-SS

DRH-MA-SS-10X

DRH-MA-SS-100X

DRH-MA-SS-100X-PAK

20 µg/mL each in Acetone

200 µg/mL each in Acetone

2,000 µg/mL each in Acetone

2,000 µg/mL each in Acetone

SAVE

1 x 1 mL
1 x 1 mL
1 x 1 mL
5 x 1 mL
2 comps.

1-Chlorooctadecane

o-Terphenyl

EPH Matrix Spike

DRH-MA-MS

DRH-MA-MS-PAK

DRH-MA-MS-10X

DRH-MA-MS-10X-PAK

DRH-MA-MS-40X

DRH-MA-MS-40X-PAK

25 µg/mL in Acetone

25 µg/mL in Acetone

250 µg/mL in Acetone

250 µg/mL in Acetone

1,000 µg/mL in Acetone

1,000 µg/mL in Acetone

SAVE

SAVE

SAVE

SAVE

SAVE

1 x 1 mL
5 x 1 mL
1 x 1 mL
5 x 1 mL
1 x 1 mL
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

GRH-IS-PAK

GRH-IS-10X

1,000 µg/mL in CH₂Cl₂

1,000 µg/mL in CH₂Cl₂

10.0 mg/mL in CH₂Cl₂

SAVE

1 x 1 mL
5 x 1 mL
1 x 1 mL

5-alpha Androstane



LUFT/LUST Standards

Massachusetts Methods - Ready-to-Inject Working Level EPH Standards

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
<i>At stated conc. (mg/mL) in MeOH</i>			
Benzene (5.0)	<i>n</i> -Pentane (10.0)		13 comps.
Ethylbenzene (5.0)	Toluene (15.0)		
Isooctane (15.0)	1,2,4-Trimethylbenzene (10.0)		
2-Methylpentane (15.0)	<i>o</i> -Xylene (10.0)		
MtBE (15.0)	<i>m</i> -Xylene (10.0)		
Naphthalene (10.0)	<i>p</i> -Xylene (10.0)		
<i>n</i> -Nonane (10.0)			

DEP (MA)-VPH Surrogate Standard

GRH-004-SS		1 x 1 mL
GRH-004-SS-PAK	SAVE	5 x 1 mL
<i>50 µg/mL in MeOH</i>		
GRH-004-SS-10X		1 x 1 mL
GRH-004-SS-10X-PAK	SAVE	5 x 1 mL
<i>500 µg/mL in MeOH</i>		
GRH-004-SS-100X		1 x 1 mL
GRH-004-SS-100X-PAK	SAVE	5 x 1 mL
<i>5,000 µg/mL in MeOH</i>		
2,5-Dibromotoluene		

MA VPH Matrix Spike Mix with Surrogate

GRH-004-MS/SS		1 x 1 mL
<i>50 µg/mL each in MeOH</i>		
Benzene	Naphthalene	
<i>n</i> -Butylcyclohexane	<i>n</i> -Nonane	
<i>n</i> -Decane	<i>n</i> -Pentane	
2,5-dibromotoluene	Toluene	
Ethylbenzene	1,2,4-Trimethylbenzene	
2-Methylpentane	Isooctane	
MtBE	<i>m</i> -Xylene	

VPH Matrix Spike

GRH-004-MS		1 x 1 mL
GRH-004-MS-PAK	SAVE	5 x 1 mL
<i>50 µg/mL each in MeOH</i>		
GRH-004-MS-10X		1 x 1 mL
GRH-004-MS-10X-PAK	SAVE	5 x 1 mL
<i>500 µg/mL each in MeOH</i>		
GRH-004-MS-100X		1 x 1 mL
GRH-004-MS-100X-PAK	SAVE	5 x 1 mL
<i>5,000 µg/mL each in MeOH</i>		
Benzene	Toluene	
Ethylbenzene	<i>o</i> -Xylene	
MtBE	<i>m</i> -Xylene	
Naphthalene	<i>p</i> -Xylene	

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX	1 x 1 mL
<i>10.0 mg/mL in MeOH</i>	
Gasoline - Regular, unleaded	

Volatile Petroleum Hydrocarbons without Surrogate

GRH-004S-R1-10X		1 x 1 mL
<i>At stated conc. (mg/mL) in MeOH</i>		
Benzene (5.0)	Toluene (15.0)	
Ethylbenzene (5.0)	1,2,4-Trimethylbenzene (10.0)	
Isooctane (15.0)	<i>o</i> -Xylene (10.0)	
2-Methylpentane (15.0)	<i>m</i> -Xylene (10.0)	
MtBE (15.0)	<i>p</i> -Xylene (10.0)	
Naphthalene (10.0)	<i>n</i> -Butylcyclohexane (10.0)	
<i>n</i> -Nonane (10.0)	<i>n</i> -Decane (10.0)	
<i>n</i> -Pentane (10.0)		

GRH-004S-R2

GRH-004S-R2		1 x 1 mL
<i>10 mg/mL each in MeOH</i>		
Benzene	Toluene	
Ethylbenzene	1,2,4-Trimethylbenzene	
Isooctane	<i>o</i> -Xylene	
2-Methylpentane	<i>m</i> -Xylene	
MtBE	<i>p</i> -Xylene	
Naphthalene	<i>n</i> -Butylcyclohexane	
<i>n</i> -Nonane	<i>n</i> -Decane	
<i>n</i> -Pentane		

Volatile Petroleum Hydrocarbons with Surrogate

GRH-004S/SS		1 x 1 mL
GRH-004S/SS-PAK	SAVE	5 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>		
Benzene (500)	<i>n</i> -Nonane (1,000)	
2,5-Dibromotoluene (Surrogate)(1,000)	<i>n</i> -Pentane (1,000)	
Ethylbenzene (500)	Toluene (1,500)	
Isooctane (1,500)	1,2,4-Trimethylbenzene (1,000)	
2-Methylpentane (1,500)	<i>o</i> -Xylene (1,000)	
MtBE (1,500)	<i>m</i> -Xylene (1,000)	
Naphthalene (1,000)	<i>p</i> -Xylene (1,000)	

GRH-004S/SS-R1

GRH-004S/SS-R1		1 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>		
Benzene (500)	<i>n</i> -Pentane (1,000)	
2,5-Dibromotoluene (Surrogate)(1,000)	Toluene (1,500)	
Ethylbenzene (500)	1,2,4-Trimethylbenzene (1,000)	
Isooctane (1,500)	<i>o</i> -Xylene (1,000)	
2-Methylpentane (1,500)	<i>m</i> -Xylene (1,000)	
MtBE (1,500)	<i>p</i> -Xylene (1,000)	
Naphthalene (1,000)	<i>n</i> -Butylcyclohexane (1,000)	
<i>n</i> -Nonane (1,000)	<i>n</i> -Decane (1,000)	

GRH-004S/SS-R2

GRH-004S/SS-R2		1 x 1 mL
<i>10.0 mg/mL each in MeOH</i>		
Benzene	<i>n</i> -Pentane	
2,5-Dibromotoluene (Surrogate)	Toluene	
Ethylbenzene	1,2,4-Trimethylbenzene	
Isooctane	<i>o</i> -Xylene	
2-Methylpentane	<i>m</i> -Xylene	
MtBE	<i>p</i> -Xylene	
Naphthalene	<i>n</i> -Butylcyclohexane	
<i>n</i> -Nonane	<i>n</i> -Decane	

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.



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			5 x 1 mL
2000 µg/mL each in <i>n</i> -Pentane			12 comps.
<i>n</i> -Hexane	<i>n</i> -Tetradecane	<i>n</i> -Docosane	
<i>n</i> -Octane	<i>n</i> -Hexadecane	<i>n</i> -Tetracosane	
<i>n</i> -Decane	<i>n</i> -Octadecane	<i>n</i> -Hexacosane	
<i>n</i> -Dodecane	<i>n</i> -Eicosane	<i>n</i> -Octacosane	

Gasoline & Diesel Calibration Curve Set

DRH-TX-002-D-SET			8 x 1 mL
Each at stated conc. in CH ₂ Cl 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 ₂ Cl 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			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			5 x 1 mL
20,000 µg/mL each in CH ₂ Cl 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			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			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			5 x 1 mL
2000 µg/mL each in Pentane			9 comps.
<i>n</i> -Decane	<i>n</i> -Heptane	<i>n</i> -Octacosane	
<i>n</i> -Dodecane	<i>n</i> -Hexadecane	<i>n</i> -Octane	
<i>n</i> -Heneicosane	<i>n</i> -Hexane	<i>n</i> -Pentatriacontane	

Aromatic Fractionation Check Standard

DRH-TX-003-FCS			1 x 10 mL
DRH-TX-003-FCS-PAK			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	<i>m</i> -Xylene	
Benzo[k]fluoranthene	Fluorene	<i>p</i> -Xylene	
Benzo[a]pyrene	Indeno[1,2,3-cd]pyrene	<i>o</i> -Xylene	



LUFT/LUST Standards

Washington Method

Washington Method Determination of Volatile Petroleum Hydrocarbons (VPH)

VPH Standard

VPH-WA			1 x 1 mL
VPH-WA-PAK	SAVE		5 x 1 mL
<i>200 µg/mL each in MeOH</i>			
Benzene	<i>p</i> -Xylene	<i>n</i> -Decane	
Ethylbenzene	MtBE	<i>n</i> -Dodecane	
Toluene	<i>n</i> -Pentane	1-Methylnaphthalene	
<i>o</i> -Xylene	<i>n</i> -Hexane	Naphthalene	
<i>m</i> -Xylene	<i>n</i> -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
<i>2,000 µg/mL each in MeOH</i>			
Benzene	MtBE	<i>n</i> -Dodecane	
Ethylbenzene	<i>n</i> -Pentane	1-Methylnaphthalene	
Toluene	<i>n</i> -Hexane	Naphthalene	
<i>o</i> -Xylene	<i>n</i> -Octane	1,2,3-Trimethylbenzene	
<i>m</i> -Xylene	<i>n</i> -Decane	2,5-Dibromotoluene (surrogate)	
<i>p</i> -Xylene			

Stock Concentrate VPH Standards

VPH-WA-10X			1 x 1 mL
VPH-WA-10X-PAK	SAVE		5 x 1 mL
<i>2,000 µg/mL each in MeOH</i>			
VPH-WA-100X			1 x 1 mL
VPH-WA-100X-PAK	SAVE		5 x 1 mL
<i>20.0 mg/mL each in MeOH</i>			
Benzene	<i>p</i> -Xylene	<i>n</i> -Decane	
Ethylbenzene	MtBE	<i>n</i> -Dodecane	
Toluene	<i>n</i> -Pentane	1-Methylnaphthalene	
<i>o</i> -Xylene	<i>n</i> -Hexane	Naphthalene	
<i>m</i> -Xylene	<i>n</i> -Octane	1,2,3-Trimethylbenzene	

Certified BTEX in Unleaded Gasoline (Single Source)

GA-001-20X-BTEX	1 x 1 mL
<i>10.0 mg/mL in MeOH</i>	
Regular Unleaded Gasoline	

Certified BTEX in Gasoline Composite (Multi Source)

GRO-AK-101-GCS-BTEX	1 x 1 mL
<i>5 mg/mL in MeOH</i>	
	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
<i>Varied conc. in MeOH</i>			
Benzene	(60 µg/mL)	Toluene	(60 µg/mL)
Ethylbenzene	(60 µg/mL)	1,2,3-Trimethylbenzene	(60 µg/mL)
MtBE	(180 µg/mL)	<i>m</i> -Xylene	(60 µg/mL)
Naphthalene	(360 µg/mL)	<i>p</i> -Xylene	(60 µg/mL)
<i>n</i> -Nonane	(200 µg/mL)	<i>o</i> -Xylene	(60 µg/mL)
<i>n</i> -Pentane	(600 µg/mL)		

VPH Surrogate Standard

GRH-004-SS			1 x 1 mL
GRH-004-SS-PAK	SAVE		5 x 1 mL
<i>50 µg/mL in MeOH</i>			
GRH-004-SS-10X			1 x 1 mL
GRH-004-SS-10X-PAK	SAVE		5 x 1 mL
<i>500 µg/mL in MeOH</i>			
GRH-004-SS-100X			1 x 1 mL
GRH-004-SS-100X-PAK	SAVE		5 x 1 mL
<i>5,000 µg/mL in MeOH</i>			
2,5-Dibromotoluene			

VPH Retention Time Marker

VPH-WA-RT			1 x 1 mL
VPH-WA-RT-PAK	SAVE		5 x 1 mL
<i>2,000 µg/mL each in MeOH</i>			
<i>n</i> -Pentane	<i>n</i> -Octane	<i>n</i> -Dodecane	
<i>n</i> -Hexane	<i>n</i> -Decane	<i>n</i> -Tridecane	

1,2,3-Trimethylbenzene Standard

V-028S-D-10X			1 x 1 mL
V-028S-D-10X-PAK	SAVE		5 x 1 mL
<i>1000 µg/mL each in CH₂Cl₂</i>			
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.

LUFT/LUST Standards

Washington Method



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 ₂ Cl ₂			
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 ₂ Cl ₂		
GRH-IS-10X		1 x 1 mL
10.0 mg/mL in CH ₂ Cl ₂		
5-alpha Androstane		

EPH Surrogate Spike

DRH-MA-SS		1 x 1 mL
20 µg/mL each in Acetone		
DRH-MA-SS-10X		1 x 1 mL
200 µg/mL each in Acetone		
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		
1-Chlorooctadecane	o-Terphenyl	2 comps.

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		
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 ₂ Cl ₂		
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 ₂ Cl ₂		
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 ₂ Cl ₂		
n-Octane	n-Dodecane	n-Heneicosane
n-Decane	n-Hexadecane	n-Tetatriacontane

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		
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		
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-Tetatriacontane
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 ₂ Cl 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 ₂ Cl ₂		
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 ₂ Cl ₂		
o-Terphenyl		



LUFT/LUST Standards

Gasoline Range Hydrocarbon (GRH)

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)
<i>m</i> -Xylene	(1.0 mg/mL)	(10 mg/mL)
<i>p</i> -Xylene	(1.0 mg/mL)	(10 mg/mL)
<i>o</i> -Xylene	(1.0 mg/mL)	(10 mg/mL)
1,2,4-Trimethylbenzene	(1.0 mg/mL)	(10 mg/mL)

Internal Standard

GARRH-IS 1 x 1 mL
 1.0 mg/mL in CH₂Cl₂
 Chloro-4-fluorobenzene

Surrogate Standard

GARRH-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	<i>o</i> -Xylene
Ethyl benzene	<i>m</i> -Xylene
Toluene	<i>p</i> -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	<i>o</i> -Xylene
Ethylbenzene	<i>m</i> -Xylene
Methyl t-butyl ether	<i>p</i> -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	<i>o</i> -Xylene
1,2-Dichlorobenzene	<i>p</i> -Xylene
1,3-Dichlorobenzene	<i>m</i> -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	<i>o</i> -Xylene
2-Methyl pentane	<i>m</i> -Xylene
Toluene	<i>p</i> -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	<i>o</i> -Xylene
Naphthalene	<i>m</i> -Xylene
Toluene	<i>p</i> -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 CH₂Cl₂: Hexane (1:1) 10 comps.
DRH-001S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂: Hexane (1:1) 10 comps.

n-Decane C₁₀ *n*-Hexadecane C₁₆ *n*-Docosane C₂₂ *n*-Hexacosane C₂₆
n-Dodecane C₁₂ *n*-Octadecane C₁₈ *n*-Tetracosane C₂₄ *n*-Octacosane C₂₈
n-Tetradecane C₁₄ *n*-Eicosane C₂₀

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 CH₂Cl₂
5- α 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 C₈ Octadecane C₁₈ Hexacosane C₂₆ Tetratriacontane C₃₄
Decane C₁₀ Eicosane C₂₀ Octacosane C₂₈ Hexatriacontane C₃₆
Dodecane C₁₂ Docosane C₂₂ Triacontane C₃₀ Octatriacontane C₃₈
Tetradecane C₁₄ Tetracosane C₂₄ Dotriacontane C₃₂ Tetracontane C₄₀
Hexadecane C₁₆

Surrogate Standard

DRH-SS 1 x 1 mL
DRH-SS-PAK SAVE 5 x 1 mL
5.0 mg/mL in THF
n-Triacontane-d₃₂

D-2887 Calibration Solution

Calibration Solution

DRH-002S 1 x 1 mL
At stated conc. in CS₂ 17 comps.
Hexane (600 μ g/mL) Dodecane (1,200 μ g/mL) Octacosane (100 μ g/mL)
Heptane (600 μ g/mL) Tetradecane (1,200 μ g/mL) Dotriacontane (100 μ g/mL)
Octane (800 μ g/mL) Hexadecane (1,000 μ g/mL) Hexatriacontane (100 μ g/mL)
Nonane (800 μ g/mL) Octadecane (500 μ g/mL) Tetracontane (100 μ g/mL)
Decane (1,200 μ g/mL) Eicosane (200 μ g/mL) Tetratriacontane (100 μ g/mL)
Undecane (1,200 μ g/mL) Tetracosane (200 μ g/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 C₁₀ *n*-Tetradecane C₁₄ *n*-Octadecane C₁₈
n-Undecane C₁₁ *n*-Pentadecane C₁₅ *n*-Nonadecane C₁₉
n-Dodecane C₁₂ *n*-Hexadecane C₁₆ *n*-Eicosane C₂₀
n-Tridecane C₁₃ *n*-Heptadecane C₁₇

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 μ g/mL each in Chloroform 35 comps.

Octane	Heptadecane	Tetracosane	Trtriacontane
Nonane	Pristane	Pentacosane	Tetratriacontane
Decane	Octadecane	Hexacosane	Pentatriacontane
Undecane	Phytane	Heptacosane	Hexatriacontane
Dodecane	Nonadecane	Octacosane	Heptatriacontane
Tridecane	Eicosane	Nonacosane	Octatriacontane
Tetradecane	Heneicosane	Triaccontane	Nonatriacontane
Pentadecane	Docosane	<i>n</i> -Hentriacontane	Tetracontane
Hexadecane	Tricosane	Dotriacontane	

Technical Note

We offer a hydrocarbon window defining standard with the C₂ to C₃₀ 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 C₁₇/*i*pristane and C₁₈/*i*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 C₁₇/*i*pristane and C₁₈/*i*phytane ratio (DRH-005S-10X) is also available.

Fuel Oil Degradation/Retention Time Mixture for Quantification of C₁₇/*i*Pristane and C₁₈/*i*Phytane Ratios

DRH-005S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ : CS₂ (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 μ g/mL each in Hexane 17 comps.

<i>n</i> -Octane	<i>n</i> -Octadecane	<i>n</i> -Hexacosane	<i>n</i> -Tetratriacontane
<i>n</i> -Decane	<i>n</i> -Eicosane	<i>n</i> -Octacosane	<i>n</i> -Hexatriacontane
<i>n</i> -Dodecane	<i>n</i> -Docosane	<i>n</i> -Triacontane	<i>n</i> -Octatriacontane
<i>n</i> -Tetradecane	<i>n</i> -Tetracosane	<i>n</i> -Dotriacontane	<i>n</i> -Tetracontane
<i>n</i> -Hexadecane			

Hydrocarbon Window Defining Standard

DRH-FTRPH2 1 x 1 mL
DRH-FTRPH2-PAK SAVE 5 x 1 mL
500 μ g/mL each in Hexane 18 comps.

<i>n</i> -Nonane	Pristane	<i>n</i> -Pentacosane	<i>n</i> -Tritriacontane
<i>n</i> -Undecane	Phytane	<i>n</i> -Heptacosane	<i>n</i> -Pentatriacontane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Nonacosane	<i>n</i> -Heptatriacontane
<i>n</i> -Pentadecane	<i>n</i> -Heneicosane	<i>n</i> -Hentriacontane	<i>n</i> -Nonatriacontane
<i>n</i> -Heptadecane	<i>n</i> -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 μ g/mL each in Hexane

DRH LUFT/LUST



LUFT/LUST Standards

Oil, Grease & TPH (Method 1664, 413.2/418.1 & 8440) Weathered Fuel Sets

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
<i>4.0 mg/mL each in Acetone</i>		
M-1664-20ML		1 x 20 mL
M-1664-20ML-PAK	SAVE	5 x 20 mL
<i>4.0 mg/mL each in Acetone</i>		
Hexadecane	Stearic acid	

Silica Gel Hexane Extraction Material

SGT-HEM		1 x 1 mL
<i>20 µg/mL each in Acetone</i>		
Stearic acid	Hexadecane	2 comps.

Technical Note

Precision 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
<i>% by volume</i>		
Chlorobenzene (25.0)	Hexadecane (37.5)	3 comps.
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
<i>Total 4.15 mg/mL in Freon 113, (Parts by volume)</i>		
Chlorobenzene (10.0)	Isooctane (15.0)	3 comps.
<i>n</i> -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
<i>At stated conc. in Tetrachloroethene</i>		
Chlorobenzene (0.10 w/w %)	Isooctane (0.15 w/w %)	3 comps.
<i>n</i> -Hexadecane (0.15 w/w %)		

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.

Silica Gel Cleanup Calibration Solution

M-8440-SGC		1 x 1 mL
M-8440-SGC-PAK	SAVE	5 x 1 mL
<i>10.0 mg/mL in Tetrachloroethene</i>		
Corn Oil		

Retention Time Standard

DRH-010S		1 x 1 mL
DRH-010S-PAK	SAVE	5 x 1 mL
<i>25 µg/mL each in CH₂Cl₂</i>		
<i>n</i> -Hexane	<i>n</i> -Tetracosane	<i>n</i> -Triacontane
<i>n</i> -Decane	<i>n</i> -Octacosane	<i>n</i> -Tetracontane
<i>n</i> -Dodecane		

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 %)	
<i>n</i> -Hexadecane (37.5 vol %)		

Technical Note

A sample showing peaks in the C₆-C₁₀ range generally indicates a gasoline spill. Samples with the peaks in the C₁₂-C₂₄ range are indicative of a diesel spill while samples with the higher carbon numbers above C₂₄ are typically oils or lubricants. Once the initial screen is complete, more detailed work can be done to further identify the contaminant.

Inorganic Standards

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



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

Tel: (203)786-5290
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www.AccuStandard.com

AccuStandard[®] Inc.

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

Included on ISO/IEC 17025 Scope of Accreditation
 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	Ti	nd<0.02
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	Sr	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	Ge	nd<0.02	Li	nd<0.02	P	N/A	Sb	nd<0.2	Th	nd<0.02	Zr	nd<0.02

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

ON-CR-010-010
Rev. 01/11

Directly traceable to NIST SRM's - where available

GHS safety information

Most Single element standards have a minimum 3 Year expiration period.

Density included for easy conversion to weight/weight applications.

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



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 • 9H ₂ O	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 ₂ H ₃ O 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 ₃ BO ₃	100 mL	ICP-07W-1 ▼	ICP-07W-10X-1 ▼	
Water tr. NH ₄ OH	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) ₂ Cr ₂ O 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 ₂ O 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 ₂ O 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 ₂ O 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.



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



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.	
Gadolinium	50 mL	-----	--	ICP-19N-10X-0.5	ICP-19N-10X-20ML
Gd ₂ O 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) ₂ GeF 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 ₂ O 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 • 3H ₂ O	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 ₂ O 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 ₂ CO 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 ₂ O 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 ₂ H ₃ O 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) ₂ MoO ₄	100 mL	ICP-35W-1 ▼	ICP-35W-10X-1 ▼		
Water tr. NH ₄ OH	500 mL	ICP-35W-5 ▼	ICP-35W-10X-5 ▼		

▼ Hazardous fee not required.

ICP

Single Element



3 Year Minimum
Shelf Life on
Single Element ICP
Standards



Single Element ICP				NoHaz 20 mL Size
Element	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.	20 mL (NoHaz) 10,000 µg/mL Cat. No.
Neodymium	50 mL	-----	--	ICP-36N-10X-0.5
Nd ₂ O 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
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 ▼
Nb ₂ O 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
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 ▼
NH ₄ H ₂ PO 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
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
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
Pr ₆ O 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 ▼
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
RhCl ₃ • 3H ₂ O	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
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
RuCl ₃ • 3H ₂ O	100 mL	ICP-48H-1		ICP-48H-10X-1
10% HCl	500 mL	ICP-48H-5	-----	--
Samarium	50 mL	-----	--	ICP-49N-10X-0.5
Sm ₂ O 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
Sc ₂ O 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
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 ▼
(NH ₄) ₂ SiF 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
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
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
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 ▼
(NH ₄) ₂ SO 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 ▼
Ta	100 mL	ICP-57W-1 ▼		ICP-57W-10X-1 ▼
Water tr. HF	500 mL	ICP-57W-5 ▼		ICP-57W-10X-5 ▼

▼ Hazardous fee not required.



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



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.	
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 ₂ O 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 • 4H ₂ O	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 ₂ O 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) ₂ TiF 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 ▼	
(NH ₄) ₂ WO ₄	100 mL	ICP-65W-1 ▼		ICP-65W-10X-1 ▼	
Water tr. NH ₄ OH	500 mL	ICP-65W-5 ▼		ICP-65W-10X-5 ▼	
Uranium	-----	-----	--	-----	--
U ₃ O 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 ₄ VO 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 ₂ O 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 ₂ O 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% HNO₃ 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% HNO₃ in 18 Megohm ASTM Type I deionized Water

Water Blank

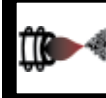
CLP-BLW-5 ▼ 500 mL
CLP-BLW-L-VAP ▼ 1L
(2 x 500 mL)

18 Megohm ASTM Type I deionized Water

▼ Hazardous fee not required.

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

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.	Cat. No.	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 ₂ O tr. NH ₄ OH	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 ₂ O 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 ₂ O tr. NH ₄ OH	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.





ICP/MS

Single Element

3 Year Minimum Shelf Life on
Single Element ICP/MS Standards

Single Element ICP/MS (Continued)

Element	Matrix	Unit	100 µg/mL		1,000 µg/mL		10,000 µg/mL	
			Cat. No.		Cat. No.		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 ₂ O 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 ₂ O	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 ₂ O 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 ₂ O 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 ₂ O	100 mL	ICP-MS-56W-0.01X-1		ICP-MS-56W-0.1X-1		ICP-MS-56W-1	
Ta (Tantalum) ▼	H ₂ O 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 ₂ O tr. HF	100 mL	ICP-MS-64W-0.01X-1		ICP-MS-64W-0.1X-1		ICP-MS-64W-1	
W (Tungsten) ▼	H ₂ O tr. NH ₄ OH	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.





AA

Matrix Modifier & Calibration

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 ₂ O	NH ₄ H ₂ PO ₄	50 mL	MOD-02-0.5 ▼
		100 mL	MOD-02-1 ▼
		500 mL	MOD-02-5 ▼
Ammonium nitrate 5% in H ₂ O	NH ₄ NO 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 • 4H ₂ O	50 mL	MOD-04-0.5
		100 mL	MOD-04-1
		500 mL	MOD-04-5
Lanthanum chloride 5% Lanthanum in 5% HCl	LaCl ₃	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-HG-AA
CLP-SPI-AA	CLP-SP2-AA
CLP-ICV-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			200 µg/mL			1000 µg/mL		
		Cat. No.			Cat. No.			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 <i>Call for availability</i>	100 mL	IC-CHLT-1X-1			-----			IC-CHLT-10X-1		
	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		



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 Chromatography

Ion Chrom - Ion Singles as the Element

	Unit	100 µg/mL	1000 µg/mL
NO₂-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
NO₃-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
PO₄-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
SO₄-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
NH₄-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
<i>Each at 1000 µg/mL</i>	
Fluoride	Bromide
Chloride	Phosphate-Phosphorous
Nitrite-Nitrogen	Sulfate-Sulfur
Nitrate-Nitrogen	

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

0.5 M Sodium bicarbonate (100X concentrate)	50 mL	100 mL	5 x 50 mL	5 x 100 mL
	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)	50 mL	100 mL	5 x 50 mL	5 x 100 mL
	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)	50 mL	100 mL	5 x 50 mL	5 x 100 mL
	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

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 Chromatography

Ion Chrom - Cation Singles

Dilute HNO ₃ Matrix	Unit	Concentration		
		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 (NH₄) Other Nitrogen species equivalents are:

NH₃ (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 #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 #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

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 #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

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.



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.

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 (SiO₂) in Water tr. HF

Sulfate

IC-SO4-10X-1 100 mL
1000 µg/mL Sulfate (SO₄) 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.

▲ Hazardous fee require

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 CaCO₃ to pH 4.5

Hardness

WC-HARD-10X-1 100 mL
1000 µg/mL equivalent CaCO₃

A combination of Ca and Mg to give an approximate concentration of 1000 µg/mL CaCO₃. Hardness µg/mL equivalent CaCO₃ = 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 Dissolved 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



Wet Chemicals

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

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. H₂SO₄

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-PAKSAVE 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

Inorganic products containing acid generally require a hazardous shipping fee.

Inorganic products in water generally do not.





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
<i>4.0 mg/mL each in Acetone</i>		
M-1664-20ML		1 x 20 mL
M-1664-20ML-PAK	SAVE	5 x 20 mL
<i>4.0 mg/mL each in Acetone</i>		
Hexadecane	Stearic acid	2 comps.

Technical Note

This Precision 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
<i>% by volume</i>		
Chlorobenzene (25.0)	Hexadecane (37.5)	3 comps.
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
<i>Total 4.15 mg/mL in Freon 113, (Parts by volume)</i>		
Chlorobenzene (10.0)	Isooctane (15.0)	3 comps.
<i>n</i> -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
<i>At stated conc. in Tetrachloroethene</i>		
Chlorobenzene (0.10 w/w %)	Isooctane (0.15 w/w %)	3 comps.
<i>n</i> -Hexadecane (0.15 w/w %)		

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON		1 x 1 mL
M-8440-CON-PAK	SAVE	5 x 1 mL
<i>3 comps.</i>		
Chlorobenzene (25.0 vol %)	Isooctane (37.5 vol %)	
<i>n</i> -Hexadecane (37.5 vol %)		

Silica Gel Cleanup Calibration Solution

M-8440-SGC		1 x 1 mL
M-8440-SGC-PAK	SAVE	5 x 1 mL
<i>10.0 mg/mL in Tetrachloroethene</i>		
Corn Oil		

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!®**



Multi-Element Contents

- 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

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Inorganic products containing acid generally require a hazardous shipping fee.
Inorganic products in water generally do not.



ICP

Multi-Element QC & Second Source QC

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% HNO₃ 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% HNO₃ 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 SiO₂

QC Standard #2R

QCS-02-R1-1 100 mL
QCS-02-R1-5 500 mL
 100 µg/mL each in 5% HNO₃ tr. HF 7 comps.

Al (Aluminum)	Si (Silicon) †
Ba (Barium)	Ag (Silver)
B (Boron)	Na (Sodium)
K (Potassium)	

† 214 µg/mL as SiO₂

QC Standard #3

QCS-03-1 100 mL
QCS-03-5 500 mL
 100 µg/mL each in 5% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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



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% HNO₃ 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% HNO₃ 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% HNO₃ 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)	Pb (Lead)
As (Arsenic)	P (Phosphorus)
Cr (Chromium)	K (Potassium)
Co (Cobalt)	Na (Sodium)
Cu (Copper)	

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)	Na (Sodium)
As (Arsenic)	Nd (Neodymium)
Ba (Barium)	P (Phosphorus)
Bi (Bismuth)	Pb (Lead)
Ca (Calcium)	Pr (Praseodymium)
Cd (Cadmium)	Sc (Scandium)
Ce (Cerium)	Se (Selenium)
Dy (Dysprosium)	Sm (Samarium)
Er (Erbium)	Sr (Strontium)
Eu (Europium)	Tb (Terbium)
Ga (Gallium)	Th (Thorium)
Gd (Gadolinium)	Tl (Thallium)
Ho (Holmium)	Tm (Thulium)
In (Indium)	U (Uranium)
La (Lanthanum)	Y (Yttrium)
Lu (Lutetium)	Yb (Ytterbium)
Mg (Magnesium)	

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)	Pt (Platinum)
Be (Beryllium)	Rb (Rubidium)
Co (Cobalt)	Re (Rhenium)
Cr (Chromium)	Rh (Rhodium)
Cs (Cesium)	Ru (Ruthenium)
Cu (Copper)	S (Sulfur)
Fe (Iron)	Sb (Antimony)
Ge (Germanium)	Si (Silicon)
Hf (Hafnium)	Sn (Tin)
Ir (Iridium)	Ta (Tantalum)
K (Potassium)	Te (Tellurium)
Li (Lithium)	Ti (Titanium)
Mn (Manganese)	V (Vanadium)
Mo (Molybdenum)	W (Tungsten)
Nb (Niobium)	Zn (Zinc)
Ni (Nickel)	Zr (Zirconium)
Pd (Palladium)	

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.



ICP

SDWA (Safe Drinking Water Act) Standards

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 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)	Cu (Copper)
As (Arsenic)	Pb (Lead)
Ba (Barium)	Ni (Nickel)
Be (Beryllium)	Se (Selenium)
Cd (Cadmium)	Tl (Thallium)
Cr (Chromium)	

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 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)	Pb (Lead)
As (Arsenic)	Ni (Nickel)
Cd (Cadmium)	Se (Selenium)
Cr (Chromium)	Tl (Thallium)
Cu (Copper)	

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 SiO₂

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 SiO₂

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 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

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	

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)	



ICP

MISA Test Group 29

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% HNO₃ 18 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)	U (Uranium)
Lu (Lutetium)	Yb (Ytterbium)
Nd (Neodymium)	Y (Yttrium)

MISA Standard 2

Precious Metals

MISA-02-1 100 mL
100 µg/mL each in 10% HCl 6 comps.

Au (Gold)	Pt (Platinum)
Ir (Iridium)	Rh (Rhodium)
Pd (Palladium)	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% HNO₃ 16 comps.

Al (Aluminum)	In (Indium)
As (Arsenic)	Li (Lithium)
Ba (Barium)	Mg (Magnesium)
Be (Beryllium)	K (Potassium)
Bi (Bismuth)	Rb (Rubidium)
Ca (Calcium)	Se (Selenium)
Cs (Cesium)	Na (Sodium)
Ga (Gallium)	Sr (Strontium)

MISA Standard 5

Fluoride Soluble Group

MISA-05-1 100 mL
100 µg/mL each in 5% HNO₃ tr. HF 15 comps.

Sb (Antimony)	Si (Silicon)
B (Boron)	S (Sulfur)
Ge (Germanium)	Ta (Tantalum)
Hf (Hafnium)	Sn (Tin)
Mo (Molybdenum)	Ti (Titanium)
Nb (Niobium)	W (Tungsten)
P (Phosphorus)	Zr (Zirconium)
Re (Rhenium)	

MISA Standard 6

Transition Metals

MISA-06-1 100 mL
100 µg/mL each in 10% HNO₃ 13 comps.

Cd (Cadmium)	Hg (Mercury)
Co (Cobalt)	Ni (Nickel)
Cu (Copper)	Ag (Silver)
Cr (Chromium)	Tl (Thallium)
Fe (Iron)	V (Vanadium)
Pb (Lead)	Zn (Zinc)
Mn (Manganese)	

MISA Calibration Set

MISA-1-SET 6 x 100 mL

MISA-01-1	MISA-03-1	MISA-05-1
MISA-02-1	MISA-04-1	MISA-06-1

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 500 mL
CLP-BLN-L-VAP 1 L
(2 x 500 mL)

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 500 mL
CLP-BLMA-L-VAP 1 L
(2 x 500 mL)

5% HCl + 1% HNO₃ 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.





Calibration Check Standards

Calibration Standard #1

CLP-CAL-01-1 100 mL
5000 µg/mL each in 5% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃

Sb (Antimony)

Calibration Standard #6

CLP-CAL-06-1 100 mL
100 µg/mL in 5% HNO₃

Hg (Mercury)

Calibration Standard #7

CLP-CAL-07-1 100 mL
500 µg/mL each in 5% HNO₃ tr. HF 3 comps.

B (Boron)	Si (Silicon)
Mo (Molybdenum)	





ICP

Contract Laboratory Program (CLP)

Verification Standards

Initial Calibration Verification

CLP-ICV-01-1 100 mL
 CLP-ICV-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃

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% HNO₃ 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% HNO₃ 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% HNO₃ 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

Alternate Interferents

CLP-PIN-02-1 100 mL
CLP-PIN-02-5 500 mL
 1000 µg/mL each in 5% HNO₃ 6 comps.

Cr (Chromium)	Ni (Nickel)
Cu (Copper)	Ti (Titanium)
Mn (Manganese)	V (Vanadium)

Alternate Analytes

CLP-PAN-02-1 100 mL
CLP-PAN-02-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 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

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

Primary Interferents

CLP-PIN-01-1 100 mL
CLP-PIN-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 4 comps.

Al (Aluminum)	5000
Ca (Calcium)	5000
Fe (Iron)	2000
Mg (Magnesium)	5000

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% HNO₃ 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
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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% HNO₃ 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.



ICP

EPA Method 200.7

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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ tr. HF
 5 comps.

Al (Aluminum)	100
Cr (Chromium)	50
Si (Silicon) †	100
Sn (Tin)	40
Zn (Zinc)	50

† 214 µg/mL as SiO₂

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% HNO₃ 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% HNO₃ 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% HNO₃ tr. HF
 5 comps.

Sb (Antimony)	20
Mo (Molybdenum)	20
Si (Silicon) †	100
Sn (Tin)	20
Ti (Titanium)	20

† 214 µg/mL as SiO₂



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% HNO₃ 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 SiO₂

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% HNO₃ 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 SiO₂

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% HNO₃

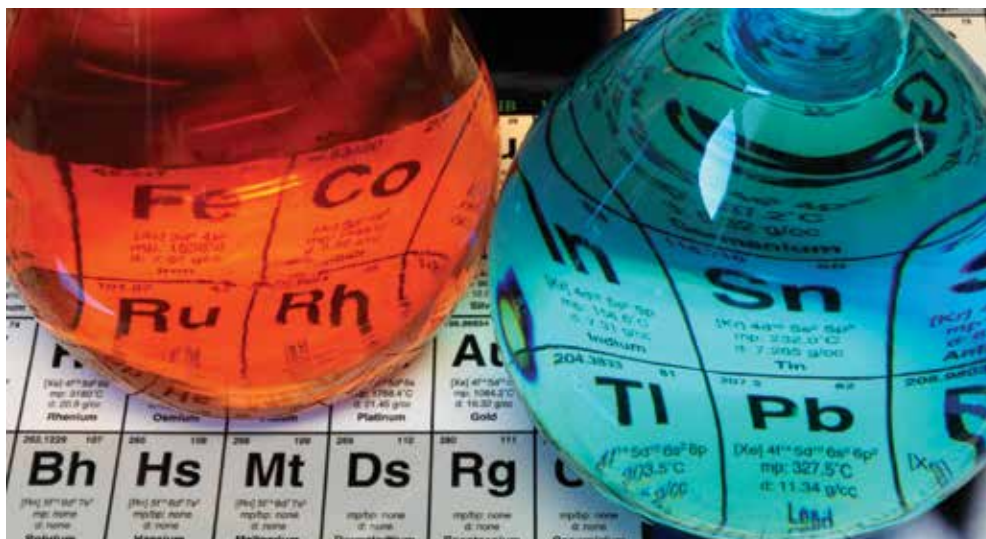
Hg (Mercury)

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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ tr. HF 5 comps.

Sb (Antimony)	Sn (Tin)
Mo (Molybdenum)	Ti (Titanium)
Si (Silicon) †	† 42.78 µg/mL as SiO ₂





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 H₂O tr. HF 4 comps.

B (Boron)	400
Mo (Molybdenum)	200
Si (Silicon) †	2000
P (Phosphorus)	400

† 4278 µg/mL SiO₂

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% HNO₃ 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% HNO₃ 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 HNO₃
Sb (Antimony)

Spiking Standard #5R

M-200.7-SP-05-R 50 mL
At stated conc. (µg/mL) in 5% HNO₃ 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. NH₄OH

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% HNO₃ 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% HNO₃ 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 HNO₃

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% HNO₃ 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% HNO₃ 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-04R-1 MCS-06R-1
MCS-02-1 MCS-05R-1 TCLP-02-1
MCS-03R-1

MCS-1996-5-SET 7 x 500 mL

MCS-01-5 MCS-04R-5 MCS-06R-5
MCS-02-5 MCS-05R-5 TCLP-02-5
MCS-03R-5

Mixed Calibration Standard #3R

MCS-03R-1 100 mL
MCS-03R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 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% HNO₃ 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

Mixed Calibration Standard #5R

MCS-05R-1 100 mL
MCS-05R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 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% HNO₃ tr. HF 5 comps.

P (Phosphorus)	200
Sn (Tin)	200
Ti (Titanium)	100
B (Boron)	50
Si (Silicon) †	100

† 214 µg/mL as SiO₂

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.

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% HNO₃

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% HNO₃ 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)	

Spiking Standard #2

QCS-02-1 100 mL
QCS-02-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 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 SiO₂

QC Standard #2R

QCS-02-R1-1 100 mL
QCS-02-R1-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF 7 comps.

Al (Aluminum)	Ag (Silver)
Ba (Barium)	Na (Sodium)
B (Boron)	
K (Potassium)	† 214 µg/mL as SiO ₂
Si (Silicon) †	

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% HNO₃

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% HNO₃ 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 SiO₂

Primary Interferents

CLP-PIN-01-1 100 mL
CLP-PIN-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ 6 comps.

Cr (Chromium)	Ni (Nickel)
Cu (Copper)	Ti (Titanium)
Mn (Manganese)	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 HNO₃

Al (Aluminum)	Mg (Magnesium)
Ca (Calcium)	Mn (Manganese)
Cr (Chromium)	Ni (Nickel)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	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 HNO₃
 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% HNO₃ 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% HNO₃ 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% HNO₃, 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% HNO₃ 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-03-1
INT-02-1	INT-04-1

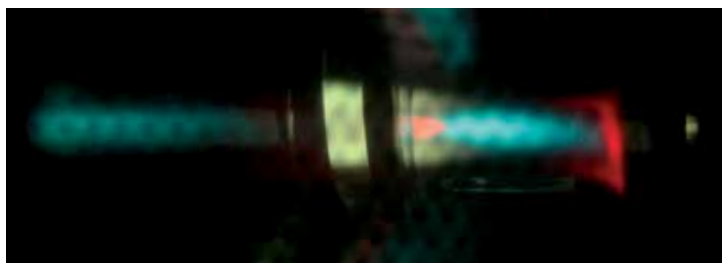
INT-1986-5-SET 4 x 500 mL

INT-01-5	INT-03-5
INT-02-5	INT-04-5



ICP Alternate Source

Instrument	Page
Merck ICP Standards	359-360
Agilent	361-362
Horiba/Jobin Yvon	363
Perkin Elmer	364-368
Teledyne	369



Cross Reference Part No. Index

These calibration and testing standards have been carefully formulated to be used for specific instrument setup and verification.



Instrument	AccuStandard	Page	Instrument	AccuStandard	Page	Instrument	AccuStandard	Page
Merck			Horiba/Jobin Yvon			Perkin Elmer		
1.09410	MES-23	3	JYICP-MIXHM	JY-CALHM	7	N9300280	PE-QC7	11
1.09411	MES-24	3	JYICP-MIXMAJ	JY-CAL	7	N9300281	PE-QC21	11
1.09480	MES-13 *	3	JYICP-MIX7HSI	JY-QC7	7	N9301720	PE-MECAL3	10
1.09481	MES-14	3	JYICP-MIX9	JY-CHK	7	N9301721	PE-CAL2	8
1.09482	MES-15	3	JYICP-MIX21	JY-QC21	7	N9302946	PE-VISWAVE	12
1.09487	MES-16	3	JYICP-MIX23	JY-QC23	7	N9303816	PE-CAL1	8
1.09490	MES-12 *	3	JYICP-QC1	JY-CHK1	7	N9303818	PE-CAL3	8
1.09491	MES-11 *	2	Perkin Elmer			N9303821	PE-CHK1	9
1.09492	MES-08 *	2	N0582152	PE-UVWAVE	12	N9303822	PE-CHK3	9
1.09493	MES-10 *	2	N0691579	PE-MCS	10	N9303823	PE-CHK4	9
1.09494	MES-09 *	2	N0691580	PE-UV	12	N9303824	PE-CHK5	9
1.09495	MES-17	3	N8122014	PE-SETUP2 *	11	N9303825	PE-VER1	12
1.09496	MES-19 *	3	N8122017	PE-CRDL3 *	8	N9303826	PE-VER2	12
1.09497	MES-20 *	3	N8125030	PE-INTFRA	9	N9303827	PE-INTFRA	9
1.09498	MES-21	3	N8125031	PE-INTFR1	9	N9303828	PE-INTFR1	9
1.09499	MES-22 *	3	N8125032	PE-INTFRB	9	N9303829	PE-INTFRB	9
1.09500	MES-18	3	N8125033	PE-INTFR2	9	N9303830	PE-INTFR2	9
1.10322	MES-07	2	N8125034	PE-INTFRC	9	N9303831	PE-INTFRC	9
1.10580	MES-06 *	2	N8125040	PE-INT	9	N9303832	PE-INT	9
1.10714	MES-05 *	2	N8125041	PE-MEINT	10	N9303834	PE-MEINT	10
1.11355	MES-04	2	N9300200	PE-MEM1	10	N9303835	PE-MEM1	10
1.15474	MES-01	2	N9300201	PE-MEM2	10	N9303836	PE-MEM2	10
1.15626	MES-03	2	N9300202	PE-SPIKE1	11	N9303839	PE-SPIKE1	11
1.15708	MES-02	2	N9300203	PE-SPIKE2	11	N9303840	PE-SPIKE2	11
Agilent			N9300204	PE-SPIKE3	11	N9303841	PE-SPIKE3	11
5183-4681	AG-INT	6	N9300205	PE-TUNSOL	12	N9303843	PE-TUNSOL	12
5183-4682	AG-VER1	4	N9300208	PE-MES1	9	N9307113	PE-MES1	9
5183-4687	AG-SPIKE	4	N9300211	PE-MES2	9	N9307114	PE-MES2	9
5183-4688	AG-CAL	6	N9300212	PE-MES3	9	N9307115	PE-MES3	9
5188-6524	AG-TUN	4	N9300213	PE-MES4	9	N9307116	PE-MES4	9
5188-6525	AG-INTSTD	4	Teledyne			601-3110	TELE-CHK1 *	13
5188-6526	AG-INTFR2-6020	6	N9300215	PE-SDWA1	11	601-4101	TELE-CHK2 *	13
5188-6527	AG-INTFR2-6020	6	N9300216	PE-SDWA2	11	601-4102	TELE-CHK3 *	13
5188-6564	AG-TUNSTOCK	4	N9300217	PE-CAL4	8	602-00065	TELE-CHK4	13
5190-0465	AG-TUNSTOCK1	4	N9300218	PE-CAL5	8	602-00067	TELE-CHK4	13
8500-6940	AG-MECAL2A	6	N9300219	PE-CAL6	8	602-00068	TELE-CHK5	13
8500-6942	AG-MECAL4	6	N9300220	PE-CAL7	8	602-00070	TELE-CHK5	13
8500-6944	AG-MECAL1	6	N9300221	PE-CAL8	8	602-00071	TELE-CHK6	13
8500-6948	AG-MECAL3	6	N9300222	PE-CRDL1 *	8	602-00073	TELE-CHK6	13
190024400	VAR-TUN	4	N9300225	PE-CRDL2	8	602-00074	TELE-CHK7	13
190064800	AG-INTFA	5	N9300226	PE-INTA	9	620-403	TELE-CHK7	13
190024900	AG-ICV7	5	N9300227	PE-ANAB	8	602-00125	TELE-CHK8-0.1X *	13
190025000	AG-QCS27	5	N9300228	PE-ALTINTA	8			
190025100	AG-ANALTB	5	N9300229	PE-ALTB	8			
6610030000	AG-WAVECAL-10X	4	N9300230	PE-SPIKE	11			
6610030100	AG-WAVECAL	4	N9300231	PE-MECAL1	10			
6610030400	AG-INT2	6	N9300232	PE-MECAL2	10			
6610030500	AG-CAL1	6	N9300233	PE-MECAL3	10			
6610030600	AG-CAL2	6	N9300234	PE-MECAL4	10			
6610030700	AG-CALMAJOR	6	N9300235	PE-MECAL5	10			

* similar formulation

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.

ICP Alternate Source

Merck

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.
HNO₃ 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% HNO₃
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. HNO₃ 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% HNO₃
8 comps.

Element

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% HNO₃ 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 15% HCl tr. HNO₃ 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% HNO₃ 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% HNO₃
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% HNO₃ 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% HNO₃
30 comps.

MES-21 In (Indium)
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) V (Vanadium)
Fe (Iron) U (Uranium)
Ga (Gallium) 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% HNO₃ 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% HNO₃
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% HNO₃ 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

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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

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% HNO₃ 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% HNO₃ 5 comps.

Li (Lithium)	Tl (Thallium)
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% HNO₃ 6 comps.

Li (Lithium)	Ce (Cerium)
Mg (Magnesium)	Tl (Thallium)
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% HNO₃, 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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

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INTF-A Quality Control Standard

AG-INTFA-ASL-1	100 mL
AG-INTFA-ASL-5	500 mL

At stated conc. (µg/mL) in 5% HNO₃ 4 comps.

Al (Aluminum)	5000
Ca (Calcium)	5000
Mg (Magnesium)	5000
Fe (Iron)	2000



QCSTD-27 Quality Control Standard

AG-QCS27-ASL-1	100 mL
AG-QCS27-ASL-5	500 mL

100 µg/mL in 5% HNO₃ 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)





ICP Alternate Source

Agilent

AccuStandard equivalent of Agilent

ICV-7 Quality Control Standard

AG-ICV7-ASL-1 100 mL
AG-ICV7-ASL-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 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

AG-ANALTB-ASL-1 100 mL
AG-ANALTB-ASL-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 6 comps.

Li-6 (Lithium-6)	In (Indium)
Sc (Scandium)	Tb (Terbium)
Y (Yttrium)	Bi (Bismuth)

Multi-Element Calibration Std. 1

AG-MECAL1-ASL-1 100 mL
AG-MECAL1-ASL-5 500 mL
10 µg/mL each in 5% HNO₃ 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% HNO₃ 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)

▼ Hazardous fee not required.



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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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)	

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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

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.

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Supplied as a 10X concentrate for better stability.



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Instrument Check Standard 1

PE-CHK1-ASL-1 100 mL
PE-CHK1-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ tr. HF, tr. Tartaric acid
 17 comps.

Ag (Silver)	Mn (Manganese)
Al (Aluminum)	Ni (Nickel)
As (Arsenic)	Pb (Lead)
Ba (Barium)	Sb (Antimony)
Be (Beryllium)	Se (Selenium)
Cd (Cadmium)	Tl (Thallium)
Co (Cobalt)	V (Vanadium)
Cr (Chromium)	Zn (Zinc)
Cu (Copper)	

Instrument Check Standard 3

PE-CHK3-ASL-1 100 mL
PE-CHK3-ASL-5 500 mL
 200 µg/mL each in 2% HNO₃ 5 comps.
 Ca (Calcium) Mg (Magnesium)
 Fe (Iron) Na (Sodium)
 K (Potassium)

Instrument Check Standard 4

PE-CHK4-ASL-1 100 mL
PE-CHK4-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ 3 comps.
 Mo (Molybdenum) U (Uranium)
 Th (Thorium)

Instrument Check Standard 5

PE-CHK5-ASL-1 100 mL
PE-CHK5-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ tr. HF 4 comps.
 Mo (Molybdenum) Sr (Strontium)
 Sn (Tin) Ti (Titanium)

Multi-Element Solution 1

PE-MES1-ASL-1 100 mL
PE-MES1-ASL-5 500 mL
 1000 µg/mL each in 5% HNO₃ 4 comps.
 Al (Aluminum) Fe (Iron)
 Ca (Calcium) Mg (Magnesium)

Multi-Element Solution 2

PE-MES2-ASL-1 100 mL
PE-MES2-ASL-5 500 mL
 1000 µg/mL each in 5% HNO₃ 3 comps.
 K (Potassium) P (Phosphorus)
 Na (Sodium)

Multi-Element Solution 3

PE-MES3-ASL-1 100 mL
PE-MES3-ASL-5 500 mL
 1000 µg/mL each in Water tr. HF 5 comps.
 Mo (Molybdenum) W (Tungsten)
 Sb (Antimony) Zr (Zirconium)
 Sn (Tin)

Multi-Element Solution 4

PE-MES4-ASL-1 100 mL
PE-MES4-ASL-5 500 mL
 1000 µg/mL each in 5% HNO₃ 17 comps.
 As (Arsenic) Li (Lithium)
 Ba (Barium) Mn (Manganese)
 Be (Beryllium) Ni (Nickel)
 Cd (Cadmium) Sc (Scandium)
 Cr (Chromium) Sr (Strontium)
 Co (Cobalt) V (Vanadium)
 Cu (Copper) Y (Yttrium)
 La (Lanthanum) Zn (Zinc)
 Pb (Lead)

Interference Check Standard 5

PE-IC55-ASL-1 100 mL
PE-IC55-ASL-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ 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% HNO₃

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% HNO₃ 7 comps.

Li6 (Lithium)	In (Indium)
Sc (Scandium)	Tb (Terbium)
Ge (Germanium)	Bi (Bismuth)
Y (Yttrium)	

Interferents A

PE-INTA-ASL-1 100 mL
PE-INTA-ASL-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ 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% HNO₃ 9 comps.

Ag (Silver)	Cu (Copper)
As (Arsenic)	Mn (Manganese)
Cd (Cadmium)	Ni (Nickel)
Co (Cobalt)	Zn (Zinc)
Cr (Chromium)	

Interference Check Standard A

PE-INTFRA-ASL-1 100 mL
PE-INTFRA-ASL-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ 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% HNO₃ tr. HF tr. Tartaric acid
 16 comps.

Sb (Antimony)	Pb (Lead)
As (Arsenic)	Mn (Manganese)
Ba (Barium)	Ni (Nickel)
Be (Beryllium)	Se (Selenium)
Cd (Cadmium)	Ag (Silver)
Cr (Chromium)	Tl (Thallium)
Co (Cobalt)	V (Vanadium)
Cu (Copper)	Zn (Zinc)

PE-INTFRC-HG-ASL

2 µg/mL in 5% HNO₃

Hg (Mercury)

Supplied separately for better product stability.

▼ Hazardous fee not required.

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Mixed Calibration Standard

PE-MCS-ASL-1 100 mL
 PE-MCS-ASL-5 500 mL
 At stated conc. (µg/mL) in 2% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃

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% HNO₃ 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% HNO₃ 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

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▼ Hazardous fee not required.



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QC Standard 7 Elements

PE-QC7-ASL-1 100 mL
PE-QC7-ASL-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 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% HNO₃ tr. HF, tr. Tartaric acid
 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)	

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% HNO₃ 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% HNO₃

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% HNO₃ 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% HNO₃ tr. HCl 13 comps.

Ba (Barium)	Pb (Lead)
Be (Beryllium)	Mg (Magnesium)
Ca (Calcium)	K (Potassium)
Ce (Cerium)	Rh (Rhodium)
Co (Cobalt)	Na (Sodium)
In (Indium)	U (Uranium)
Fe (Iron)	

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% HNO₃ tr. HCl 5 comps.

Cd (Cadmium)	Mg (Magnesium)
Cu (Copper)	Rh (Rhodium)
Pb (Lead)	

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% HNO₃ tr. HCl 11 comps.

Ba (Barium)	Mg (Magnesium)
Cd (Cadmium)	Rh (Rhodium)
Ce (Cerium)	Sc (Scandium)
Cu (Copper)	Tb (Terbium)
Ge (Germanium)	Tl (Thallium)
Pb (Lead)	

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% HNO₃ tr. HCl 9 comps.

Ba (Barium)	Pb (Lead)
Be (Beryllium)	Mg (Magnesium)
Ce (Cerium)	Rh (Rhodium)
Co (Cobalt)	U (Uranium)
In (Indium)	

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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 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



ICP Alternate Source

Perkin Elmer

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)	Pb (Lead)
Cd (Cadmium)	Mg (Magnesium)
Ce (Cerium)	Rh (Rhodium)
Cu (Copper)	U (Uranium)
In (Indium)	

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)	Mg (Magnesium)
Be (Beryllium)	Pb (Lead)
Ce (Cerium)	Rh (Rhodium)
Co (Cobalt)	Tl (Thallium)
In (Indium)	U (Uranium)
Li (Lithium)	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)	S (Sulfur)
P (Phosphorus)	



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)
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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% HNO₃

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% HNO₃
 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% HNO₃

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% HNO₃
 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% HNO₃

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% HNO₃
 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% HNO₃

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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃
 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% HNO₃ 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.



ICP

Miscellaneous Applications

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% HNO₃ 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% HNO₃ 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
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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
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500 µg/mL each in 2-5% HNO₃ 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% HNO₃ 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 2

ICP-MS-CAL2-1 100 mL
10 µg/mL each in 5% HNO₃ 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 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% HNO₃

Element	Most Abundant Isotope
Hg (Mercury)	202

Calibration Standard 4

ICP-MS-CAL4-1 100 mL
10 µg/mL each in H₂O 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 Set

ICP-MS-CAL1-SET	5 x 100 mL
ICP-MS-CAL1-1	ICP-MS-CAL4-1
ICP-MS-CAL2-1	ICP-MS-CAL5-1
ICP-MS-CAL3-1	



Matrix Blanks

Nitric Acid Blank

ICP-MS-BLN-1 100 mL
ICP-MS-BLN-5 500 mL

5% HNO₃ 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.



ICP/MS

Multi-Element Standards

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% HNO₃ 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% HNO₃ 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% HNO₃ 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% HNO₃ 11 comps.

Element	µg/mL	Most Abundant Isotope
As (<i>Arsenic</i>)	10	75
Cd (<i>Cadmium</i>)	10	114
C (<i>Carbon</i>)	20	12
Cr (<i>Chromium</i>)	20	52
Cu (<i>Copper</i>)	20	63
Mn (<i>Manganese</i>)	20	55
Ni (<i>Nickel</i>)	20	58
Se (<i>Selenium</i>)	10	80
Ag (<i>Silver</i>)	20	107
V (<i>Vanadium</i>)	20	51
Zn (<i>Zinc</i>)	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% HNO₃ 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% HNO₃

Element	Most Abundant Isotope
Ag (Silver)	107

Solution B

ICP-MS-MEMCHKB-R1 ▼ 100 mL
At stated conc. (µg/mL) in H₂O 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.

ICP/MS

Multi-Element Standards



Spiking Standards

Spiking Standard for Water

ICP-MS-SPIKE-W-1 100 mL

At stated conc. (µg/mL) in 5% HNO₃ 17 comps.

Element	µg/mL	Isotope
Most Abundant		
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% HNO₃ 15 comps.

Element	µg/mL	Isotope
Most Abundant		
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

10 µg/mL each in 2% HNO₃

100 mL

9 comps.

Element	Isotope
Most Abundant	
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

10 µg/mL each in 5% HNO₃

100 mL

25 comps

Element	Isotope
Most Abundant	
Al (Aluminium)	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

10 µg/mL each in 5% HNO₃ tr. HF

100 mL

21 comps.

Element	Isotope
Most Abundant	
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% HNO₃ 7 comps.

Element	Isotope
Most Abundant	
Bi (Bismuth)	209
Ho (Holmium)	165
In (Indium)	115
6-Li (Lithium-6)	6
Sc (Scandium)	45
Tb (Terbium)	159
Y (Yttrium)	89



ICP/MS

EPA Method 200.8 & 6020

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% HNO₃ tr. HF 18 comps.

Element	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% HNO₃ 2 comps.

Element	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% HNO₃ tr. HF 18 comps.

Element	µg/mL	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% HNO₃

Element	µg/mL	Isotope
Hg (Mercury)	5	202

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 100 mL
100 µg/mL each in 2% HNO₃ 5 comps.

Element	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% HNO₃

Element	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% HNO₃ 5 comps.

Element	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% HNO₃ 22 comps.

Element	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% HNO₃ 15 comps.

Element	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% HNO₃ 12 comps.

Element	µg/mL	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% HNO₃ tr. HF 9 comps.

Element	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% HNO₃ 4 comps.

Element	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) P (Phosphorous)
 Ca (Calcium) Zn (Zinc)
 Mg (Magnesium)

See Petrochemical Section for
Metals in Biofuels.





Organometallic Standards

AA, ICP, DCP & XRF Analysis

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)	Cu (Copper)	P (Phosphorus)
Al (Aluminum)	Fe (Iron)	Pb (Lead)
B (Boron)	Mg (Magnesium)	Si (Silicon)
Ba (Barium)	Mn (Manganese)	Sn (Tin)
Ca (Calcium)	Mo (Molybdenum)	Ti (Titanium)
Cd (Cadmium)	Na (Sodium)	V (Vanadium)
Cr (Chromium)	Ni (Nickel)	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)	Fe (Iron)	Pb (Lead)
Al (Aluminum)	K (Potassium)	Si (Silicon)
B (Boron)	Mg (Magnesium)	Sn (Tin)
Ba (Barium)	Mn (Manganese)	Ti (Titanium)
Ca (Calcium)	Mo (Molybdenum)	V (Vanadium)
Cd (Cadmium)	Na (Sodium)	Zn (Zinc)
Cr (Chromium)	Ni (Nickel)	
Cu (Copper)	P (Phosphorus)	

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)	Fe (Iron)	Pb (Lead)
Al (Aluminum)	K (Potassium)	Sb (Antimony)
B (Boron)	Mg (Magnesium)	Si (Silicon)
Ba (Barium)	Mn (Manganese)	Sn (Tin)
Ca (Calcium)	Mo (Molybdenum)	Ti (Titanium)
Cd (Cadmium)	Na (Sodium)	V (Vanadium)
Cr (Chromium)	Ni (Nickel)	Zn (Zinc)
Cu (Copper)	P (Phosphorus)	



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	

Element	1000 µg/g Cat. No.	50 mL	5000 µg/g Cat. No.	50 mL
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)	Mg (Magnesium)	Si (Silicon)
Cr (Chromium)	Na (Sodium)	Sn (Tin)
Cu (Copper)	Ni (Nickel)	Ti (Titanium)
Fe (Iron)	Pb (Lead)	

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)	Fe (Iron)	Pb (Lead)
Al (Aluminum)	Mg (Magnesium)	Si (Silicon)
Cr (Chromium)	Na (Sodium)	Sn (Tin)
Cu (Copper)	Ni (Nickel)	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)	Fe (Iron)	Pb (Lead)
B (Boron)	Mg (Magnesium)	Si (Silicon)
Ba (Barium)	Mn (Manganese)	Sn (Tin)
Ca (Calcium)	Mo (Molybdenum)	Ti (Titanium)
Cd (Cadmium)	Na (Sodium)	V (Vanadium)
Cr (Chromium)	Ni (Nickel)	Zn (Zinc)
Cu (Copper)	P (Phosphorus)	

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)	Cu (Copper)	P (Phosphorus)
Al (Aluminum)	Fe (Iron)	Pb (Lead)
B (Boron)	Mg (Magnesium)	Si (Silicon)
Ba (Barium)	Mn (Manganese)	Sn (Tin)
Ca (Calcium)	Mo (Molybdenum)	Ti (Titanium)
Cd (Cadmium)	Na (Sodium)	V (Vanadium)
Cr (Chromium)	Ni (Nickel)	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	

Organometallic Standards

AA, ICP, DCP & XRF Analysis



Sulfur and Metals in Oil

Sulfur and Metals in Mineral Oil

ASTM-P-0100-SET				12 x 100 mL 100 mL
Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	
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 100 mL
Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	
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

ASTM-P-0102-SET				Designed for ASTM D5708	
				12 x 100 mL	100 mL
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	
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

ASTM-P-0103-SET				Designed for ASTM D5708	
				12 x 100 mL	100 mL
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	
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	

Stock Multi-Element in Mineral Oil

D-5708-A-10X 100 mL
100 µg/g in 20 cSt mineral oil 3 comps.

Iron Vanadium
Nickel

After Acid Decomposition of Sample

Working Level Multi-Element Aqueous Standard

D-5708-B-5 ▲ 500 mL
10 µg/mL each in 2-5% HNO₃ 3 comps.

Iron Vanadium
Nickel

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% HNO₃ 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% HNO₃ 3 comps.

Iron Vanadium
Nickel

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		

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		

Internal Standard

ASTM-P-0107-5 500 mL
Manganese @ 0.05 Wt. % in Xylene-Mineral Oil



Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards

ASTM-P-0108-SET

17 x 100 mL

Designed for ASTM D6481

Cat. No.	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.	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.	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.	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.	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.	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

Organometallic Standards

AA, ICP, DCP & XRF Analysis



Lubricating Oil Standards (Continued)

ASTM-P-0114-SET 17 x 100 mL

EDXRF ASTM Method

Designed for ASTM D6481

Cat. No.	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.	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.	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.	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.	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



Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards (Continued)

ASTM-P-0119-SET

22 x 100 mL

Designed for ASTM D4628, D4927, D4951, D6443

Cat. No.	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

Standards of Interest

Concentrations for the sets on pages 380-382 are targets. Actual production lots may vary.

ASTM-P-0120-SET

23 x 100 mL

Cat. No.	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

Metal Working Fluids

ASTM-P-0121-SET

13 x 100 mL

Cat. No.	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
ASTM-P-0122-1

50 mL
100 mL

Stabilizer Solution C

ASTM-P-0124-0.5
ASTM-P-0124-1

50 mL
100 mL

Stabilizer Solution B

ASTM-P-0123-0.5
ASTM-P-0123-1

50 mL
100 mL

Stabilizer Solution D

ASTM-P-0125-0.5
ASTM-P-0125-1

50 mL
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. H₂O 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% Aliquat 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 ▲	



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

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			

ISO Guide 34
 Cert# AR-1470

ISO/IEC 17025
 Cert# AT-1467

Analyte	Units	Certified ^{1,4} Value	K ⁵	Standard ² Deviation	Confidence Interval	Prediction Interval
Aluminum, Al <small>Traceable to: NIST SRM 3101a Lot 992003</small>	mg/Kg	2160 ± 30.8	2.00	91.0	2070 - 2250	1640 - 2680
Barium, Ba <small>Traceable to: NIST SRM 3104a Lot 070222</small>	mg/Kg	18.7 ± 0.372	2.00	1.10	17.6 - 19.8	13.1 - 24.3
Cadmium, Cd <small>Traceable to: NIST SRM 3108 Lot 060531</small>	mg/Kg	362 ± 5.92	2.00	17.5	344 - 379	375 - 448
Calcium, Ca <small>Traceable to: NIST SRM 3109a Lot 050825</small>	mg/Kg	2110 ± 34.2	2.00	101	2010 - 2210	1620 - 2600
Chromium, Cr (total) <small>Traceable to: NIST SRM 3112a Lot 990607</small>	mg/Kg	162000 ± 2044	2.00	6040	155000 - 168000	129000 - 194000
Copper, Cu <small>Traceable to: NIST SRM 3114 Lot 891811</small>	mg/Kg	3020 ± 46.7	2.00	138	2880 - 3150	2320 - 3710
Iron, Fe <small>Traceable to: NIST SRM 3126a Lot 051031</small>	mg/Kg	28700 ± 423	2.00	1250	27400 - 29900	22200 - 35200
Lead, Pb <small>Traceable to: NIST SRM 3128 Lot 030721</small>	mg/Kg	120 ± 6.26	2.00	18.5	102 - 139	18.8 - 222
Magnesium, Mg <small>Traceable to: NIST SRM 3131a Lot 050302</small>	mg/Kg	1510 ± 30.5	2.00	90.0	1420 - 1590	1080 - 1930
Manganese, Mn <small>Traceable to: NIST SRM 3132 Lot 050429</small>	mg/Kg	202 ± 2.71	2.00	8.00	194 - 210	158 - 247
Nickel, Ni <small>Traceable to: NIST SRM 3136 Lot 000612</small>	mg/Kg	13300 ± 150	2.00	442	12800 - 13700	10900 - 15700
Potassium, K <small>Traceable to: NIST SRM 3141a Lot 051220</small>	mg/Kg	73300 ± 866	2.00	2560	70800 - 75900	61000 - 85600
Silver, Ag <small>Traceable to: NIST SRM 3151 Lot 992212</small>	mg/Kg	54.8 ± 1.47	2.00	4.35	50.4 - 59.1	33.5 - 76.1
Sodium, Na <small>Traceable to: NIST SRM 3152a Lot 010728</small>	mg/Kg	29200 ± 382	2.00	1130	28100 - 30300	23800 - 34600
Zinc, Zn <small>Traceable to: NIST SRM 3168a Lot 001402</small>	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 equivalent 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.

Periodic Table of Elements

AccuStandard®
Leader in Analytical Chemical Reference Standards
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ATOMIC WEIGHT
ATOMIC NUMBER
SYMBOL
ELECTRON CONFIGURATION
BOILING OR MELTING POINT
DENSITY
ELEMENT NAME

PHYSICAL STATE
SOLID
LIQUID
GAS

NATURAL RADIOACTIVE
ARTIFICIAL RADIOACTIVE

Group	Period	Element	Symbol	Atomic Number	Atomic Weight	Physical State
1	1	Hydrogen	H	1	1.00794	Gas
2	1	Helium	He	2	4.002602	Gas
1	2	Lithium	Li	3	6.941	Solid
2	2	Beryllium	Be	4	9.01224	Solid
1	3	Sodium	Na	11	22.98976928	Solid
2	3	Magnesium	Mg	12	24.304	Solid
3	3	Aluminum	Al	13	26.9815386	Solid
4	3	Silicon	Si	14	28.08558	Solid
5	3	Phosphorus	P	15	30.973762	Solid
6	3	Sulfur	S	16	32.06	Solid
7	3	Chlorine	Cl	17	35.453	Gas
8	3	Argon	Ar	18	39.948	Gas
1	4	Potassium	K	19	39.0983	Solid
2	4	Calcium	Ca	20	40.078	Solid
3	4	Scandium	Sc	21	44.955912	Solid
4	4	Titanium	Ti	22	47.88	Solid
5	4	Vanadium	V	23	50.9415	Solid
6	4	Chromium	Cr	24	51.9961	Solid
7	4	Manganese	Mn	25	54.938	Solid
8	4	Iron	Fe	26	55.845	Solid
9	4	Cobalt	Co	27	58.9332	Solid
10	4	Nickel	Ni	28	58.6934	Solid
11	4	Copper	Cu	29	63.546	Solid
12	4	Zinc	Zn	30	65.38	Solid
13	4	Gallium	Ga	31	69.723	Solid
14	4	Germanium	Ge	32	72.61	Solid
15	4	Arsenic	As	33	74.9216	Solid
16	4	Selenium	Se	34	78.96	Solid
17	4	Bromine	Br	35	79.904	Liquid
18	4	Krypton	Kr	36	83.80	Gas
1	5	Rubidium	Rb	37	85.4678	Solid
2	5	Sr	Sr	38	87.62	Solid
3	5	Yttrium	Y	39	88.90585	Solid
4	5	Zirconium	Zr	40	91.224	Solid
5	5	Niobium	Nb	41	92.9064	Solid
6	5	Molybdenum	Mo	42	95.94	Solid
7	5	Technetium	Tc	43	98	Solid
8	5	Ruthenium	Ru	44	101.07	Solid
9	5	Rhodium	Rh	45	102.9055	Solid
10	5	Palladium	Pd	46	106.42	Solid
11	5	Silver	Ag	47	107.865	Solid
12	5	Cadmium	Cd	48	112.411	Solid
13	5	Indium	In	49	114.818	Solid
14	5	Tin	Sn	50	118.710	Solid
15	5	Antimony	Sb	51	121.757	Solid
16	5	Tellurium	Te	52	127.60	Solid
17	5	Iodine	I	53	126.905	Solid
18	5	Xenon	Xe	54	131.29	Gas
1	6	Cesium	Cs	55	132.905	Solid
2	6	Barium	Ba	56	137.327	Solid
3	6	Lanthanum	La	57	138.905	Solid
4	6	Cerium	Ce	58	140.12	Solid
5	6	Praseodymium	Pr	59	140.90765	Solid
6	6	Neodymium	Nd	60	144.242	Solid
7	6	Promethium	Pm	61	144.9128	Solid
8	6	Samarium	Sm	62	150.36	Solid
9	6	Europium	Eu	63	151.964	Solid
10	6	Gadolinium	Gd	64	157.25	Solid
11	6	Terbium	Tb	65	158.92534	Solid
12	6	Dysprosium	Dy	66	162.50	Solid
13	6	Ho	Ho	67	164.93032	Solid
14	6	Erbium	Er	68	167.259	Solid
15	6	Thulium	Tm	69	168.9304	Solid
16	6	Ytterbium	Yb	70	173.054	Solid
17	6	Lutetium	Lu	71	174.967	Solid
1	7	Francium	Fr	87	223	Solid
2	7	Radium	Ra	88	226	Solid
3	7	Actinium	Ac	89	227	Solid
4	7	Rutherfordium	Rf	104	261	Solid
5	7	Dubnium	Db	105	262	Solid
6	7	Seaborgium	Sg	106	263	Solid
7	7	Bohrium	Bh	107	264	Solid
8	7	Hassium	Hs	108	265	Solid
9	7	Mt	Mt	109	266	Solid
10	7	Ds	Ds	110	269	Solid
11	7	Rg	Rg	111	270	Solid
12	7	Cn	Cn	112	285	Solid
1	8	Lanthanum	La	57	138.9055	Solid
2	8	Cerium	Ce	58	140.12	Solid
3	8	Praseodymium	Pr	59	140.90765	Solid
4	8	Neodymium	Nd	60	144.242	Solid
5	8	Promethium	Pm	61	144.9128	Solid
6	8	Samarium	Sm	62	150.36	Solid
7	8	Europium	Eu	63	151.964	Solid
8	8	Gadolinium	Gd	64	157.25	Solid
9	8	Terbium	Tb	65	158.92534	Solid
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12	8	Erbium	Er	68	167.259	Solid
13	8	Thulium	Tm	69	168.9304	Solid
14	8	Ytterbium	Yb	70	173.054	Solid
15	8	Lutetium	Lu	71	174.967	Solid
1	9	Actinium	Ac	89	227	Solid
2	9	Thorium	Th	90	232.0377	Solid
3	9	Protactinium	Pa	91	231.036888	Solid
4	9	Uranium	U	92	238.02891	Solid
5	9	Neptunium	Np	93	237.048173	Solid
6	9	Plutonium	Pu	94	244.06422	Solid
7	9	Americium	Am	95	243.061361	Solid
8	9	Curium	Cm	96	247.077248	Solid
9	9	Berkelium	Bk	97	247.077248	Solid
10	9	Californium	Cf	98	251.079588	Solid
11	9	Einsteinium	Es	99	252.083223	Solid
12	9	Fermium	Fm	100	257.083223	Solid
13	9	Mendelevium	Md	101	258.10	Solid
14	9	No	No	102	259.10	Solid
15	9	Lr	Lr	103	260.10	Solid

Technical Reference

Unit Conversions

Temperature	1 degree C = 1.8 degree F + 32
Length	1 cm = 10 mm
Volume	1 L = 1000 mL
Mass	1 kg = 1000 g
Energy	1 J = 0.239 cal
Pressure	1 atm = 101.325 kPa
Force	1 N = 0.2248 lbf
Power	1 W = 3.412 Btu/hr
Flow Rate	1 L/min = 6.118 qt/hr
Area	1 m² = 10.764 ft²
Volume	1 m³ = 35.315 ft³
Mass	1 kg = 2.20462 lb
Force	1 N = 0.2248 lbf
Energy	1 J = 0.73756 ft-lbf
Power	1 W = 3.41214 Btu/hr
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Area	1 m² = 10.764 ft²
Volume	1 m³ = 35.315 ft³
Mass	1 kg = 2.20462 lb

Organic Technical Reference

Solvent Miscibility Table, Density and Boiling Point

Acetic acid (1.049 g/mL) (117-118°C)
Acetone (0.791 g/mL) (56°C)
Acetonitrile (AcCN) (0.786 g/mL) (81-82°C)
Benzene (0.874 g/mL) (80°C)
2-Butanol (0.808 g/mL) (98°C)
Butyl alcohol (0.81 g/mL) (116-118°C)
tert-Butylmethyl ether (MtBE) (0.74 g/mL) (55-56°C)
Carbon tetrachloride (1.594 g/mL) (76-77°C)
Chloroform (1.492 g/mL) (60.5-61.5°C)
Cyclohexane (0.779 g/mL) (80.7°C)
Cyclopentane (0.751 g/mL) (50°C)
Dichloroethane (1.256 g/mL) (83°C)
N,N-Dimethylformamide (DMF) (0.944 g/mL) (153°C)
1,4-Dioxane (1.034 g/mL) (100-102°C)
Dipropyl ether (0.736 g/mL) (88-90°C)
Ethyl acetate (EtOAc) (0.902 g/mL) (76.5-77.5°C)
Ethyl alcohol (EtOH) (0.789 g/mL) (78°C)
Ethyl ether (0.706 g/mL) (34.6°C)
n-Heptane (0.684 g/mL) (98°C)
n-Hexane (0.659 g/mL) (69°C)
Isooctane (0.692 g/mL) (98-99°C)
Isopropyl alcohol (0.785 g/mL) (82°C)
Methanol (MeOH) (0.791 g/mL) (64.7°C)
Methylene chloride (CH ₂ Cl ₂) (1.325 g/mL) (39.8-40°C)
Methyl sulfoxide (DMSO) (1.10 g/mL) (189°C)
n-Pentane (0.626 g/mL) (35-36°C)
1,1,1,2-Tetrachloroethane (1.586 g/mL) (147°C)
Tetrahydrofuran (THF) (0.889 g/mL) (65-67°C)
Toluene (0.865 g/mL) (110-111°C)
Trichloroethane (1.336 g/mL) (74-76°C)
Water (1 g/mL) (100°C)
Xylene (0.868 g/mL) (138-139°C)

☐ 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, 0°C)	ΔH _{fus} = 79.7 cal/g
Heat of Vaporization (water 1 atm, 100°C)	ΔH _{vap} = 540 cal/g
Volume of Perfect Gas	22.4L/mol at 0°C, 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 °C
Temp. of Liquid Nitrogen	-195.8 °C

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 approximately 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, Handling 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



- Acute Toxicity (fatal or toxic)

GHS-06



- Flammables
- Self Reactives
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Organic Peroxides

GHS-02



- Corrosives
- Skin corrosion/burns
- Eye Damage
- Corrosive to Metals

GHS-05



- Irritant
- Skin Sensitizer
- Acute toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant

GHS-07



- Oxidizers

GHS-03



- Carcinogen
- Respiratory Sensitizer
- Reproductive Toxicity
- Mutagenicity
- Aspiration Toxicity

GHS-08

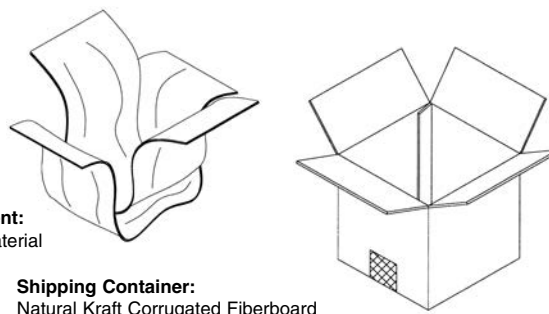
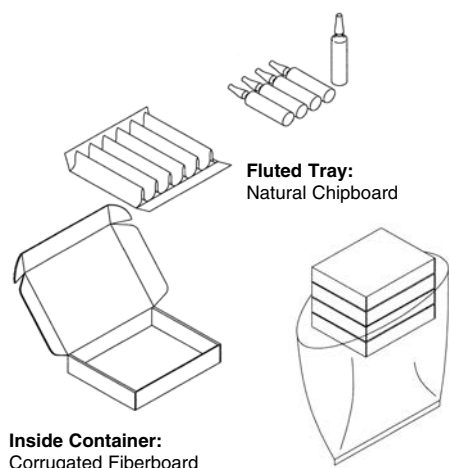


- Aquatic Toxicity

GHS-09

AccuStandard uses recyclable and biogradable material

Package compliant with DOT and International regulations.



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- 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

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From: Company Contact _____
 Company Name _____
 Phone: () _____ Ext. _____
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Send to:

Page ___ of ___

For Internal Use Only

AS Tech. Rep. _____ Product Ordering # _____
 Quote Creation Date _____ Quoted price \$ _____

Requested Quantity

No. of Comps. _____
 Product Description _____
 Concentration _____
 Solvent / Matrix _____

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)	Concentration Units
1 _____	_____	_____	<input type="checkbox"/> ng/mL
2 _____	_____	_____	<input type="checkbox"/> µg/mL
3 _____	_____	_____	<input type="checkbox"/> mg/mL
4 _____	_____	_____	<input type="checkbox"/> wt. %
5 _____	_____	_____	<input type="checkbox"/> vol. %
6 _____	_____	_____	
7 _____	_____	_____	
8 _____	_____	_____	
9 _____	_____	_____	
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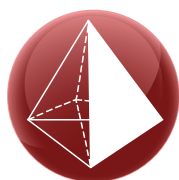
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New Products in this Catalog

- 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



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