The Biomarker Catalogue

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EPA methods

The collection of reference standards
- 2008 -

EPA methods

EPA 425.1
Surfactants (LAS) by colorimetry

Methylene blue active substances

Available standards:

2561.18-K-ME **LAS 12-Na**
Sodium n-dodecylbenzenesulfonate, 99% pure
1000µg/mL in methanol

3724.18-K-MX **LAS 10-14 Na (tech.)** [69669-44-9]
Sodium dodecylbenzenesulfonate, tech. C10-C14
1000µg/mL in methanol, acetonitrile or water

This method can not differentiate between LAS, ABS and LAS with benzenesulfonates at the end or in the alkyl chain.

EPA 505
Water - organohalide pesticides and PCBs by GC

Analysis of organohalide pesticides and commercial polychlorinated biphenyls (PCB) products in water by microextraction and gas chromatography

This method is applicable to the determination of the analytes in finished drinking water, drinking water during intermediate stages of treatment, and the raw source water. The method provide qualitative confirmation of results by Gas Chromatography/Mass Spectrometry.

For individual standards see the PCB and pesticide sections in the Compounds section, pages 354 and 367.

EPA 506 Rev 1.1
Drinking water - phthalates and adipates by GC

Determination of phthalate and adipate esters in drinking water by liquid-liquid or liquid-solid extraction by gas chromatography with a photoionization detector

After capillary column GC separation, a photoionization detector is required for detection and MDLs are limited to approximately 10µg/L. Phthalates and adipates are among the most common contaminants encountered in the laboratory and extreme care must be taken to ensure clean reagent blanks.

S-4231-K-IO
S-4231-K-5IO

EPA 506 Phathalates and Adipates in Drinking Water
7 Analytes, each 1000µg/mL in isooctane; units: 5x1mL or 5mL screw cap bottle

1225.12	Diethyl phthalate	DEP	[84-66-2]
1228.22	Bis(2-ethylhexyl) adipate	BEHA	[103-23-1]
1223.24	Di-n-octyl phthalate	DNOP	[117-84-0]
1227.17	Benzyl butyl phthalate	BBP	[85-68-7]
1224.24	Bis(2-ethylhexyl) phthalate	BEHP	[117-81-7]
2094.10	Dimethyl phthalate	BMP	[131-11-3]
1226.16	Di-n-butyl phthalate	DBP	[84-74-2]

S-4232-ASS-ME
S-4232-ASS-5ME

EPA 506 Laboratory Performance Test
7 Analytes, each concentration as listed in methanol; units: 5x1mL, 1x5mL

1225.12	Diethyl phthalate	DEP	[84-66-2]	100µL/mL
1228.22	Bis(2-ethylhexyl) adipate	BEHA	[103-23-1]	1200µL/mL
1223.24	Di-n-octyl phthalate	DNOP	[117-84-0]	650µL/mL
1227.17	Benzyl butyl phthalate	BBP	[85-68-7]	250µL/mL
1224.24	Bis(2-ethylhexyl) phthalate	BEHP	[117-81-7]	250µL/mL
2094.10	Dimethyl phthalate	BMP	[131-11-3]	100µL/mL
1226.16	Di-n-butyl phthalate	DBP	[84-74-2]	100µL/mL

EPA 525.2
Water - organics and PAHs by GC-MS

Determination of organic compounds in drinking water by liquid-solid extraction and capillary column gas chromatography-mass spectrometry.

This test method provides procedures for determination of organic compounds in finished drinking water, source water, or drinking water in any treatment stage. The method is applicable to a wide range of organic compounds that are efficiently portioned from the water sample onto a C18 organic phase chemically bonded to a solid matrix in a disk or cartridge, and sufficiently volatile and thermally stable for gas chromatography.

S-4116-100-AC
S-4116-100-5AC

EPA 525.2 PAH mixture, 13 Compounds in Acetone
13 Analytes, each 100µg/mL in acetone; units: 1x1mL, 1x5mL

0002.12	Acenaphthylene	[208-96-8]
1049.14	Anthracene	[120-12-7]
0201.18	Benz[a]anthracene	[56-55-3]
0263.20	Benzo[b]fluoranthene	[205-99-2]
0265.20	Benzo[k]fluoranthene	[207-08-9]
0222.22	Benzo[ghi]perylene	[191-24-2]
0239.20	Benzo[a]pyrene	[50-32-8]
0212.18	Chrysene	[218-01-9]
0203.22	Dibenz[a,h]anthracene	[53-70-3]
0217.13	Fluorene	[86-73-7]
0277.22	Indeno[1,2,3-cd]pyrene	[193-39-5]
0816.14	Phenanthrene	[85-01-8]
0235.16	Pyrene	[129-00-0]

For individual pesticides see the Compounds section, pages 367-372.

EPA 527.1
Drinking water - pesticides and PBDEs by GC-MS

Determination of selected pesticides and flame retartdants in drinking water by solid phase extraction and capillary column gas chromatography / mass spectrometry (GC-MS)

The Method 527 was developed for the determination of selected semivolatile organic compounds in drinking water.

PBDE Congeners of Primary interest (8 compounds, two concentrations; unit: 1x1ml) (§7.8)

EPA 527 – Multiple Component Solutions

S-4482-500-ME

EPA 527 Mix 1, Pesticides A

10 Analytes, each 500µg/mL in Methanol; unit: 1x1mL

2768.8	Atrazine	[1912-24-9]
3324.9	Bromacil	[314-40-9]
3100.19	Esbiol (S-bioalletrin)	[28434-00-6]
3394.25	Esfenvalerate	[66230-04-4]
3405.25	Fenvalerate	[51630-58-1]
3420.12	Hexazinone	[51235-04-2]
3468.10	Kepone	[143-50-0]
3727.12	Norfluazon	[27314-13-2]
3335.10	Oxychlordane	[27304-13-8]
3491.10	Prometryne	[7287-19-6]
2769.9	Propazine	[139-40-2]

S-4483-500-ME

EPA 527 Mix 2, Pesticides B

9 Analytes, each 500µg/mL in Methanol; unit: 1x1mL

3323.23	Bifenthrin	[82657-04-3]
3344.9	Chlorpyrifos (Dursban)	[2921-88-2]
3381.5	Dimethoate	[60-51-5]
1396.10	Malathion	[121-75-5]
3457.10	Mirex	[2385-85-5]
3463.12	Nitrofen	[1836-75-5]
3469.10	Parathion-ethyl	[56-38-2]
3228.9	Terbufos-sulfone	[56070-16-7]
3317.12	Thiobencarb	[28249-77-6]
3524.12	Vinclozolin	[50471-44-8]

S-4484-50-IO

EPA 527 Mix 3, DBE congeners and hexabromobiphenyl

5 Analytes, each 50µg/mL in Isooctane:Ethyl acetate (8:2); unit: 1x1mL

3108.12	2,2',4,4',5,5'-Hexabromobiphenyl	PBB-153	[59080-40-9]
1962.12	2,2',4,4'-Tetrabromodiphenyl ether	BDE-47	[5436-43-1]
1967.12	2,2',4,4',5-Pentabromodiphenyl ether	BDE-99	[60348-60-9]
1968.12	2,2',4,4',6-Pentabromodiphenyl ether	BDE-100	[189084-64-8]
1971.12	2,2',4,4',5,5'-Hexabromodiphenyl ether	BDE-153	[68631-49-2]

S-4485-500-AC

EPA 527, Internal standard

3 Analytes, each 500µg/mL in Acetone; unit: 1x1mL

1524.12	Acenaphthene-d10	[15067-26-2]
0389.14	Phenanthrene-d10	[1517-22-2]
1024.18	Chrysene-d12	[19-03-5]

S-4486-500-AC

EPA 527, Surrogate standard

3 Analytes, each 500µg/mL in Acetone; unit: 1x1mL

3478,8	1,3-Dimethyl-2-nitrobenzene	[81-20-9]
2138.18	Triphenylphosphate	[115-86-6]
1534.20	Perylene-d12	[1520-96-3]

EPA 528.1.0
Phenols in drinking water by GC-MS

Determination of phenols in drinking water by solid phase extraction and capillary column gas chromatography-mass spectrometry.

This method provides procedures for the determination of phenols in finished drinking water. This method can also be used on untreated course water and other types of water samples. A large variety of phenols can be determined by this method.

EPA 528 rev.1.0 Standard Stock Solutions

12 Single stock solutions, each analyte 5µg/mL in methanol; unit: 1x5mL of each solution

1427.6-5-5ME	Phenol	[108-95-2]
2062.6-5-5ME	2-Chlorophenol	[95-57-8]
1403.7-5-5ME	2-Methylphenol (o-Cresol)	[95-48-7]
2085.6-5-5ME	2-Nitrophenol	[88-75-5]
1406.8-5-5ME	2,4-Dimethylphenol	[105-67-9]
2064.6-5-5ME	2,4-Dichlorophenol	[120-83-2]
2071.7-5-5ME	4-Chloro-3-methylphenol	[59-50-7]
2076.6-5-5ME	2,4,6-Trichlorophenol	[88-06-2]
2079.6-5-5ME	2,4-Dinitrophenol	[51-28-5]
2087.6-5-5ME	4-Nitrophenol	[100-02-7]
2083.7-5-5ME	2-Methyl-4,6-dinitrophenol	[534-52-1]
2084.6-5-5ME	Pentachlorophenol	[87-86-5]

2445.12-KIT Set of 12 stock solutions, 12x5 mL

S-4365-30-5ME

EPA 528 rev. 1.0 Primary Dilution Standard Solution

12 Analytes, each 30ng/mL in methanol; unit: 1x5mL

1427.6	Phenol	[108-95-2]
2062.6	2-Chlorophenol	[95-57-8]
1403.7	2-Methylphenol (o-Cresol)	[95-48-7]
2085.6	2-Nitrophenol	[88-75-5]
1406.8	2,4-Dimethylphenol	[105-67-9]
2064.6	2,4-Dichlorophenol	[120-83-2]
2071.7	4-Chloro-3-methylphenol	[59-50-7]
2076.6	2,4,6-Trichlorophenol	[88-06-2]
2079.6	2,4-Dinitrophenol	[51-28-5]
2087.6	4-Nitrophenol	[100-02-7]
2083.6	2-Methyl-4,6-dinitrophenol	[534-52-1]
2084.6	Pentachlorophenol	[87-86-5]

S-4366-SET-5DC

EPA 528 rev.1.0 Calibration Solutions

11 Analytes, 2 Internal Standards and 3 Surrogate Analytes in dichloromethane; unit: 7x5mL

	Analyte		CAL 1	CAL 2	CAL 3	CAL 4	CAL 5	CAL 6	CAL 7
			ng/µL	ng/µL	ng/µL	ng/µL	ng/µL	ng/µL	ng/µL
1427.6	Phenol	[108-95-2]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2062.6	2-Chlorophenol	[95-57-8]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
1403.7	2-Methylphenol (o-cresol)	[95-48-7]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2085.6	2-Nitrophenol	[88-75-5]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
1406.8	2,4-Dimethylphenol	[105-67-9]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2071.7	4-Chloro-3-methylphenol	[59-50-7]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2076.6	2,4,6-Trichlorophenol	[88-06-2]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2079.6	2,4-Dinitrophenol	[51-28-5]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2087.6	4-Nitrophenol	[100-02-7]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2083.6	2-Methyl-4,6-dinitrophenol	[534-52-1]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
2084.6	Pentachlorophenol	[87-86-5]	15.00	10.00	5.00	2.00	1.00	0.50	0.10
	Internal Standards								
3841.8	1,2-Dimethyl-3-nitrobenzene	[83-41-0]	2.50	2.50	2.50	2.50	2.50	2.50	2.50
2081.6	2,3,4,5-Tetrachlorophenol	[4901-51-3]	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	Surrogate Analytes								
2420.6	2-Chlorophenol-3,4,5,6-d4	[93951-73-6]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
2396.8	2,4-Dimethylphenol-3,5,6-d3	[93951-75-8]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
2060.6	2,4,6-Tribromophenol	[118-79-6]	5.00	5.00	5.00	5.00	5.00	5.00	5.00

S-4367-100-5DC

EPA 528 rev. 1.0 Internal Standard Solution 1

100µg/mL in dichloromethane; unit: 1x5mL

3841.8	1,2-Dimethyl-3-nitrobenzene	[83-41-0]

S-4368-200-5DC

EPA 528 rev. 1.0 Internal Standard Solution 2

200µg/mL in dichloromethane; unit: 1x5mL

2081.6	2,3,4,5-Tetrachlorophenol	[4901-51-3]

S-4369-ASS-5DC **EPA 528 rev. 1.0 Internal Standard Solution 3**

2 Analytes, each concentration as listed in dichloromethane; unit: 1x5mL

3841.8	1,2-Dimethyl-3-nitrobenzene	[83-41-0]	100µg/mL
2081.6	2,3,4,5-Tetrachlorophenol	[4901-51-3]	200µg/mL

S-4370-100-5ME **EPA 528 rev. 1.0 Sample Fortification Solution 1**

100µg/mL in methanol; unit: 1x5mL

2420.6	2-Chlorophenol-3,4,5,6-d4	[93951-73-6]

S-4371-100-5AC **EPA 528 rev. 1.0 Sample Fortification Solution 2**

100µg/mL in acetone; unit: 1x5mL

2396.8	2,4-Dimethylphenol-3,5,6-d3	[93951-75-8]

S-4372-200-5ME **EPA 528 rev. 1.0 Sample Fortification Solution 3**

200µg/mL in methanol; unit: 1x5mL

2060.6	2,4,6-Tribromophenol	[118-79-6]

EPA 604
Phenols in wastewater by GC-ECD or GC-FID

Methods for organic chemical analysis of municipal and industrial wastewater – Phenols

This test method describes the procedure for the determination of phenols and phenols derivatives. Underivatized phenols may be analysed by GC-FID. Target phenols may also be derivatized with diazomethane or pentafluorobenzylbromide (PFBBr) and analysed by GC-FID or GC-ECD.

S-4247-ASS-ME **EPA 604 Calibration Mixture**

11 Analytes, each 500µg/mL in methanol; unit: 1x1mL
(2,4-Dinitrophenol and 4,6-dinitrocresol at concentration 1000µg/mL)

2071.7	4-Chloro-3-methylphenol	[59-50-7]
2062.6	2-Chlorophenol	[95-57-8]
2064.6	2,4-Dichlorophenol	[120-83-2]
1406.8	2,4-Dimethylphenol	[105-67-9]
2079.6	2,4-Dinitrophenol	[51-28-5]
2083.7	2-Methyl-4,6-dinitrophenol	[534-52-1]
2085.6	2-Nitrophenol	[88-75-5]
2087.6	4-Nitrophenol	[100-02-7]
2084.6	Pentachlorophenol	[87-86-5]
1427.6	Phenol	[108-95-2]
2076.6	2,4,6-Trichlorophenol	[88-06-2]

2060.6-200-ME **EPA 604, Surrogate Standard**
200 µg/mL in methanol; unit: 1x1mL

2060.6	2,4,6-Tribromophenol	[118-79-6]

S-4148-200-ME **EPA 604 Calibration Mixture as PFB derivatives**
11 Analytes, each 200µg/mL in methanol; unit: 1x1mL

2071.7	4-Chloro-3-methylphenol	[59-50-7]
2062.6	2-Chlorophenol	[95-57-8]
2064.6	2,4-Dichlorophenol	[120-83-2]
1406.8	2,4-Dimethylphenol	[105-67-9]
2079.6	2,4-Dinitrophenol	[51-28-5]
2083.7	2-Methyl-4,6-dinitrophenol	[534-52-1]
2085.6	2-Nitrophenol	[88-75-5]
2087.6	4-Nitrophenol	[100-02-7]
2084.6	Pentachlorophenol	[87-86-5]
1427.6	Phenol	[108-95-2]
2076.6	2,4,6-Trichlorophenol	[88-06-2]

2091.13-200-ME **EPA 604, Surrogate Standard as PFB derivatives**
200 µg/mL in methanol; unit: 1x1mL

2091.13	2,4,6-Tribromophenol-PFB

EPA 606
Phthalate esters in wastewater by GC

Methods for organic chemical analysis of municipal and industrial wastewater – Phthalate esters

Standard test method for the determination of phthalate esters in municipal and industrial wastewater by gas chromatography with electron capture detector.

S-4233-2K-HX **EPA 606 Phthalate Esters in Waste Water by GC-ECD**
S-4233-2K-5HX 6 Analytes, each 2000µg/mL in hexane; units: 5x1mL, 1x5mL

1224.4	Bis(2-ethylhexyl) phthalate	[117-81-7]
1227.19	Benzyl butyl phthalate	[85-68-7]
1226.16	Di-n-butyl phthalate	[84-74-2]
1225.12	Diethyl phthalate	[84-66-2]
2094.10	Dimethyl phthalate	[131-11-3]
1223.24	Di-n-octyl phthalate	[117-84-0]

S-4234-ASS-AC
S-4234-ASS-5AC

EPA 606 Control Sample Mixture
6 Analytes, each concentration as listed in acetone; units: 5x1mL, 1x5mL

1224.4	Bis(2-ethylhexyl) phthalate	[117-81-7]	500µL/mL
1227.19	Benzyl butyl phthalate	[85-68-7]	100µL/mL
1226.16	Di-n-butyl phthalate	[84-74-2]	250µL/mL
1225.12	Diethyl phthalate	[84-66-2]	250µL/mL
2094.10	Dimethyl phthalate	[131-11-3]	250µL/mL
1223.24	Di-n-octyl phthalate	[117-84-0]	500µL/mL

EPA 608/625
Organochlorine pesticides and PCBs by GC and GC-MS in municipal discharges

These methods covers the determination of certain organochlorine pesticides and PCBs in municipal and industrial discharges.

For individual pesticides and PCBs, see the Compound section, pages 367 and 354.

EPA 610
PAH in wastewater by HPLC and GC

Methods for organic chemical analysis of municipal and industrial wastewater – PAHs

Standard test method for the determination of certain polycyclic aromatic hydrocarbons (PAH) in municipal and industrial wastewater by both high performance liquid chromatography and gas chromatography.

S-4114-ASS-5AN

16 Priority PAH, Control Mix
16 Analytes, each concentration as listed in acetonitrile; unit: 1x5mL screw cap bottle

0732.12	Acenaphthene	[83-32-9]	100 µg/mL
0002.12	Acenaphthylene	[208-96-8]	100 µg/mL
1049.14	Anthracene	[120-12-7]	100 µg/mL
0201.18	Benz[a]anthracene	[56-55-3]	10 µg/mL
0263.20	Benzo[b]fluoranthene	[205-99-2]	100 µg/mL
0265.20	Benzo[k]fluoranthene	[207-08-9]	5 µg/mL
0222.22	Benzo[ghi]perylene	[191-24-2]	10 µg/mL
0239.20	Benzo[a]pyrene	[50-32-8]	10 µg/mL
0212.18	Chrysene	[218-01-9]	10 µg/mL
0203.22	Dibenz[a,h]anthracene	[53-70-3]	10 µg/mL
0260.16	Fluoranthene	[206-44-0]	10 µg/mL
0217.13	Fluorene	[86-73-7]	10 µg/mL
0277.22	Indeno[1,2,3-cd]pyrene	[193-39-5]	10 µg/mL
0711.10	Naphthalene	[91-20-3]	100 µg/mL
0816.14	Phenanthrene	[85-01-8]	100 µg/mL
0235.16	Pyrene	[129-00-0]	10 µg/mL

S-4115-ASS-AN

Check Mix, EPA 610

8 Analytes, each concentration as listed in acetonitrile; units: 1x1mL, 5x1mL

0711.10	Naphthalene	[91-20-3]	100 µg/mL
0002.12	Acenaphthylene	[208-96-8]	100 µg/mL
0732.12	Acenaphthene	[83-32-9]	100 µg/mL
0217.13	Fluorene	[86-73-7]	100 µg/mL
0816.14	Phenanthrene	[85-01-8]	100 µg/mL
1049.14	Anthracene	[120-12-7]	100 µg/mL
0265.20	Benzo(k)fluoranthene	[207-08-9]	5 µg/mL
0212.18	Chrysene	[218-01-9]	10 µg/mL

EPA 1614
PBDEs by HRGC/HRMS

NEW

Brominated diphenyl ethers in water, soil, sediment, and tissue by HRGC/HRMS

The Method 1614 was developed for determination of the polybrominated diphenyl ether congeners commonly found in environmental samples and resulting from use of brominated flame retardants, by isotope dilution and internal standard high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS). The method is applicable to aqueous, solid, tissue, and multi-phase matrices.

S-4390-20-IO
S-4390-1-IO

EPA 1614 – Multiple Component Solution

PBDE Congeners of Primary interest (7 compounds, two concentrations; unit: 1x1mL) (§7.8)

Chiron No.	Compound	Abbr.	CAS No.	S-4390-20-IO µg/mL	S-4390-1-IO µg/mL
1961.12	2,4,4’-Tribromodiphenyl ether	PBDE-28	[41318-75-6]	20	1
1962.12	2,2’,4,4’-Tetrabromodiphenyl ether	PBDE-47	[5436-43-1]	20	1
1967.12	2,2’,4,4’,5-Pentabromodiphenyl ether	PBDE-99	[60348-60-9]	20	1
1968.12	2,2’,4,4’,6-Pentabromodiphenyl ether	PBDE-100	[189084-64-8]	20	1
1971.12	2,2’,4,4’,5,5’-Hexabromodiphenyl ether	PBDE-153	[68631-49-2]	20	1
1973.12	2,2’,3,4,4’,5’,6’-Heptabromodiphenyl ether	PBDE-183	[207122-16-5]	20	1
1811.12	Decabromodiphenyl ether	PBDE-209	[1163-19-5]	200	10

Internal standards F-PBDEs®

In isooctane or toluene; unit: 1x1mL

For a complete list, see the Compound section, pages 358-359.

2258.12-50-IO	3’-Fluoro-2,4-dibromodiphenyl ether	F-PBDE-7		50µg/mL
2257.12-50-IO	3’-Fluoro-3,4-dibromodiphenyl ether	F-PBDE-12		50µg/mL
1927.12-50-IO	4’-Fluoro-2,3’,6-tribromodiphenyl ether	F-PBDE-27	[863314-86-7]	50µg/mL
2160.12-50-T	2’-Fluoro-2,4,4’-Tribromodiphenyl ether	F-PBDE-28	[876310-22-4]	50µg/mL
2161.12-50-T	6-Fluoro-2,2’,4,4’-tetrabromodiphenyl ether	F-PBDE-47	[876310-23-4]	50µg/mL
2506.12-50-IO	5,5’-Difluoro-2,2’,4,4’-tetrabromodiphenyl ether	2F-PBDE-47	[886748-32-9]	50µg/mL
2162.12-50-IO	6-Fluoro-2,3’,4,4’-tetrabromodiphenyl ether	F-PBDE-66		50µg/mL
2503.12-50-IO	5,6-Difluoro-2,2’,3,4,4’-pentabromodiphenyl ether	2F-PBDE-85		50µg/mL
2505.12-50-IO	3,6-Difluoro-2,2’,4,4’5-pentabromodiphenyl ether	2F-PBDE-99	[886748-34-1]	50µg/mL
2163.12-50-T	3-Fluoro-2,2’,4,4’,6-pentabromodiphenyl ether	F-PBDE-100	[887401-80-1	50µg/mL
2504.12-50-IO	3,5-Difluoro-2,3’,4,4’,6-pentabromodiphenyl ether	2F-PBDE-119	[886748-35-2]	50µg/mL
1929.12-50-T	4’-Fluoro-2,3,3’,4,5,6-hexabromodiphenyl ether	F-PBDE-160	[863314-88-9]	50µg/mL
2167.12-50-T	4’,6-Difluorooctabromodiphenyl ether	2F-PBDE-201	[863314-96-9]	50µg/mL
2168.12-50-IO	4’-Fluoro-2,2’,3,3’,4’,5,5’6,6’-nonabromodiphenyl ether	F-PBDE-208	[876310-29-1]	50µg/mL

Labelled Internal Standard Multiple Congeners are made by request based upon choice and requirement, e.g.:

Name	Congener			CS-1	CS-2	CS-3	CS-4	CS-5
Natives				ng/mL	ng/mL	ng/mL	ng/mL	ng/mL
1961.12	2,4,4'-TrBDE	PBDE-28	[41318-75-6]	1.0	5.0	50	500	2500
1962.12	2,2',4,4'-TeBDE	PBDE-47	[5436-43-1]	1.0	5.0	50	500	2500
1967.12	2,2',4,4',5-PeBDE	PBDE-99	[60348-60-9]	1.0	5.0	50	500	2500
1968.12	2,2',4,4',6-PeBDE	PBDE-100	[189084-64-8]	1.0	5.0	50	500	2500
1971.12	2,2',4,4',5,5'-HeBDE	PBDE-153	[68631-49-2]	1.0	5.0	50	500	2500
1973.12	2,2'3,4,4',5',6-HpBDE	PBDE-183	[207122-16-5]	1.0	5.0	50	500	2500
1811.12	DeBDE	PBDE-209	[1163-19-5]	10	50	500	5000	25000
Labelled								
2160.12	2'-Fluoro-2,4,4'-TrBDE	F-PBDE-28	[876310-22-4]	100	100	100	100	100
2161.12	6-Fluoro-2,2',4,4'-TeBDE	F-PBDE-47		100	100	100	100	100
2506.12	5,5'-Difluoro-2,2',4,4'-TeBDE	FF-PBDE-47	[886748-32-9]	100	100	100	100	100
2162.12	6-Fluoro-2,3',4,4'-TeBDE	F-PBDE-66		100	100	100	100	100
2503.12	5,6-Difluoro-2,2',3,4,4'-PeBDE	F-PBDE-85		100	100	100	100	100
2505.12	3,6-Difluoro-2,2',4,4'5-PeBDE	FF-PBDE-99	[886748-34-1]	100	100	100	100	100
2163.12	3-Fluoro-2,2'4,4',6-PeBDE	F-PBDE-100	[887401-80-1]	100	100	100	100	100
1929.12	4'-Fluoro-2,3,3',4,5,6-HxBDE	F-PBDE-160		100	100	100	100	100
2167.12	4',6-Difluoro-OcBDE	FF-PBDE-201	[863314-96-9]	100	100	100	100	100
2168.12	4'-Fluoro-2,2',3,3',4',5,5'6,6'-NoBDE	F-PBDE-208	[876310-29-1]	1000	1000	1000	1000	1000
Labelled clean-up								
2164.12	3,5-Difluoro-2,3',4,4',6-PeBDE	F-PBDE-119	[876310-26-8]	100	100	100	100	100
Labelled Injection Internal								
2525.12	3'-Fluoro-2,4,6-TrCB	F-PCB-30m		100	100	100	100	100
2344.12	3'-Fluoro-3,4,4',5-TeCB	F-PCB-81		100	100	100	100	100

EPA 1653
Chlorinated phenols in pulp and papir industries wastewater

Chlorinated phenolics wastewater by in situ acetylation and GC-MS

S-4243-100-ME

EPA 1653 Chlorophenols

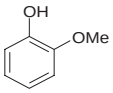
7 Analytes, each 100µg/mL in methanol; units: 1x1mL, 5x1mL

2068.6	4-Chlorophenol	[106-48-9]
2064.6	2,4-Dichlorophenol	[120-83-2]
2069.6	2,6-Dichlorophenol	[87-65-0]
2075.6	2,4,5-Trichlorophenol	[95-95-4]
2076.6	2,4,6-Trichlorophenol	[88-06-2]
2149.6	2,3,4,6-Tetrachlorophenol	[58-90-2]
2084.6	Pentachlorophenol	[87-86-5]

S-4244-100-ME

EPA 1653 Chloroguaiacols

8 Analytes, each 100µg/mL in methanol; unit: 1x1mL



Guaiacol

4-Chloroguaiacol	[16766-30-6]
3,4-Dichloroguaiacol	
4,5-Dichloroguaiacol	
4,6-Dichloroguaiacol	
3,4,5-Trichloroguaiacol	
3,4,6-Trichloroguaiacol	
4,5,6-Trichloroguaiacol	
Tetrachloroguaiacol	

S-4245-100-ME

EPA 1653 Chlorocathecols

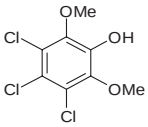
7 Analytes, each 100µg/mL in methanol; unit: 1x1mL

4-Chlorocatechol	[2138-22-9]
3,4-Dichlorocatechol	
3,6-Dichlorocatechol	
4,5-Dichlorocatechol	[3428-24-8]
3,4,5-Trichlorocatechol	
3,4,6-Trichlorocatechol	
Tetrachlorocatechol	[1198-55-6]

S-4246-100-AC

EPA 1653 Chlorovanillines and syringealdehydes

6 Analytes, each 100µg/mL in acetone; unit: 1x1mL



Trichlorosyringol

5-Chlorovanillin	[19463-48-0]
6-Chlorovanillin	
5,6-Dichlorovanillin	
2-Chlorosyringaldehyde	
Trichlorosyringol	
2,6-Dichlorosyringaldehyde	

EPA 1668
PCBs by HRGC/HRMS

Revision A: Chlorinated biphenyl congeners in water, soil, sediment, and tissue by HRGC/HRMS

Method 1668 was developed by the U.S. EPA for congener-specific determination of the polychlorinated biphenyl (PCB) congeners designated by WHO. The toxic PCBs and the beginning and ending level-of-chlorination CBs are determined by isoptope dilution high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS). The remaining PCBs are determined by internal standard HRGC/HRMS. Method 1668A is applicable to aqueous, solid, tissue, and multiphase matrices.

EPA 8041 A
Phenols and derivatives by GC-ECD or FID

Phenols by gas chromatography

Standard Test method for analysis of phenols in solid waste and ground water using GC procedures and derivatization. Underivatized phenols may be analysed by GC-FID. Target phenols may also be derivatized with diazomethane or pentafluorobenzylbromide (PFBBr) and analysed by GC-FID or GC-ECD.

Other compositions are available, please inquire.
CHIRON can also offer the PFB derivatives.

S-4207-K-IP

EPA 8041A RCRA Target Phenols Solution

21 Analytes, each1000µg/mL in isopropanol; unit: 1x1mL

2071.7	4-Chloro-3-methylphenol	[59-50-7]
2062.6	2-Chlorophenol	[95-57-8]
1403.7	2-Methylphenol	[95-48-7]
1404.7	3-Methylphenol	[108-39-4]
1358.7	4-Methylphenol	[106-44-5]
2133.12	2-Cyclohexyl-4,6-dinitrophenol	[131-89-5]
2064.6	2,4-Dichlorophenol	[120-83-2]
2069.6	2,6-Dichlorophenol	[87-65-0]
1406.8	2,4-Dimethylphenol	[105-67-9]
2079.6	2,4-Dinitrophenol	[51-28-5]
2144.10	Dinoseb	[88-85-7]
2083.7	2-Methyl-4,6-dinitrophenol	[534-52-1]
2085.6	2-Nitrophenol	[88-75-5]
2087.6	4-Nitrophenol	[100-02-7]
2084.6	Pentachlorophenol	[87-86-5]
1427.6	Phenol	[108-95-2]
2081.6	2,3,4,5-Tetrachlorophenol	[4901-51-3]
2149.6	2,3,4,6-Tetrachlorophenol	[58-90-2]
2074.6	2,3,5,6-Tetrachlorophenol	[935-95-5]
2075.6	2,4,5-Trichlorophenol	[95-95-4]
2076.6	2,4,6-Trichlorophenol	[88-06-2]

S-4208-K-IP

EPA 8041A Non-RCRA Target Phenol Standards

17 Analytes, each 1000µg/mL in isopropanol; unit: 1x1mL

2063.7	2-Chloro-5-methylphenol	[615-74-7]
2070.7	4-Chloro-2-methylphenol	[1570-64-5]
2067.6	3-Chlorophenol	[108-43-0]
2068.6	4-Chlorophenol	[106-48-9]
2066.6	2,3-Dichlorophenol	[576-24-9]
2065.6	2,5-Dichlorophenol	[583-78-8]
2080.6	3,4-Dichlorophenol	[95-77-2]
2078.6	3,5-Dichlorophenol	[591-35-5]
1405.8	2,3-Dimethylphenol	[526-75-0]
1407.8	2,5-Dimethylphenol	[95-87-4]
1365.8	2,6-Dimethylphenol	[576-26-1]
1409.8	3,4-Dimethylphenol	[95-65-8]
2462.6	2,5-Dinitrophenol	[329-71-5]
2086.6	3-Nitrophenol	[554-84-7]
2077.6	2,3,4-Trichlorophenol	[15950-66-0]
2073.6	2,3,5-Trichlorophenol	[933-78-8]
2072.6	2,3,6-Trichlorophenol	[933-75-5]

S-4209-K-IP
S-4209-K-5IP

EPA 8041A Internal Standard

2 Analytes, each 1000µg/mL in isopropanol; unts: 1x1mL, 5x1mL, 1x5mL

2470.6	2,5-Dibromophenol	[28165-52-8]
3103.12	2,2',5,5'-Tetrabromobiphenyl	[59080-37-4]

2061.6-K-IO
2061.6-K-5IO

EPA 8041A Surrogate Standard

1000µg/mL in isopropanol; unts: 1x1mL, 5x1mL, 1x5mL

2061.6	2,4-Dibromophenol	[615-58-7]

2092.13-K-IO
2092.13-K-5IO

EPA 8041A Surrogate Standards PFB-derivatives

1000µg/mL in isopropanol; unts: 1x1mL, 5x1mL, 1x5mL

2092.13	2,4-Dibromophenol-PFB

EPA 8061 A
Phthalates by GC-ECD

Phthalate esters by gas chromatography with electron capture detection (GC-ECD).

This test method is used to determine the identities and concentration of various phthalate esters in aqueous and solid matrices, including groundwater, leachate, soil, sludge and sediment.

S-4235-K-IO **Phthalate Esters in Sludge Matrixes by GC-ECD**

S-4235-K-5IO 16 Analytes, each 1000µg/mL in isooctane; units: 5x1mL, 1x5mL

2095.20	Bis(2-n-butoxyethyl) phthalate	[117-83-9]
2096.20	Bis(2-ethoxyethyl) phthalate	[605-54-9]
1224.24	Bis(2-ethylhexyl) phthalate	[117-81-7]
2097.14	Bis(2-methoxyethyl) phthalate	[34006-76-3]
2098.20	Bis(4-methyl-2-pentyl) phthalate	[259139-51-0]
1127.17	Butyl benzyl phthalate	[85-68-7]
2099.18	Diamyl phthalate	[131-18-1]
1226.16	Di-n-butyl phthalate	[84-74-2]
2100.20	Dicyclohexyl phthalate	[84-61-7]
1225.12	Diethyl phthalate	[84-66-2]
2101.20	Di-n-hexyl phthalate	[84-75-3]
2102.16	Diisobutyl phthalate	[84-69-5]
2094.10	Dimethyl phthalate	[131-11-3]
1229.26	Diisononyl phthalate	[28553-12-0]
1223.24	Di-n-octyl phthalate	[117-84-0]
2103.22	Hexyl 2-ethylhexyl phthalate	[75673-16-4]

Internal standards EPA Method 8061A

2000µg/mL in hexane; unit: 1x5mL

2053.14-2K-5HX	2053.14	Benzyl benzoate	[120-51-4]

Calibration Standards (Surrogate) EPA Method 8061A

3 Analytes, each 100µg/mL in hexane; unit: 1x5mL

2054.22-100-5HX	2054.22	Dibenzyl phthalate	[523-31-9]
2055.20-100-5HX	2055.20	Diphenyl isophthalate	[744-45-6]
2056.20-100-5HX	2056.20	Diphenyl phthalate	[84-62-8]

EPA 8082
PCBs by GC-ECD

Polychlorinated biphenyls by gas chromathography

Method 8082 is used to determine the concentration of polychlorinated biphenyls (PCBs) as Aroclors or as individual PCB congeners in extracts from solid and aqueous matrices. Capillary columns are employed together with electron capture detection (ECD) or electrolytic conductivity detectors (ELCD).

EPA 8100
PAHs in water by GC-FID

Polycyclic aromatic hydrocarbons in ground/waste water by GC-FID

Standard Test Method for the Determination of certain Polycyclic Aromatic Hydrocarbons in Ground/Waste water by GC-FID.

This test method is applicable for the determination of ppb levels of certain PAHs. The method provides the gas chromatographic conditions for the determination.

S-4114-ASS-5AN **16 Priority PAH, Control Mix**

16 Analytes, each 5 mL in acetonitrile in screw-capped bottle

The 16 Analytes are listed under EPA 610.
The QC control mixture is applicable to both methods.

Surrogate standards

1601.12-2K-5DC	2-Fluorobiphenyl	[321-60-8]	2000 µg/mL in dichloromethane, 5 mL
1313.10-2K-5DC	Fluoronaphthalene	[321-38-0]	2000 µg/mL in dichloromethane, 5 mL

EPA 8260 B
Volatile compounds by GC-MS

Volatile organic compounds by gas chromatography-mass spectrometry.

This method is used to determine volatile organic compounds in a variety of solid waste matrices.

S-4488-100-ME **EPA 8260 – Multiple Component Solution 1**

16 Analytes, each 100µg/mL in methanol; unit: 1x1mL

1300.6	Benzene	[71-43-2]
0392.10	n-Butylbenzene	[104-51-8]
2341.10	sec-Butylbenzene	[135-98-8]
2343.10	tert-Butylbenzene	[98-06-6]
1268.8	Ethylbenzene	[100-41-4]
2155.9	Isopropylbenzene	[98-82-8]
2155.9	p-Isopropyltoluene	[99-87-6]
0711.10	Naphthalene	[91-20-3]
1298.9	n-Propylbenzene	[103-65-1]
2558.8	Styrene	[100-42-5]
1264.7	Toluene	[108-88-3]
1270.9	1,2,4-Trimethylbenzene	[95-63-6]
1269.9	1,3,5-Trimethylbenzene	[108-67-8]
1267.8	o-Xylene	[95-47-6]
1266.8	m-Xylene	[108-38-3]
1265.8	p-Xylene	[106-42-3]

EPA 8270 C
Semivolatile compounds by GC-MS

Semivolatile organic compounds by gas chromatography-mass spectrometry.

This method is used to determine the concentration of semivolatile organic compounds in extracts prepared from many types of solid waste matrices, soils, air sampling media and water samples.

S-4489-100-ME

EPA 8270 – Multiple Component Solution 1

37 Analytes, each 100µg/mL in methanol; unit: 1x1mL

0732.12	Acenaphthene	[83-32-9]
0002.12	Acenaphthylene	[208-96-8]
2751.8	Acetophenone	[98-86-2]
2169.6	Aniline	[62-53-3]
1049.14	Anthracene	[120-12-7]
2130.7	Benzoic acid	[65-85-0]
0201.18	Benz[a]anthracene	[56-55-3]
0263.20	Benzo[b]fluoranthene	[205-99-2]
0265.20	Benzo[k]fluoranthene	[207-08-9]
0222.22	Benzo[ghi]perylene	[191-24-2]
0239.20	Benzo[a]pyrene	[50-32-8]
3842.6	p-Benzoquinone	[106-51-4]
3843.7	Benzyl alcohol	[100-51-6]
0212.18	Chrysene	[218-01-9]
0315.21	Dibenz[a]acridine	[224-42-0]
0203.22	Dibenz[a,h]anthracene	[53-70-3]
1100.12	Dibenzofuran	[132-64-9]
0244.24	Dibenzo[a,e]pyrene	[192-65-4]
0301.20	7,12-Dimethylbenz[a]anthracene	[57-97-6]
1406.8	2,4-Dimethylphenol	[105-67-9]
0260.16	Fluoranthene	[206-44-0]
0217.13	Fluorene	[86-73-7]
3844.6	Hydroquinone	[123-31-9]
0277.22	Indeno[1,2,3-cd]pyrene	[193-39-5]
3845.9	Isophorone	[78-59-1]
0005.21	3-Methylcholanthrene	[56-49-5]
0713.11	2-Methylnaphthalene	[91-57-6]
1403.7	2-Methylphenol	[95-48-7]
1404.7	3-Methylphenol	[108-39-4]
1358.7	4-Methylphenol	[106-44-5]
0711.10	Naphthalene	[91-20-3]
0220.20	Perylene	[198-55-0]
0816.14	Phenanthrene	[85-01-8]
1427.6	Phenol	[108-95-2]
3846.6	2-Picoline	[109-06-8]
0235.16	Pyrene	[129-00-0]
2277.5	Pyridine	[110-86-1]
3847.6	Resorcinol	[108-46-3]

S-4490-100-ME **EPA 8270 - Multiple Component Solution 1, 3 additional compounds**

0378.12	Carbazole	[86-74-8]
0186.1	Carbon disulfide	[95-87-4]
1411.8	4-Ethylphenol	[123-07-9]

EPA 8275 A
Semivolatile compounds in soils/sludges wastes using TE-GC-MS

Semivolatile organic compounds (PAHs and PCBs) in soils/sludges and solid wastes using thermal extracion capillary gas chromatographic mass spectrometry.

This test method provides a rapid procedure for the quantitative determination of targeted PCBs and PAHs in soils, sludges and solid wastes. The procedure is based on a thermal extraction capillary GC-MS.

S-4117-4K-DC **Internal standard mixture for EPA 8275A and 8270C**
6 Analytes, each 4000µg/mL in dichloromethane; units: 1x1mL, 5x1mL

1524.12	Acenaphthene-d10	[15067-26-2]
1024.18	Chrysene-d12	[1719-03-5]
1957.6	1,4-Dichlorobenzene-d4	[3855-82-1]
0978.10	Naphthalene-d8	[1146-65-2]
1534.20	Perylene-d12	[1520-96-3]
0389.14	Phenanthrene-d10	[1517-22-2]

EPA 8310
Polynuclear aromatic hydrocarbons

Polycyclic aromatic hydrocarbons (PAH) in ground water and wastes by high performance liquid chromatography with ultraviolet and fluorescence detector.

This test is used for the quantitative determination of certain polycyclic aromatic hydrocarbons (PAH) in ground water and wastes. The method provides HPLC conditions for the detection of ppb levels of certain PAHs.

Surrogate Mix

1958.12-2K-5AN	Decafluorobiphenyl	[434-90-2]	2000µg/mL in acetontirile, 5 mL