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Priority Pollutant Standard Mixtures

Solutions for a Greener World

Chlorobenzene and Chlorophenol Standard Mixtures

Owing to the sheer volume of use in commercial products, halogenated benzenes and phenols remain among the largest contributors to environmental contamination. The standards listed here are in routine use in many laboratories around the world.

US EPA Method 1653A

US EPA Method 1653A is used for the determination of pollutants in pulp and paper industry wastewater. This revision was promulgated in 1997, superseding the earlier method 1653. While still used primarily for the determination of chlorophenolic compounds, Revision A incorporates several changes to the analytical procedure, including the use of specially formulated standard mixtures applicable to this revision.

US EPA CLP DMC Standard Mixtures

EPA's Contract Laboratory Program (CLP) has developed methods for the analysis of volatile and semi-volatile compounds which utilize isotopically labeled internal standards. These deuterated monitoring compounds (DMCs) have been added to strengthen the analysis by providing sample-by-sample internal standard addition. CIL's CLP DMC standard mixtures are designed to match requirements of the OLC and SOM test methods.

US EPA Method 1624/1625

CIL maintains a full suite of standards used for the analysis of volatile and semi-volatile organic compounds by US EPA Method 1624/1625.

Human Exposure Analysis

Exposure analysis studies the ultimate effects environmental or food pollutants have on a biological system. Increasingly, public health studies are looking at the relationship between adverse health issues and exposure to environmental and food pollutants, as well as consumption pollutants such as tobacco compounds, bisphenols, etc. CIL has worked for years to develop analytical standards to assist exposure research and now offers some targeted mixtures as well. Our "phenolics" mixes include several ubiquitous exposure biomarkers, including PCB metabolites, BDE metabolites, tetrabromobisphenol A, triclosan, chlorophenols, and bromophenols. The analytes in the calibration solutions are the derivatized analogues of the target compounds, and the unusual concentrations are a result of corrections for molecular weights of the derivatized products. The spiking solution contains underivatized compounds to allow for derivatization during the isotope dilution method.

Chlorobenzene and Chlorophenol Standard Mixtures

Catalog No.	Compound	Amount
EM-1724-A	^{13}C-Labeled Chlorobenzene Cocktail Solution – Mono, Di, Tri Isomers	1.2 mL in isooctane
EM-1724-B	^{13}C-Labeled Chlorobenzene Cocktail Solution – Mono, Di, Tri Isomers	1.2 mL in methanol

Labeled	(µg/mL)
Chlorobenzene ($^{13}C_6$, 99%)	100
1,4-Dichlorobenzene ($^{13}C_6$, 99%)	100
1,2,4-Trichlorobenzene ($^{13}C_6$, 99%)	100

EM-1725-A	^{13}C-Labeled Chlorobenzene Cocktail Solution – Tetra, Penta, Hexa Isomers	1.2 mL in isooctane
EM-1725-B	^{13}C-Labeled Chlorobenzene Cocktail Solution – Tetra, Penta, Hexa Isomers	1.2 mL in methanol

Labeled	(µg/mL)
1,2,4,5-Tetrachlorobenzene ($^{13}C_6$, 99%)	100
Pentachlorobenzene ($^{13}C_6$, 99%)	100
Hexachlorobenzene ($^{13}C_6$, 99%)	100

EM-1726-A	^{13}C-Labeled Chlorophenol Cocktail Solution – Mono, Di, Tri Isomers	1.2 mL in isooctane
EM-1726-B	^{13}C-Labeled Chlorophenol Cocktail Solution – Mono, Di, Tri Isomers	1.2 mL in methanol

Labeled	(µg/mL)
4-Chlorophenol ($^{13}C_6$, 99%)	100
2,4-Dichlorophenol ($^{13}C_6$, 99%)	100
2,4,6-Trichlorophenol ($^{13}C_6$, 99%)	100

EM-1727-A	^{13}C-Labeled Chlorophenol Cocktail Solution – Tri, Tetra, Penta Isomers	1.2 mL in isooctane
EM-1727-B	^{13}C-Labeled Chlorophenol Cocktail Solution – Tri, Tetra, Penta Isomers	1.2 mL in methanol

Labeled	(µg/mL)
2,4,5-Trichlorophenol ($^{13}C_6$, 99%)	100
2,3,4,5-Tetrachlorophenol ($^{13}C_6$, 99%)	100
Pentachlorophenol ($^{13}C_6$, 99%)	100

ES-5401	^{13}C-Labeled Mono-Hexa Chlorobenzene Solution	1.2 mL in toluene

Labeled	(µg/mL)
Chlorobenzene ($^{13}C_6$, 99%)	500
1,4-Dichlorobenzene ($^{13}C_6$, 99%)	500
1,2,3-Trichlorobenzene ($^{13}C_6$, 99%)	500
1,2,3,4-Tetrachlorobenzene ($^{13}C_6$, 99%)	500
Pentachlorobenzene ($^{13}C_6$, 99%)	500
Hexachlorobenzene ($^{13}C_6$, 99%)	500

ES-5406	Native Mono-Hexa Chlorobenzene Solution	1.2 mL in toluene

Unlabeled	(µg/mL)
Chlorobenzene	500
1,4-Dichlorobenzene	500
1,2,3-Trichlorobenzene	500
1,2,3,4-Tetrachlorobenzene	500
Pentachlorobenzene	500
Hexachlorobenzene	500

US EPA Method 1653A Standard Mixtures

Catalog No.	Compound	Amount
EM-4173	Method 1653A Labeled Chlorophenolic Derivatives Mixture – 1 Each: EM-4173-1 and EM-4173-2 (Note: unlabeled internal standard, 3,4,5-trichlorophenol already formulated into the standard)	2 × 1 mL
EM-4173-1	Method 1653A Labeled Chlorophenolic Derivatives Mixture	1 mL in methanol
EM-4173-2	Method 1653A Labeled Chlorophenolic Derivatives Mixture	1 mL in acetone

Labeled	EM-4173-1 (µg/mL)	EM-4173-2 (µg/mL)
2,4-Dichlorophenol ($^{13}C_6$, 99%)	250	–
4-Chloroguaiacol ($^{13}C_6$, 99%)	250	–
4,5-Dichlorocatechol (ring-$^{13}C_6$, 99%)	250	–
4,5,6-Trichloroguaiacol ($^{13}C_6$, 99%)	250	–
Pentachlorophenol ($^{13}C_6$, 99%)	250	–
3,4,5,6-Tetrachloroguaiacol ($^{13}C_6$, 99%)	250	–
3,4,5,6-Tetrachlorocatechol (ring-$^{13}C_6$, 99%)	250	–
3,4,5-Trichlorophenol (unlabeled) (IS)	250	–
5-Chlorovanillin (ring-$^{13}C_6$, 99%)	–	250

EM-4181	Method 1653A Regulated Chlorophenolics Mixture-1	1 mL in methanol

Unlabeled	(µg/mL)
Pentachlorophenol	1000
3,4,5,6-Tetrachloroguaiacol	1000
3,4,5-Trichlorocatechol	1000
3,4,5-Trichloroguaiacol	500
4,5,6-Trichloroguaiacol	500
2,4,6-Trichlorophenol	500
3,4,5,6-Tetrachlorocatechol	1000
2,3,4,6-Tetrachlorophenol	500
3,4,6-Trichlorocatechol	1000
3,4,6-Trichloroguaiacol	500
2,4,5-Trichlorophenol	500

EM-4182	Method 1653A Regulated Chlorophenolics Mixture-2	1 mL in acetone

Unlabeled	(µg/mL)
Trichlorosyringol	500

EM-4183	Method 1653A Other Chlorophenolics Mixture-1	1 mL in methanol

Unlabeled	(µg/mL)
4-Chlorocatechol	250
4-Chlorophenol	250
3,6-Dichlorocatechol	500
3,4-Dichloroguaiacol	500
4,6-Dichloroguaiacol	500
2,6-Dichlorophenol	500
4-Chloroguaiacol	250
3,4-Dichlorocatechol	500
4,5-Dichlorocatechol	500
4,5-Dichloroguaiacol	500
2,4-Dichlorophenol	500

US EPA Method 1653A Standard Mixtures

Catalog No.	Compound	Amount
EM-4184	Method 1653A Other Chlorophenolics Mixture-2	1 mL in acetone

Unlabeled	(µg/mL)
2-Chlorosyringealdehyde	500
5-Chlorovanillin	500
6-Chlorovanillin	500
2,6-Dichlorosyringealdehyde	1000
5,6-Dichlorovanillin	1000

EM-4185	Set of Regulated Chlorophenolics Mixtures 1 Each: EM-4181 and EM-4182	2 × 1 mL
EM-4186	Set of Other Chlorophenolics Mixtures 1 Each: EM-4183 and EM-4184	2 × 1 mL
EM-4180	Set of Chlorophenolics Mixtures 1 Each: EM-4181, EM-4182, EM-4183 and EM-4184	4 × 1 mL

US EPA Method 1653 Standard Mixtures

EM-4018	Method 1653 Unlabeled Chloroguaiacol Cocktail	1 mL in acetone

Unlabeled	(µg/mL)
4-Chloroguaiacol	250
3,4-Dichloroguaiacol	500
4,5-Dichloroguaiacol	500
4,6-Dichloroguaiacol	500
3,4,5-Trichloroguaiacol	500
3,4,6-Trichloroguaiacol	500
4,5,6-Trichloroguaiacol	500
3,4,5,6-Tetrachloroguaiacol	1000

EM-4028	Instrument Performance Standard	1 mL in acetone

Unlabeled	(µg/mL)
2,2′-Difluorobiphenyl	5000

US EPA CLP DMC Standard Mixtures

Catalog No.	Compound	Amount
ES-5037	CLP Semi-Volatiles DMC Stock Solution	1.2 mL in MeCl-D_2

Labeled	(µg/mL)
Phenol (ring-D_5, 98%)	2000
Bis(2-chloroethyl) ether (D_8, 98%)	2000
2-Chlorophenol (ring-D_4, 98%)	2000
4-Methylphenol (*p*-Cresol) (D_8, 98%)	2000
Nitrobenzene (D_5, 99%)	2000
2-Nitrophenol (ring-D_4, 98%)	2000
2,4-Dichlorophenol (ring-D_3, 98%)	2000
4-Chloroaniline (D_4, 98%)	2000
Dimethyl phthalate (dimethyl-D_6, 98%)	2000
Acenaphthylene (D_8, 98%)	2000
4-Nitrophenol (ring-D_4, 98%)	2000
Fluorene (D_{10}, 98%)	2000
4,6-Dinitro-2-methylphenol (ring-D_2, 98%)	2000
Anthracene (D_{10}, 98%)	2000
Pyrene (D_{10}, 98%)	2000
Benzo[*a*]pyrene (D_{12}, 98%)	2000

ES-5038	CLP OLC Volatiles DMC Stock Solutions 1 Each: ES-5038-1 and ES-5038-2	1 set
ES-5038-1	CLP OLC Volatiles Non-Ketone DMC Stock Solution	1 mL in methanol-OD
ES-5038-2	CLP OLC Volatiles Ketone DMC Stock Solution	0.5 mL in methanol-OD

Labeled	ES-5038-1 (µg/mL)	ES-5038-2 (µg/mL)
Vinyl chloride (D_3, 98%)	100	–
Chloroethane (D_5, 98%)	100	–
1,1-Dichloroethene (D_2, 98%)	100	–
2-Butanone (1,1,1,3,3-D_5, 98%)	–	200
Chloroform (D, 98%)	100	–
1,2-Dichloroethane (D_4, 99%)	100	–
Benzene (D_6, 99.5%)	100	–
1,2-Dichloropropane (D_6, 98%)	100	–
Toluene (D_8, 99.5%)	100	–
1,3-Dichloropropene (D_4, 98%) (*cis/trans* mixture)	100	–
2-Hexanone (1,1,1,3,3-D_5, 98%)	–	200
Bromoform (D, 99.5%)	100	–
1,1,2,2-Tetrachloroethane (D_2, 99.6%)	100	–
1,2-Dichlorobenzene (D_4, 99%)	100	–

US EPA CLP DMC Standard Mixtures

Catalog No.	Compound	Amount
ES-5286	CLP SOM Volatiles Non-Ketone DMC Stock Solution	1 mL in methanol-OD
ES-5286-10X	CLP SOM Volatiles Non-Ketone DMC 10X Stock Solution	1 mL in methanol-OD

Labeled	ES-5286 (µg/mL)	ES-5286-10X (µg/mL)
Vinyl chloride (D_3, 98%)	100	1000
Chloroethane (D_5, 98%)	100	1000
1,1-Dichloroethylene (2,2-D_2, 98%)	100	1000
Chloroform (D, 99.8%)	100	1000
1,2-Dichloroethane (D_4, 99%)	100	1000
Benzene (D_6, 99.5%)	100	1000
1,2-Dichloropropane (D_6, 98%)	100	1000
Toluene (D_8, 99.5%)	100	1000
1,3-Dichloropropene (D_4, 98%) (*cis/trans* mixture)	100	1000
1,1,2,2-Tetrachloroethane (D_2, 99.6%)	100	1000
1,2-Dichlorobenzene (D_4, 99%)	100	1000

ES-5287	CLP SOM Volatiles Ketone DMC Stock Solution	0.5 mL in methanol-OD
ES-5287-10X	CLP SOM Volatiles Ketone DMC 10X Stock Solution	0.5 mL in methanol-OD

Labeled	ES-5287 (µg/mL)	ES-5287-10X (µg/mL)
2-Butanone (1,1,1,3,3-D_5, 98%)	500	5000
2-Hexanone (1,1,1,3,3-D_5, 98%)	500	5000

ES-5288	CLP SOM Volatiles 1,4-Dioxane DMC Stock Solution	1 mL in methanol-OD
ES-5288-10X	CLP SOM Volatiles 1,4-Dioxane 10X DMC Stock Solution	1 mL in methanol-OD

Labeled	ES-5288 (µg/mL)	ES-5288-10X (µg/mL)
1,4-Dioxane (*p*-dioxane) (D_8, 99%)	1250	12,500

US EPA Methods 1624/1625 Standard Mixtures

Catalog No.	Compound		Amount
ES-2036	Acid Extractables Mixture-3		1 mL in benzene-D_6
	Labeled	(µg/mL)	
(EPA 222A)	4-Chloro-3-methylphenol (ring-2,6-D_2, 98%)	5000	
(EPA 224A)	2-Chlorophenol (ring-D_4, 98%)	5000	
(EPA 231A)	2,4-Dichlorophenol (ring-D_3, 98%)	5000	
(EPA 234A)	2,4-Dimethylphenol (ring-D_3, 98%)	5000	
(EPA 260A)	4,6-Dinitro-2-methylphenol (ring-D_2, 98%)	5000	
(EPA 259A)	2,4-Dinitrophenol (ring-D_3, 98%)	5000	
(EPA 257A)	2-Nitrophenol (ring-D_4, 98%)	5000	
(EPA 258A)	4-Nitrophenol (ring-D_4, 98%)	5000	
(EPA 264A)	Pentachlorophenol ($^{13}C_6$, 99%)	5000	
(EPA 265A)	Phenol (ring-D_5, 98%)	5000	
(EPA 631A)	2,4,5-Trichlorophenol (ring-D_2, 98%)	5000	
(EPA 221A)	2,4,6-Trichlorophenol (ring-D_2, 98%)	5000	
ES-2002	Base Neutrals Mixture-4.3		1 mL in benzene-D_6
	Labeled	(µg/mL)	
(EPA 241B)	4-Bromophenyl phenyl ether (phenyl-D_5, 98%)	5000	
(EPA 220B)	2-Chloronaphthalene (D_7, 98%)	5000	
(EPA 240B)	4-Chlorophenyl phenyl ether (phenyl-D_5, 98%)	5000	
(EPA 268B)	Di-*n*-butyl phthalate (ring-D_4, 98%)	5000	
(EPA 270B)	Diethyl phthalate (ring-D_4, 98%)	5000	
(EPA 269B)	Di-*n*-octyl phthalate (ring-D_4, 98%)	5000	
(EPA 209B)	Hexachlorobenzene ($^{13}C_6$, 99%)	5000	
(EPA 212B)	Hexachloroethane (1-^{13}C, 99%)	5000	
(EPA 254B)	Isophorone (3-methyl-D_3; 2,4,4,6,6-D_5, 98%)	5000	
(EPA 208B)	1,2,4-Trichlorobenzene (D_3, 98%)	5000	
ES-2026	Base Neutrals Dilution Mixture-5.2		1 mL in benzene-D_6
	Labeled	(µg/mL)	
(EPA 628B)	Carbazole (ring-D_8, 98%)	5000	
(EPA 261B)	*N*-Nitrosodimethylamine (D_6, 98%)	5000	
(EPA 263B)	*N*-Nitrosodi-*n*-propylamine (D_{14}, 98%)	5000	
ES-2003	Base Neutrals Mixture-6.2		2 × 1 mL in 50% benzene-D_6 and 50% MeCl-D_2
	Labeled	(µg/mL)	
(EPA 201B)	Acenaphthene (D_{10}, 99%)	2500	
(EPA 278B)	Anthracene (D_{10}, 98%)	2500	
(EPA 275B)	Benzo[*k*]fluoranthene (D_{12}, 98%)	2500	
(EPA 218B)	Bis(2-chloroethyl) ether (D_8, 98%)	2500	
(EPA 276B)	Chrysene (D_{12}, 98%)	2500	
(EPA 280B)	Fluorene (D_{10}, 98%)	2500	
(EPA 255B)	Naphthalene (D_8, 99%)	2500	
(EPA 284B)	Pyrene (D_{10}, 98%)	2500	

US EPA Methods 1624/1625 Standard Mixtures

Catalog No.	Compound	Amount
ES-2004	Base Neutrals Mixture-6.3	1 mL in benzene-D_6

Labeled		(µg/mL)
(EPA 272B)	Benz[*a*]anthracene (D_{12}, 98%)	5000
(EPA 267B)	Butyl benzyl phthalate (ring-D_4, 99%)	5000
(EPA 243B)	Bis(2-chloroethoxy) methane (chloroethoxy-D_8, 98%)	5000
(EPA 266B)	Bis(2-ethylhexyl) phthalate (ring-D_4, 99%)	5000
(EPA 282B)	Dibenz[*a,h*]anthracene (D_{14}, 98%)	5000
(EPA 225B)	1,2-Dichlorobenzene (D_4, 99%)	5000
(EPA 227B)	1,4-Dichlorobenzene (D_4, 98%)	5000
(EPA 271B)	Dimethyl phthalate (ring-D_4, 99%)	5000
(EPA 236B)	2,6-Dinitrotoluene (methyl-D_3, 98%)	5000
(EPA 256B)	Nitrobenzene (D_5, 99%)	5000
(EPA 629B)	1,2,3-Trichlorobenzene (D_3, 98%)	5000

ES-2032	Purgeables/Volatiles Mixture-E.1	1 mL in methanol-D_4

Labeled		(µg/mL)
(EPA 206V)	Carbon tetrachloride (^{13}C, 99%)	50
(EPA 207V)	Chlorobenzene (D_5, 99%)	50
(EPA 223V)	Chloroform (^{13}C, 99%)	50
(EPA 213V)	1,1-Dichloroethane (2,2,2-D_3, 98%)	50
(EPA 229V)	1,1-Dichloroethylene (2,2-D_2, 98%)	50
(EPA 244V)	Methylene chloride (D_2, 99.9%)	50
(EPA 232V)	1,2-Dichloropropane (D_6, 98%)	50
(EPA 214V)	1,1,2-Trichloroethane ($^{13}C_2$, 99%)	50

ES-2006	Purgeables/Volatiles Mixture-F	1 mL in methanol-D_4

Labeled		(µg/mL)
(EPA 204V)	Benzene (D_6, 99.5%)	50
(EPA 247V)	Bromoform (^{13}C, 99%)	50
(EPA 210V)	1,2-Dichloroethane (D_4, 99%)	50
(EPA 238V)	Ethylbenzene (D_{10}, 98%)	50
(EPA 215V)	1,1,2,2-Tetrachloroethane (D_2, 99.6%)	50
(EPA 286V)	Toluene (D_8, 99.5%)	50
(EPA 211V)	1,1,1-Trichloroethane (D_3, 98%)	50

ES-2008	Purgeables/Volatiles Mixture-H	1 mL in methanol-D_4

Labeled		(µg/mL)
(EPA 248V)	Bromodichloromethane (^{13}C, 99%)	50
(EPA 251V)	Chlorodibromomethane (^{13}C, 99%)	50
(EPA 30V)	1,2-Dichloroethylene (1,2-D_2, 98%)	50
(EPA 33V)	1,3-Dichloropropene (D_4, 98%) (*cis/trans* mixture)	50
(EPA 627V)	1,4-Dioxane (D_8, 99%)	50
(EPA 285V)	Tetrachloroethylene ($^{13}C_2$, 99%)	50
(EPA 287V)	Trichloroethylene ($^{13}C_2$, 99%)	50

Human Exposure Analysis Standard Mixtures

	Catalog No.	Compound	Amount
NEW	ES-5510	Extended Phenolic Calibration Solutions [CS1-CS6]	6 × 0.5 mL in 80% nonane/20% dodecane, hexane and toluene
NEW	ES-5510-CS1	Extended Phenolic Calibration Solution [CS1]	0.5 mL in 80% nonane/20% dodecane, hexane and toluene
NEW	ES-5510-CS2	Extended Phenolic Calibration Solution [CS2]	0.5 mL in 80% nonane/20% dodecane, hexane and toluene
NEW	ES-5510-CS3	Extended Phenolic Calibration Solution [CS3]	0.5 mL in 80% nonane/20% dodecane, hexane and toluene
NEW	ES-5510-CS4	Extended Phenolic Calibration Solution [CS4]	0.5 mL in 80% nonane/20% dodecane, hexane and toluene
NEW	ES-5510-CS5	Extended Phenolic Calibration Solution [CS5]	0.5 mL in 80% nonane/20% dodecane, hexane and toluene
NEW	ES-5510-CS6	Extended Phenolic Calibration Solution [CS6]	0.5 mL in 80% nonane/20% dodecane, hexane and toluene

*All concentrations are in ng/mL (ppb)**

Unlabeled	IUPAC	CS1	CS2	CS3	CS4	CS5	CS6
4-Methoxy-2,3,3′,4′,5-pentachlorobiphenyl		0.21	0.52	2.60	21	104	520
4-Methoxy-2,2′,3,4′,5,5′-hexachlorobiphenyl		0.21	0.52	2.59	21	104	519
4-Methoxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl		0.21	0.52	2.59	26.2	103	517
5-Chloro-2-(2,4-dichlorophenoxy)-anisole (methyl triclosan)		2.10	5.24	26.2	210	1048	5242
4-Methoxy-2,2′,3,4′-tetrabromodiphenyl ether		0.21	0.51	2.57	21	103	514
3-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether		0.21	0.51	2.57	21	103	514
5-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether		0.21	0.51	2.57	21	103	514
6-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether		0.21	0.51	2.57	21	103	514
4′-Methoxy-2,2′,4,5′-tetrabromodiphenyl ether		0.21	0.51	2.57	21	102	514
5′-Methoxy-2,2′,4,4′,5-pentabromodiphenyl ether		0.20	0.51	2.56	21	102	512
6-Methoxy-2,2′,4,4′,5-pentabromodiphenyl ether		0.20	0.51	2.56	21	102	512
2,4-Dibromoanisole		0.21	0.53	2.64	21	106	528
2,4,5-Tribromoanisole		0.21	0.52	2.61	21	104	521
2,4,6-Tribromoanisole		0.21	0.52	2.61	21	104	521
Pentabromoanisole		0.21	0.51	2.57	21	103	514
Pentachloroanisole		2.11	5.26	26.3	210	1053	5263
Dimethyl tetrabromobisphenol A		0.11	0.26	1.31	11	53	263
Labeled							
4-Methoxy-2,3,3′,4′,5-pentachlorobiphenyl ($^{13}C_{12}$, 99%)		104	104	104	104	104	104
4-Methoxy-2,2′,3,4′,5,5′-hexachlorobiphenyl ($^{13}C_{12}$, 99%)		104	104	104	104	104	104
4-Methoxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl ($^{13}C_{12}$, 99%)		103	103	103	103	103	103
6-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether (ring-$^{13}C_{12}$, 99%)		103	103	103	103	103	103
6′-Methoxy-2,2′,4,4′,6-pentabromodiphenyl ether ($^{13}C_{12}$, 99%)		102	102	102	102	102	102
2,4-Dibromoanisole (ring-$^{13}C_6$, 99%)		105	105	105	105	105	105
2,4,5-Tribromoanisole (ring-$^{13}C_6$, 99%)		104	104	104	104	104	104
2,4,6-Tribromoanisole (ring-$^{13}C_6$, 99%)		104	104	104	104	104	104
Pentabromoanisole ($^{13}C_6$, 99%)		103	103	103	103	103	103
Pentachloroanisole ($^{13}C_6$, 99%)		1052	1052	1052	1052	1052	1052
Dimethyl tetrabromobisphenol A (ring-$^{13}C_{12}$, 99%)		53	53	53	53	53	53
5-Chloro-2-(2,4-dichlorophenoxy)-anisole (methyl triclosan) (ring-$^{13}C_{12}$, 99%)		1047	1047	1047	1047	1047	1047
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin ($^{13}C_6$, 99%)		25	25	25	25	25	25
2,2′,3,3′,4,5,5′,6,6′-Nonachlorobiphenyl ($^{13}C_{12}$, 99%)	208	100	100	100	100	100	100
3,3′,4,4′-Tetrabromodiphenyl ether ($^{13}C_{12}$, 99%)	77	75	75	75	75	75	75
2,2′,3,4,4′,6-Hexabromodiphenyl ether ($^{13}C_{12}$, 99%)	139	75	75	75	75	75	75

**Concentrations are determined for listed derivatized compounds.*

Human Exposure Analysis Standard Mixtures

	Catalog No.	Compound	Amount
NEW	ES-5511	Extended Phenolic Spiking Solution	10 mL in methanol

Labeled	(ng/mL)
4-Hydroxy-2,3,3′,4′,5-pentachlorobiphenyl ($^{13}C_{12}$, 99%)	10
4-Hydroxy-2,2′,3,4′,5,5′-hexachlorobiphenyl ($^{13}C_{12}$, 99%)	10
4-Hydroxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl ($^{13}C_{12}$, 99%)	10
6-Hydroxy-2,2′,4,4′-tetrabromodiphenyl ether ($^{13}C_{12}$, 99%)	10
6′-Hydroxy-2,2′,4,4′,6-pentabromodiphenyl ether ($^{13}C_{12}$, 99%)	10
2,4-Dibromophenol ($^{13}C_6$, 99%)	10
2,4,5-Tribromophenol ($^{13}C_6$, 99%)	10
2,4,6-Tribromophenol ($^{13}C_6$, 99%)	10
Pentabromophenol ($^{13}C_6$, 99%)	10
Pentachlorophenol ($^{13}C_6$, 99%)	100
Tetrabromobisphenol A (ring-$^{13}C_{12}$, 99%)	5
5-Chloro-2-(2,4-dichlorophenoxy)-phenol (triclosan) ($^{13}C_{12}$, 99%)	100

	ES-5321	Multi-Analyte Recovery Spiking Standard	10 mL in 88% hexane/ 2% dodecane/10% nonane
NEW	ES-5321-200X-1.2	Multi-Analyte Recovery Spiking Standard	1.2 mL in nonane

Labeled	IUPAC	ES-5321 (ng/mL)	ES-5321-200X-1.2 (ng/mL)
1,2,3,4-TetraCDD ($^{13}C_6$, 99%)		2.5	500
2,2′,3,3′,4,5,5′,6,6′-NonaCB ($^{13}C_{12}$, 99%)	208	10.0	2000
3,3′,4,4′-TetraBDE ($^{13}C_{12}$, 99%)	77	7.5	1500
2,2′,3,4,4′,6-HexaBDE ($^{13}C_{12}$, 99%)	139	7.5	1500

NEW	ES-9444	Extended Phenolic Native PAR Standard	1.2 mL in 91% nonane/ 9% toluene

Unlabeled	(ng/mL)*
4-Methoxy-2,3,3′,4′,5-pentachlorobiphenyl	520
4-Methoxy-2,2′,3,4′,5,5′-hexachlorobiphenyl	519
4-Methoxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl	517
4-Methoxy-2,2′,3,4′-tetrabromodiphenyl ether	514
3-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether	514
5-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether	514
6-Methoxy-2,2′,4,4′-tetrabromodiphenyl ether	514
4′-Methoxy-2,2′,4,5′-tetrabromodiphenyl ether	514
5′-Methoxy-2,2′,4,4′,5-pentabromodiphenyl ether	512
6-Methoxy-2,2′,4,4′,5-pentabromodiphenyl ether	512
2,4-Dibromoanisole	528
2,4,5-Tribromoanisole	521
2,4,6-Tribromoanisole	521
Dimethyl tetrabromobisphenol A	263
Pentabromoanisole	514
5-Chloro-2-(2,4-dichlorophenoxy)-anisole (methyl triclosan)	5240
Pentachloroanisole	5263

**Concentrations are determined for listed derivatized compounds.*

Human Exposure Analysis Standard Mixtures

	Catalog No.	Compound	Amount
NEW	ES-5482	Phenolic Calibration Standards [CS1-CS6]	6 × 0.5 mL in nonane
NEW	ES-5482-CS1	Phenolic Calibration Standard [CS1]	0.5 mL in nonane
NEW	ES-5482-CS2	Phenolic Calibration Standard [CS2]	0.5 mL in nonane
NEW	ES-5482-CS3	Phenolic Calibration Standard [CS3]	0.5 mL in nonane
NEW	ES-5482-CS4	Phenolic Calibration Standard [CS4]	0.5 mL in nonane
NEW	ES-5482-CS5	Phenolic Calibration Standard [CS5]	0.5 mL in nonane
NEW	ES-5482-CS6	Phenolic Calibration Standard [CS6]	0.5 mL in nonane

*All concentrations are in ng/mL (ppb)**

Unlabeled	IUPAC	CS1	CS2	CS3	CS4	CS5	CS6
4-Methoxy-2,3,3′,4′,5-pentachlorobiphenyl		0.52	1.04	10.4	104	520	5200
4-Methoxy-2,2′,3,4′,5,5′-hexachlorobiphenyl		0.52	1.04	10.4	104	519	5190
4-Methoxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl		0.52	1.03	10.3	103	517	5170
Pentachloroanisole		0.53	1.05	10.5	105	526	5260
5-Chloro-2-(2,4-dichlorophenoxy)-anisole (methyl triclosan)		0.52	1.05	10.5	105	524	5240
Pentabromoanisole		0.51	1.03	10.3	103	514	5140
Labeled							
4-Methoxy-2,3,3′,4′,5-pentachlorobiphenyl ($^{13}C_{12}$, 99%)		104	104	104	104	104	104
4-Methoxy-2,2′,3,4′,5,5′-hexachlorobiphenyl ($^{13}C_{12}$, 99%)		104	104	104	104	104	104
4-Methoxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl ($^{13}C_{12}$, 99%)		103	103	103	103	103	103
Pentachloroanisole ($^{13}C_6$, 99%)		263	263	263	263	263	263
5-Chloro-2-(2,4-dichlorophenoxy)-anisole (methyl triclosan) (ring-$^{13}C_{12}$, 99%)		262	262	262	262	262	262
Pentabromoanisole ($^{13}C_6$, 99%)		103	103	103	103	103	103
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin ($^{13}C_6$, 99%)		25	25	25	25	25	25
2,2′,3,3′,4,5,5′,6,6′-Nonachlorobiphenyl ($^{13}C_{12}$, 99%)	208	100	100	100	100	100	100
3,3′,4,4′-Tetrabromodiphenyl ether ($^{13}C_{12}$, 99%)	77	75	75	75	75	75	75
2,2′,3,4,4′,6-Hexabromodiphenyl ether ($^{13}C_{12}$, 99%)	139	75	75	75	75	75	75

**Concentrations are determined for listed derivatized compounds.*

Human Exposure Analysis Standard Mixtures

	Catalog No.	Compound	Amount
NEW	ES-5483	Phenolic Spiking Standard	10 mL in acetonitrile

Labeled	(ng/mL)
4-Hydroxy-2,3,3′,4′,5-pentachlorobiphenyl ($^{13}C_{12}$, 99%)	10
4-Hydroxy-2,2′,3,4′,5,5′-hexachlorobiphenyl ($^{13}C_{12}$, 99%)	10
4-Hydroxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl ($^{13}C_{12}$, 99%)	10
Pentachlorophenol ($^{13}C_6$, 99%)	25
5-Chloro-2-(2,4-dichlorophenoxy)-phenol (triclosan) ($^{13}C_{12}$, 99%)	25
Pentabromophenol ($^{13}C_6$, 99%)	10

	ES-5321	Multi-Analyte Recovery Spiking Standard	10 mL in 88% hexane/2% dodecane/10% nonane
NEW	ES-5321-200X-1.2	Multi-Analyte Recovery Spiking Standard	1.2 mL in nonane

Labeled	IUPAC	ES-5321 (ng/mL)	ES-5321-200X-1.2 (ng/mL)
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin ($^{13}C_6$, 99%)		2.5	500
2,2′,3,3′,4,5,5′,6,6′-Nonachlorobiphenyl ($^{13}C_{12}$, 99%)	208	10	2000
3,3′,4,4′-Tetrabromodiphenyl ether ($^{13}C_{12}$, 99%)	77	7.5	1500
2,2′,3,4,4′,6-Hexabromodiphenyl ether ($^{13}C_{12}$, 99%)	139	7.5	1500

NEW	ES-5496	Phenolic Native PAR Standard	1.2 mL in nonane

Unlabeled	(ng/mL)
4-Methoxy-2,3,3′,4′,5-pentachlorobiphenyl	1
4-Methoxy-2,2′,3,4′,5,5′-hexachlorobiphenyl	1
4-Methoxy-2,2′,3,4′,5,5′,6-heptachlorobiphenyl	1
Pentachloroanisole	1
5-Chloro-2-(2,4-dichlorophenoxy)-anisole (methyl triclosan)	1
Pentabromoanisole	1

Human Exposure Analysis Standard Mixtures

	Catalog No.	Compound	Amount
NEW	ES-5535	JECS Labeled Mixture Solution	1.2 mL in water

Labeled	(ng/mL)
8-Hydroxy-2′-deoxyguanosine ($^{15}N_5$, 98%)	7500
DL-Cotinine (2′,3′,4′-$^{13}C_3$, 99%)	150

NEW	ES-5536	JECS Native Mixture Solution	1.2 mL in water

Unlabeled	(ng/mL)
8-Hydroxy-2′-deoxyguanosine	500
Cotinine	500

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