DSP systems

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Dioxin and Furan Method Standards, Standard Mixtures and Reference Materials

Solutions for a Greener World

US EPA, JIS, and CEN Dioxin and Furan Method Standard Mixtures

In 1990 CIL/Cerilliant (formerly Radian) introduced the first "ready-to-use" standard mixtures for US EPA Method 1613 "High Resolution GC/MS Method for the Determination of Tetra-Octa Chlorinated Dioxins and Furans." With the effectiveness and popularity of these preformulated mixtures, CIL/Cerilliant next developed "ready-to-use" standards for EPA Method 8280 for low-resolution GC/MS analysis of dioxins and furans. Today CIL/Cerilliant offer convenient dioxin and furan standard mixtures for EPA Methods 23 and 8290, as well as the Japanese Industrial Standards methods JIS-K0311 and K0312, and the European Community method EN-1948. Copies of these methods are available upon request.

Dioxin and Furan Plus PCB Standard Mixtures

CIL/Cerilliant have developed several mixtures that include the 2,3,7,8-containing dioxin and furan congeners, as well as the "toxic" PCB congeners. These mixtures have full calibration series and matching spiking solutions, so analysts can test these two commonly combined groups without having to manipulate several different standard sets.

Dioxin and Furan "Starter Kits"

CIL recognizes that starting up a dioxin and furan testing laboratory can be a daunting and expensive process. To assist laboratories that are just getting started, CIL offers "starter kits" to help procuring the standards needed for dioxin and furan testing much easier. These kits include all required standard mixtures, including calibration and spiking cocktails, for specific testing methods. There is no guesswork required for materials that will be needed to start the process, and a kit will typically test between 50-200 samples. Once the method is established, it will be clear which standards will be needed sooner and those that can be reordered later. Most standards last several years, so there is no concern for shelf life. In addition, the cost of the kits has been reduced significantly (when compared to purchasing all mixtures separately), easing the financial burden of setting up a new lab!

Reference Materials

In 2006, CIL completed an international interlaboratory study for the determination of many environmental pollutants in its three fish reference materials, as well as two reference materials for soil and sediment. In 2007, CIL conducted another interlaboratory study, this time evaluating dioxins, furans, and PCBs in a new fly ash reference material. In 2010, CIL launched yet another interlaboratory study to develop consensus values for priority pollutants in cod liver oil reference material.

Non-2,3,7,8-Containing Standard Mixtures

With the development of several ^{13}C-labeled "non-2,3,7,8" furan standards, CIL/Cerilliant can offer standard mixtures that contain the traditional 17 "2,3,7,8-containing" standards, as well as ^{13}C-labeled "non-2,3,7,8-containing" congeners. These standard mixtures allow researchers to use all 17 ^{13}C-labeled 2,3,7,8-containing standards as internal standards, while utilizing the labeled "non-2,3,7,8-containing" congeners as recovery/injection or cleanup standards.

Two-Column Dioxin and Furan Standard Mixtures

Two-column dioxin and furan standard mixtures are combination mixtures used to confirm dioxins and furans and PCBs using only two columns. These standards combine the benefits of both the "dioxin and furan plus PCB" mixtures and the "non-2,3,7,8-containing" mixtures.

Expanded PBDD/F Standards and Standard Mixtures

Polybrominated dioxins and furans (PBDD/F) can be found at trace levels in technical brominated flame-retardant products, and may also be formed from combustion of these materials in the presence of organic compounds. The biological effects of PBDD/Fs are similar to those of their chlorinated analogs, which have been regulated for many years. CIL offers a comprehensive set of labeled and unlabeled standards for PBDD/F analysis, including calibration series and corresponding spiking solutions containing tetra-octabromo congeners.

US EPA Method 1613 Standard Mixtures

Catalog No.	Compound	Amount
EDF-9999	Method 1613 Calibration Solutions [CS1-CS5]	Set of 5 × 0.2 mL in nonane
* EDF-9999-0.1	Method 1613 Calibration Solution [CS0.1]	0.2 mL in nonane
* EDF-9999-0.2	Method 1613 Calibration Solution [CS0.2]	0.2 mL in nonane
* EDF-9999-0.5	Method 1613 Calibration Solution [CS0.5]	0.2 mL in nonane
EDF-9999-1	Method 1613 Calibration Solution [CS1]	0.2 mL in nonane
EDF-9999-2	Method 1613 Calibration Solution [CS2]	0.2 mL in nonane
EDF-9999-3	Method 1613 Daily Calibration Check Standard [CS3]	0.2 mL in nonane
EDF-9999-3-4	Method 1613 Daily Calibration Check Standard [CS3]	Set of 4 × 0.2 mL in nonane
EDF-9999-4	Method 1613 Calibration Solution [CS4]	0.2 mL in nonane
EDF-9999-5	Method 1613 Calibration Solution [CS5]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	*CS0.1	*CS0.2	*CS0.5	CS1	CS2	CS3	CS4	CS5
2,3,7,8-TetraCDD	0.05	0.1	0.25	0.5	2.0	10	40	200
2,3,7,8-TetraCDF	0.05	0.1	0.25	0.5	2.0	10	40	200
1,2,3,7,8-PentaCDD	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,7,8-PentaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
2,3,4,7,8-PentaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,4,7,8-HexaCDD	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,6,7,8-HexaCDD	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,7,8,9-HexaCDD	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,4,7,8-HexaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,6,7,8-HexaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,7,8,9-HexaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
2,3,4,6,7,8-HexaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,4,6,7,8-HeptaCDD	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,4,6,7,8-HeptaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
1,2,3,4,7,8,9-HeptaCDF	0.25	0.5	1.25	2.5	10	50	200	1000
OctaCDD	0.5	1.0	2.50	5.0	20	100	400	2000
OctaCDF	0.5	1.0	2.50	5.0	20	100	400	2000
Labeled								
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
OctaCDD ($^{13}C_{12}$, 99%)	200	200	200	200	200	200	200	200
Cleanup								
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	0.05	0.1	0.25	0.5	2.0	10	40	200
Internal								
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	100	100

*NOTE: CS0.1, CS0.2, and CS0.5 are optional extensions of the Method 1613 Calibration Curve to extend the MDL and are not required by the method.

US EPA Method 1613 Standard Mixtures

Catalog No.	Compound	Amount
EDF-9999-A	Method 1613 Calibration Solutions (1/10 concentration) [CS1-CS5]	Set of 5 × 0.2 mL in nonane
EDF-9999-A-3	Method 1613 Calibration Check Standard (1/10 concentration) [CS3]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS1	CS2	CS3	CS4	CS5
2,3,7,8-TetraCDD	0.05	0.2	1	4	20
2,3,7,8-TetraCDF	0.05	0.2	1	4	20
1,2,3,7,8-PentaCDD	0.25	1	5	20	100
1,2,3,7,8-PentaCDF	0.25	1	5	20	100
2,3,4,7,8-PentaCDF	0.25	1	5	20	100
1,2,3,4,7,8-HexaCDD	0.25	1	5	20	100
1,2,3,6,7,8-HexaCDD	0.25	1	5	20	100
1,2,3,7,8,9-HexaCDD	0.25	1	5	20	100
1,2,3,4,7,8-HexaCDF	0.25	1	5	20	100
1,2,3,6,7,8-HexaCDF	0.25	1	5	20	100
1,2,3,7,8,9-HexaCDF	0.25	1	5	20	100
2,3,4,6,7,8-HexaCDF	0.25	1	5	20	100
1,2,3,4,6,7,8-HeptaCDD	0.25	1	5	20	100
1,2,3,4,6,7,8-HeptaCDF	0.25	1	5	20	100
1,2,3,4,7,8,9-HeptaCDF	0.25	1	5	20	100
OctaCDD	0.5	2	10	40	200
OctaCDF	0.5	2	10	40	200
Labeled					
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20
Cleanup					
2,3,7,8-TetraCDD ($^{37}Cl_4$, 99%)	0.05	0.2	1	4	20
Internal					
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10

EDF-9999-A is a set of calibration solutions with both labeled and unlabeled compounds at 1/10 the concentration of the corresponding calibration solution in EDF-9999.

EDF-1613-KIT	Method 1613 "Starter Kit"	1 Kit

Contains one each of the following items:

EDF-9999	Method 1613 Calibration Solutions [CS1-CS5]
EDF-8999(2X)	Method 1613 Labeled Compound Stock Solution
EDF-5999	Method 1613 Internal Standard Spiking Solution
EDF-7999	Method 1613 Precision and Recovery Standard Solution
EDF-6999	Method 1613 Cleanup Standard

US EPA Method 1613 Standard Mixtures

	Catalog No.	Compound	Amount
	EDF-8999	Method 1613 Labeled Compound Stock Solution	500 µL in nonane
	EDF-8999-4	Method 1613 Labeled Compound Stock Solution	Set of 4 × 500 µL in nonane
NEW	EDF-8999-5ML	Method 1613 Labeled Compound Stock Solution	5 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	100
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	100
OctaCDD ($^{13}C_{12}$, 99%)	200

	Catalog No.	Compound	Amount
	EDF-6999	Method 1613 Cleanup Standard	7.5 mL in nonane
	EDF-6999-10X	Method 1613 Cleanup Standard (10X concentration)	20 mL in nonane

Labeled	EDF-6999 (ng/mL)	EDF-6999-10X (ng/mL)
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	0.8	8

	Catalog No.	Compound	Amount
	EDF-5999	Method 1613 Internal Standard Spiking Solution	0.5 mL in nonane
NEW	EDF-5999-2.5ML	Method 1613 Internal Standard Spiking Solution	2.5 mL in nonane

Labeled	(ng/mL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	200
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	200

	Catalog No.	Compound	Amount
	EDF-7999	Method 1613 Precision and Recovery Standard Solution	200 µL in nonane
	EDF-7999-10X	Method 1613 Precision and Recovery Standard Solution (10X concentration)	1.2 mL in nonane

Unlabeled	EDF-7999 (ng/mL)	EDF-7999-10X (ng/mL)
2,3,7,8-TetraCDD	40	400
2,3,7,8-TetraCDF	40	400
1,2,3,7,8-PentaCDD	200	2000
1,2,3,7,8-PentaCDF	200	2000
2,3,4,7,8-PentaCDF	200	2000
1,2,3,4,7,8-HexaCDD	200	2000
1,2,3,6,7,8-HexaCDD	200	2000
1,2,3,7,8,9-HexaCDD	200	2000
1,2,3,4,7,8-HexaCDF	200	2000
1,2,3,6,7,8-HexaCDF	200	2000
1,2,3,7,8,9-HexaCDF	200	2000
2,3,4,6,7,8-HexaCDF	200	2000
1,2,3,4,6,7,8-HeptaCDD	200	2000
1,2,3,4,6,7,8-HeptaCDF	200	2000
1,2,3,4,7,8,9-HeptaCDF	200	2000
OctaCDD	400	4000
OctaCDF	400	4000

US EPA Method 1613 Standard Mixtures

Catalog No.	Compound	Amount
EDF-4141	Method 1613 Daily Calibration Plus Window Definer and Isomer Specificity Solution	200 µL in nonane

Daily Calibration	(ng/mL)
2,3,7,8-TetraCDD	10
2,3,7,8-TetraCDF	10
1,2,3,7,8-PentaCDD	50
1,2,3,7,8-PentaCDF	50
2,3,4,7,8-PentaCDF	50
1,2,3,4,7,8-HexaCDD	50
1,2,3,6,7,8-HexaCDD	50
1,2,3,7,8,9-HexaCDD	50
1,2,3,4,7,8-HexaCDF	50
1,2,3,6,7,8-HexaCDF	50
1,2,3,7,8,9-HexaCDF	50
2,3,4,6,7,8-HexaCDF	50
1,2,3,4,6,7,8-HeptaCDD (WD)	50
1,2,3,4,6,7,8-HeptaCDF (WD)	50
1,2,3,4,7,8,9-HeptaCDF (WD)	50
OctaCDD	100
OctaCDF	100
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	10
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	100
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	100
OctaCDD ($^{13}C_{12}$, 99%)	200

This standard allows three functions:
- Daily MS instrument calibration verification
- Daily TetraCDD column resolution
- Daily window definition

Window Defining	(ng/mL)
1,3,6,8-TetraCDD	10
1,2,8,9-TetraCDD	10
1,3,6,8-TetraCDF	10
1,2,8,9-TetraCDF	10
1,2,4,6,8/1,2,4,7,9-PentaCDD	50
1,2,3,8,9-PentaCDD	50
1,3,4,6,8-PentaCDF	50
1,2,3,8,9-PentaCDF	50
1,2,4,6,7,9/1,2,4,6,8,9-HexaCDD	50
1,2,3,4,6,8-HexaCDF	50
1,2,3,4,8,9-HexaCDF	50
1,2,3,4,6,7,9-HeptaCDD	50

NOTE: 1,2,3,4,6,7-HexaCDD (last eluting HexaCDD) not included due to interference with 1,2,3,7,8,9-HexaCDD.

TetraCDD Isomer Specificity	(ng/mL)
1,2,3,4-TetraCDD	10
1,2,3,7/1,2,3,8-TetraCDD	10
1,2,3,9-TetraCDD	10

2,3,7,8-TetraCDD Only Standard Mixture

Catalog No.	Compound	Amount
NEW ED-4159-CS1	Calibration Curve, 2,3,7,8 CS1 for 2,3,7,8-TCDD Only	1.2 mL in nonane

Unlabeled	(ng/mL)
2,3,7,8-TetraCDD	0.01
Labeled	
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4-TetraCDD ($^{13}C_6$, 99%)	25

Performance Evaluation Reference Materials

Fish Tissue, Soil, and Sediment Reference Materials

CIL first introduced fish tissue reference material (RM) standards in the early 1990s to provide analytical laboratories testing dioxin, furan, and PCB congeners with much needed performance evaluation materials. At that time, these RMs were quite uncommon in the field of dioxin and PCB analysis, and they became very popular for their ability to help laboratories internally assess their quality-assurance processes.

Reference materials are widely used in analytical chemistry to provide immediate feedback about the quality and confidence of a laboratory's testing system. RMs can be used to demonstrate to quality auditors that a laboratory has control of their QA process and can show long-term trending by using the same RM over time.

The original "clean," "fortified," and "naturally contaminated" fish RMs were subsequently joined by natural matrix soil and sediment, cod liver oil, and even chicken egg RMs. CIL RMs often have consensus values for many other organic contaminants, including dioxins, furans, and PCBs, as well as PAHs, pesticides, flame retardants, and others. All of CIL's RM standards are run through an international interlaboratory study to determine consensus values with uncertainties.

	Catalog No.	Compound	Amount
	EDF-5183	Natural Matrix Reference Material (Soil)	10 g
	EDF-5184	Heavily Contaminated Sediment Reference Material	10 g
	EDF-2524	Clean Natural Matrix Reference Material (Fish)	10 g
	EDF-2525	Contaminated Natural Matrix Reference Material (Fish)	10 g
	EDF-2526	Fortified Natural Matrix Reference Material (Fish)	10 g
	EDF-4023	Set of 3 Fish (1 each of EDF-2524, EDF-2525, EDF-2526)	3 × 10 g
	EDF-5462	Fortified Cod Liver Oil Reference Material	10 g
	EDF-5463	Cod Liver Oil Reference Material	10 g
NEW	EDF-5491	Freeze-Dried Eggs Reference Material	6 g

Perfluorokerosene (PFK)

	Catalog No.	Compound	Amount
NEW	PFK-HIGH-0.1	Perfluorokerosene, High-Boiling Range (unlabeled)	0.1 g
NEW	PFK-HIGH-0.5	Perfluorokerosene, High-Boiling Range (unlabeled)	0.5 g
NEW	PFK-HIGH-1	Perfluorokerosene, High-Boiling Range (unlabeled)	1 g
NEW	PFK-LOW-0.25	Perfluorokerosene, Low-Boiling Range (unlabeled)	0.25 g
NEW	PFK-LOW-1	Perfluorokerosene, Low-Boiling Range (unlabeled)	1 g

US EPA Method 23 Standard Mixtures

Catalog No.	Compound	Amount
EDF-4052	Method 23 Calibration Solutions [CS1-CS5]	Set of 5 × 0.2 mL in nonane
EDF-4052-1	Method 23 Calibration Solution [CS1]	0.2 mL in nonane
EDF-4052-2	Method 23 Calibration Solution [CS2]	0.2 mL in nonane
EDF-4052-3	Method 23 Daily Calibration Check Standard [CS3]	0.2 mL in nonane
EDF-4052-4	Method 23 Calibration Solution [CS4]	0.2 mL in nonane
EDF-4052-5	Method 23 Calibration Solution [CS5]	0.2 mL in nonane

All concentrations are in pg/µL (ppb)

Unlabeled	CS1	CS2	CS3	CS4	CS5
2,3,7,8-TetraCDD	0.5	1	5	50	100
2,3,7,8-TetraCDF	0.5	1	5	50	100
1,2,3,7,8-PentaCDD	2.5	5	25	250	500
1,2,3,7,8-PentaCDF	2.5	5	25	250	500
2,3,4,7,8-PentaCDF	2.5	5	25	250	500
1,2,3,4,7,8-HexaCDD	2.5	5	25	250	500
1,2,3,6,7,8-HexaCDD	2.5	5	25	250	500
1,2,3,7,8,9-HexaCDD	2.5	5	25	250	500
1,2,3,4,7,8-HexaCDF	2.5	5	25	250	500
1,2,3,6,7,8-HexaCDF	2.5	5	25	250	500
1,2,3,7,8,9-HexaCDF	2.5	5	25	250	500
2,3,4,6,7,8-HexaCDF	2.5	5	25	250	500
1,2,3,4,6,7,8-HeptaCDD	2.5	5	25	250	500
1,2,3,4,6,7,8-HeptaCDF	2.5	5	25	250	500
1,2,3,4,7,8,9-HeptaCDF	2.5	5	25	250	500
OctaCDD	5.0	10	50	500	1000
OctaCDF	5.0	10	50	500	1000
Internal					
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
OctaCDD ($^{13}C_{12}$, 99%)	200	200	200	200	200
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
Surrogate					
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	0.5	1	5	50	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	2.5	5	25	250	500
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	2.5	5	25	250	500
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2.5	5	25	250	500
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	2.5	5	25	250	500
Recovery					
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
Alternate Recovery					
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	2.5	5	25	250	500

NEW	EDF-23-KIT	Method 23 "Starter Kit"	1 Kit

Contains one each of the following items:

EDF-4052	Method 23 Calibration Solutions [CS1-CS5]
EDF-4053	Method 23 Internal Standard Stock Solution
EDF-4054	Method 23 Surrogate Standard Stock Solution
EDF-4055	Method 23 Recovery Standard Stock Solution
EDF-5189	Method 23 Alternate Recovery Standard Stock Solution

US EPA Method 23 Standard Mixtures

Catalog No.	Compound	Amount
EDF-4053	Method 23 Internal Standard Stock Solution	1.2 mL in nonane

Labeled	(pg/µL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	1000
OctaCDD ($^{13}C_{12}$, 99%)	2000
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	1000

EDF-4054	Method 23 Surrogate Standard Stock Solution	1.2 mL in nonane

Labeled	(pg/µL)
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	1000
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	1000

EDF-4055	Method 23 Recovery Standard Stock Solution	1.2 mL in nonane

Labeled	(pg/µL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	500
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	500

EDF-5189	Method 23 Alternate Recovery Standard Stock Solution	1.2 mL in nonane

Labeled	(pg/µL)
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	1000

US EPA Method 8290 Standard Mixtures

Catalog No.	Compound	Amount
EDF-5006	Method 8290 Calibration Solutions [HRCC1-HRCC5]	Set of 5 × 0.2 mL in nonane
EDF-5006-1	Method 8290 Calibration Solution [HRCC1]	0.2 mL in nonane
EDF-5006-2	Method 8290 Calibration Solution [HRCC2]	0.2 mL in nonane
EDF-5006-3	Method 8290 Continuing Calibration Check Standard [HRCC3]	0.2 mL in nonane
EDF-5006-4	Method 8290 Calibration Solution [HRCC4]	0.2 mL in nonane
EDF-5006-5	Method 8290 Calibration Solution [HRCC5]	0.2 mL in nonane

All concentrations are in pg/µL (ppb)

Unlabeled	HRCC1	HRCC2	HRCC3	HRCC4	HRCC5
2,3,7,8-TetraCDD	1.0	2.5	10	50	200
2,3,7,8-TetraCDF	1.0	2.5	10	50	200
1,2,3,7,8-PentaCDD	2.5	6.25	25	125	500
1,2,3,7,8-PentaCDF	2.5	6.25	25	125	500
2,3,4,7,8-PentaCDF	2.5	6.25	25	125	500
1,2,3,4,7,8-HexaCDD	2.5	6.25	25	125	500
1,2,3,6,7,8-HexaCDD	2.5	6.25	25	125	500
1,2,3,7,8,9-HexaCDD	2.5	6.25	25	125	500
1,2,3,4,7,8-HexaCDF	2.5	6.25	25	125	500
1,2,3,6,7,8-HexaCDF	2.5	6.25	25	125	500
1,2,3,7,8,9-HexaCDF	2.5	6.25	25	125	500
2,3,4,6,7,8-HexaCDF	2.5	6.25	25	125	500
1,2,3,4,6,7,8-HeptaCDD	2.5	6.25	25	125	500
1,2,3,4,6,7,8-HeptaCDF	2.5	6.25	25	125	500
1,2,3,4,7,8,9-HeptaCDF	2.5	6.25	25	125	500
OctaCDD	5.0	12.5	50	250	1000
OctaCDF	5.0	12.5	50	250	1000
Internal					
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	50	50	50	50	50
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	125	125	125	125	125
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	125	125	125	125	125
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	125	125	125	125	125
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	125	125	125	125	125
OctaCDD ($^{13}C_{12}$, 99%)	250	250	250	250	250
Recovery					
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	125	125	125	125	125

NEW	EDF-8290-KIT	Method 8290 "Starter Kit"	1 Kit

Contains one each of the following items:

EDF-5006	Method 8290 Calibration Solutions [HRCC1-HRCC5]
EDF-5005	Method 8290 Sample Fortification Solution
ED-5004	Method 8290 Recovery Standard Solution
EDF-5008	Method 8290 Matrix Spiking Solution

US EPA Method 8290 Standard Mixtures

Catalog No.	Compound	Amount
EDF-5005	Method 8290 Sample Fortification Solution	1.2 mL in nonane

Labeled	(pg/µL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	250
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	250
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	250
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	250
OctaCDD ($^{13}C_{12}$, 99%)	500

ED-5004	Method 8290 Recovery Standard Solution	1.2 mL in nonane

Labeled	(pg/µL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	100
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	250

EDF-5008	Method 8290 Matrix Spiking Solution	1.2 mL in nonane
EDF-5008-50	Method 8290 Matrix Spiking Solution (1:50 dilution)	0.1 mL in nonane

Unlabeled	EDF-5008 (pg/µL)	EDF-5008-50 (pg/µL)
2,3,7,8-TetraCDD	100	2
2,3,7,8-TetraCDF	100	2
1,2,3,7,8-PentaCDD	250	5
1,2,3,7,8-PentaCDF	250	5
2,3,4,7,8-PentaCDF	250	5
1,2,3,4,7,8-HexaCDD	250	5
1,2,3,4,7,8-HexaCDF	250	5
1,2,3,6,7,8-HexaCDD	250	5
1,2,3,6,7,8-HexaCDF	250	5
1,2,3,7,8,9-HexaCDD	250	5
1,2,3,7,8,9-HexaCDF	250	5
2,3,4,6,7,8-HexaCDF	250	5
1,2,3,4,6,7,8-HeptaCDD	250	5
1,2,3,4,6,7,8-HeptaCDF	250	5
1,2,3,4,7,8,9-HeptaCDF	250	5
OctaCDD	500	10
OctaCDF	500	10

European Air Method EN-1948 Standard Mixtures

Catalog No.	Compound	Amount
EDF-4947	EN-1948 Calibration Solutions [CS1-CS5]	Set of 5 × 0.2 mL in nonane
EDF-4947-CS1	EN-1948 Calibration Solution [CS1]	0.2 mL in nonane
EDF-4947-CS2	EN-1948 Calibration Solution [CS2]	0.2 mL in nonane
EDF-4947-CS3	EN-1948 Calibration Solution [CS3]	0.2 mL in nonane
EDF-4947-CS4	EN-1948 Calibration Solution [CS4]	0.2 mL in nonane
EDF-4947-CS5	EN-1948 Calibration Solution [CS5]	0.2 mL in nonane

All concentrations are in pg/µL (ppb)

Unlabeled	CS1	CS2	CS3	CS4	CS5
2,3,7,8-TetraCDD	0.5	2.0	10.0	40.0	200
2,3,7,8-TetraCDF	0.5	2.0	10.0	40.0	200
1,2,3,7,8-PentaCDD	2.5	10.0	50.0	200	1000
1,2,3,7,8-PentaCDF	2.5	10.0	50.0	200	1000
2,3,4,7,8-PentaCDF	2.5	10.0	50.0	200	1000
1,2,3,4,7,8-HexaCDD	2.5	10.0	50.0	200	1000
1,2,3,6,7,8-HexaCDD	2.5	10.0	50.0	200	1000
1,2,3,7,8,9-HexaCDD	2.5	10.0	50.0	200	1000
1,2,3,4,7,8-HexaCDF	2.5	10.0	50.0	200	1000
1,2,3,6,7,8-HexaCDF	2.5	10.0	50.0	200	1000
1,2,3,7,8,9-HexaCDF	2.5	10.0	50.0	200	1000
2,3,4,6,7,8-HexaCDF	2.5	10.0	50.0	200	1000
1,2,3,4,6,7,8-HeptaCDD	2.5	10.0	50.0	200	1000
1,2,3,4,6,7,8-HeptaCDF	2.5	10.0	50.0	200	1000
1,2,3,4,7,8,9-HeptaCDF	2.5	10.0	50.0	200	1000
OctaCDD	5.0	20.0	100	400	2000
OctaCDF	5.0	20.0	100	400	2000
Sampling					
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
Extraction					
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
OctaCDD ($^{13}C_{12}$, 99%)	200	200	200	200	200
OctaCDF ($^{13}C_{12}$, 99%)	200	200	200	200	200
Syringe					
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	100	100	100	100	100

NEW	EDF-1948-KIT	EN-1948 Dioxin/Furan "Starter Kit"	1 Kit

Contains one each of the following items:

EDF-4947	EN-1948 Calibration Solutions [CS1-CS5]
EF-4138	EN-1948 Sampling Standard Solution
EDF-4139	EN-1948 Extraction Standard Solution
ED-4140	EN-1948 Syringe Standard Solution
EDF-4175	EN-1948 Native Stock Response Factor Solution

European Air Method EN-1948 Standard Mixtures

Catalog No.	Compound	Amount
EF-4138	EN-1948 Sampling Standard Solution	1.2 mL in nonane
EF-4138-10	EN-1948 Sampling Standard Solution	2 × 5 mL in nonane

Labeled	(pg/µL)
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	200

EDF-4139	EN-1948 Extraction Standard Solution	1.2 mL in nonane
EDF-4139-10	EN-1948 Extraction Standard Solution	2 × 5 mL in nonane

Labeled	(pg/µL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	200
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	200
OctaCDD ($^{13}C_{12}$, 99%)	200
OctaCDF ($^{13}C_{12}$, 99%)	200

ED-4140	EN-1948 Syringe Standard Solution	1.2 mL in nonane

Labeled	(pg/µL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	400
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	400

EDF-4175	EN-1948 Native Stock Response Factor Solution	0.5 mL in nonane

Unlabeled	(ng/mL)
2,3,7,8-TetraCDD	1000
2,3,7,8-TetraCDF	1000
1,2,3,7,8-PentaCDD	1000
1,2,3,7,8-PentaCDF	1000
2,3,4,7,8-PentaCDF	1000
1,2,3,4,7,8-HexaCDD	1000
1,2,3,6,7,8-HexaCDD	1000
1,2,3,7,8,9-HexaCDD	4000
1,2,3,4,7,8-HexaCDF	1000
1,2,3,6,7,8-HexaCDF	1000
1,2,3,7,8,9-HexaCDF	1000
2,3,4,6,7,8-HexaCDF	1000
1,2,3,4,6,7,8-HeptaCDD	2000
1,2,3,4,6,7,8-HeptaCDF	2000
1,2,3,4,7,8,9-HeptaCDF	2000
OctaCDD	2000
OctaCDF	2000

JIS Methods K0311 and K0312 Dioxin/Furan Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5327-H	Modified JIS Dioxin/Furan Calibration Solutions [CS1H-CS6H]	Set of 6 × 0.2 mL in nonane
NEW	EDF-5327-H-E	Modified JIS Dioxin/Furan Calibration Solutions [CS0.2H-CS7H]	Set of 8 × 0.2 mL in nonane
NEW	EDF-5327-CS0.2H	Modified JIS Dioxin/Furan Calibration Solution [CS0.2H]	0.2 mL in nonane
NEW	EDF-5327-CS1H	Modified JIS Dioxin/Furan Calibration Solution [CS1H]	0.2 mL in nonane
NEW	EDF-5327-CS2H	Modified JIS Dioxin/Furan Calibration Solution [CS2H]	0.2 mL in nonane
NEW	EDF-5327-CS3H	Modified JIS Dioxin/Furan Calibration Solution [CS3H]	0.2 mL in nonane
NEW	EDF-5327-CS4H	Modified JIS Dioxin/Furan Calibration Solution [CS4H]	0.2 mL in nonane
NEW	EDF-5327-CS5H	Modified JIS Dioxin/Furan Calibration Solution [CS5H]	0.2 mL in nonane
NEW	EDF-5327-CS6H	Modified JIS Dioxin/Furan Calibration Solution [CS6H]	0.2 mL in nonane
NEW	EDF-5327-CS7H	Modified JIS Dioxin/Furan Calibration Solution [CS7H]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS0.2H	CS1H	CS2H	CS3H	CS4H	CS5H	CS6H	CS7H
2,3,7,8-TetraCDD	0.02	0.1	0.5	2.0	10	50	200	500
2,3,7,8-TetraCDF	0.02	0.1	0.5	2.0	10	50	200	500
1,3,6,8-TetraCDD	0.02	0.1	0.5	2.0	10	50	200	500
1,3,6,8-TetraCDF	0.02	0.1	0.5	2.0	10	50	200	500
1,3,7,9-TetraCDD	0.02	0.1	0.5	2.0	10	50	200	500
1,2,8,9-TetraCDD	0.02	0.1	0.5	2.0	10	50	200	500
1,2,7,8-TetraCDF	0.02	0.1	0.5	2.0	10	50	200	500
1,2,8,9-TetraCDF	0.02	0.1	0.5	2.0	10	50	200	500
1,2,3,7,8-PentaCDD	0.02	0.1	0.5	2.0	10	50	200	500
1,2,3,7,8-PentaCDF	0.02	0.1	0.5	2.0	10	50	200	500
2,3,4,7,8-PentaCDF	0.02	0.1	0.5	2.0	10	50	200	500
1,2,3,4,7,8-HexaCDD	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,6,7,8-HexaCDD	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,7,8,9-HexaCDD	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,4,7,8-HexaCDF	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,6,7,8-HexaCDF	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,7,8,9-HexaCDF	0.04	0.2	1.0	4.0	20	100	400	1000
2,3,4,6,7,8-HexaCDF	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,4,6,7,8-HeptaCDD	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,4,6,7,8-HeptaCDF	0.04	0.2	1.0	4.0	20	100	400	1000
1,2,3,4,7,8,9-HeptaCDF	0.04	0.2	1.0	4.0	20	100	400	1000
OctaCDD	0.1	0.5	2.5	10	50	250	1000	2500
OctaCDF	0.1	0.5	2.5	10	50	250	1000	2500
Labeled								
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20
OctaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20

JIS Methods K0311 and K0312 Dioxin/Furan Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5328	Modified JIS Dioxin/Furan Cleanup Spike	1.2 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	50
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)	50
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	50
OctaCDD ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	50
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	50
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	50
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	50
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	50
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	50
OctaCDF ($^{13}C_{12}$, 99%)	100

NEW	EDF-5329	Modified JIS Dioxin/Furan Syringe Spike	1.2 mL in nonane

Labeled	(ng/mL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4,7-PentaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	50

JIS Methods K0311 and K0312 Dioxin/Furan Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5331-L-E	Modified JIS Low Concentration Dioxin/Furan Calibration Solutions [CS0.2L-CS5L]	Set of 6 × 0.2 mL in nonane
NEW	EDF-5331-CS0.2L	Modified JIS Low Concentration Dioxin/Furan Calibration Solution [CS0.2L]	0.2 mL in nonane
NEW	EDF-5331-CS1L	Modified JIS Low Concentration Dioxin/Furan Calibration Solution [CS1L]	0.2 mL in nonane
NEW	EDF-5331-CS2L	Modified JIS Low Concentration Dioxin/Furan Calibration Solution [CS2L]	0.2 mL in nonane
NEW	EDF-5331-CS3L	Modified JIS Low Concentration Dioxin/Furan Calibration Solution [CS3L]	0.2 mL in nonane
NEW	EDF-5331-CS4L	Modified JIS Low Concentration Dioxin/Furan Calibration Solution [CS4L]	0.2 mL in nonane
NEW	EDF-5331-CS5L	Modified JIS Low Concentration Dioxin/Furan Calibration Solution [CS5L]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS0.2L	CS1L	CS2L	CS3L	CS4L	CS5L
2,3,7,8-TetraCDD	0.02	0.1	0.5	2.0	10	50
1,3,6,8-TetraCDD	0.02	0.1	0.5	2.0	10	50
1,3,7,9-TetraCDD	0.02	0.1	0.5	2.0	10	50
1,2,8,9-TetraCDD	0.02	0.1	0.5	2.0	10	50
1,2,3,7,8-PentaCDD	0.02	0.1	0.5	2.0	10	50
1,2,3,4,7,8-HexaCDD	0.04	0.2	1.0	4.0	20	100
1,2,3,6,7,8-HexaCDD	0.04	0.2	1.0	4.0	20	100
1,2,3,7,8,9-HexaCDD	0.04	0.2	1.0	4.0	20	100
1,2,3,4,6,7,8-HeptaCDD	0.04	0.2	1.0	4.0	20	100
OctaCDD	0.1	0.5	2.5	10	50	250
2,3,7,8-TetraCDF	0.02	0.1	0.5	2.0	10	50
1,3,6,8-TetraCDF	0.02	0.1	0.5	2.0	10	50
1,2,7,8-TetraCDF	0.02	0.1	0.5	2.0	10	50
1,2,8,9-TetraCDF	0.02	0.1	0.5	2.0	10	50
1,2,3,7,8-PentaCDF	0.02	0.1	0.5	2.0	10	50
2,3,4,7,8-PentaCDF	0.02	0.1	0.5	2.0	10	50
1,2,3,4,7,8-HexaCDF	0.04	0.2	1.0	4.0	20	100
1,2,3,6,7,8-HexaCDF	0.04	0.2	1.0	4.0	20	100
2,3,4,6,7,8-HexaCDF	0.04	0.2	1.0	4.0	20	100
1,2,3,7,8,9-HexaCDF	0.04	0.2	1.0	4.0	20	100
1,2,3,4,6,7,8-HeptaCDF	0.04	0.2	1.0	4.0	20	100
1,2,3,4,7,8,9-HeptaCDF	0.04	0.2	1.0	4.0	20	100
OctaCDF	0.1	0.5	2.5	10	50	250
Labeled						
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,7-PentaCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
OctaCDD ($^{13}C_{12}$, 99%)	4.0	4.0	4.0	4.0	4.0	4.0
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4-TetraCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	2.0	2.0	2.0	2.0	2.0	2.0
OctaCDF ($^{13}C_{12}$, 99%)	4.0	4.0	4.0	4.0	4.0	4.0

JIS Methods K0311 and K0312 Dioxin/Furan Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5332	Modified JIS Low Concentration Cleanup Spike	1.2 mL in nonane

Labeled	(ng/mL)
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)	10
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	10
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10
OctaCDD ($^{13}C_{12}$, 99%)	20
OctaCDF ($^{13}C_{12}$, 99%)	20

NEW	EDF-5333	Modified JIS Low Concentration Syringe Spike	1.2 mL in nonane

Labeled	(ng/mL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	10
1,2,3,4,7-PentaCDD ($^{13}C_{12}$, 99%)	10
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	10
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10

JIS Methods K0311 and K0312 Dioxin/Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-5187	JIS Dioxin/Furan Calibration Solutions [ST1-ST5]	Set of 5 × 0.2 mL in nonane
EDF-5187-ST1	JIS Dioxin/Furan Calibration Solution [ST1]	0.2 mL in nonane
EDF-5187-ST2	JIS Dioxin/Furan Calibration Solution [ST2]	0.2 mL in nonane
EDF-5187-ST3	JIS Dioxin/Furan Calibration Solution [ST3]	0.2 mL in nonane
EDF-5187-ST4	JIS Dioxin/Furan Calibration Solution [ST4]	0.2 mL in nonane
EDF-5187-ST5	JIS Dioxin/Furan Calibration Solution [ST5]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	ST1	ST2	ST3	ST4	ST5
2,3,7,8-TetraCDD	0.2	1	5	20	100
1,2,3,7,8-PentaCDD	0.2	1	5	20	100
1,2,3,4,7,8-HexaCDD	0.4	2	10	40	200
1,2,3,6,7,8-HexaCDD	0.4	2	10	40	200
1,2,3,7,8,9-HexaCDD	0.4	2	10	40	200
1,2,3,4,6,7,8-HeptaCDD	0.4	2	10	40	200
OctaCDD	1	5	25	100	500
2,3,7,8-TetraCDF	0.2	1	5	20	100
1,2,3,7,8-PentaCDF	0.2	1	5	20	100
2,3,4,7,8-PentaCDF	0.2	1	5	20	100
1,2,3,4,7,8-HexaCDF	0.4	2	10	40	200
1,2,3,6,7,8-HexaCDF	0.4	2	10	40	200
1,2,3,7,8,9-HexaCDF	0.4	2	10	40	200
2,3,4,6,7,8-HexaCDF	0.4	2	10	40	200
1,2,3,4,6,7,8-HeptaCDF	0.4	2	10	40	200
1,2,3,4,7,8,9-HeptaCDF	0.4	2	10	40	200
OctaCDF	1	5	25	100	500
Labeled					
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10
OctaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20

US EPA Method 8280 Standard Mixtures

Catalog No.	Compound	Amount
EDF-2519-A	Method 8280 Calibration Solutions [CC1-CC5]	Set of 5 × 0.2 mL in nonane
EDF-2519-1	Method 8280 Calibration Solution [CC1]	0.2 mL in nonane
EDF-2519-2	Method 8280 Calibration Solution [CC2]	0.2 mL in nonane
EDF-2519-3	Method 8280 Calibration and Verification Solution [CC3]	0.2 mL in nonane
EDF-2519-4	Method 8280 Calibration Solution [CC4]	0.2 mL in nonane
EDF-2519-5	Method 8280 Calibration Solution [CC5]	0.2 mL in nonane

All concentrations are in ng/µL (ppm)

Unlabeled	CC1	CC2	CC3	CC4	CC5
2,3,7,8-TetraCDD	0.1	0.25	0.5	1.0	2.0
2,3,7,8-TetraCDF	0.1	0.25	0.5	1.0	2.0
1,2,3,7,8-PentaCDF	0.1	0.25	0.5	1.0	2.0
1,2,3,7,8-PentaCDD	0.1	0.25	0.5	1.0	2.0
2,3,4,7,8-PentaCDF	–	–	0.5	–	–
1,2,3,4,7,8-HexaCDF	–	–	1.25	–	–
1,2,3,6,7,8-HexaCDF	0.25	0.625	1.25	2.5	5.0
1,2,3,4,7,8-HexaCDD	–	–	1.25	–	–
1,2,3,6,7,8-HexaCDD	0.25	0.625	1.25	2.5	5.0
1,2,3,7,8,9-HexaCDD	–	–	1.25	–	–
2,3,4,6,7,8-HexaCDF	–	–	1.25	–	–
1,2,3,7,8,9-HexaCDF	–	–	1.25	–	–
1,2,3,4,7,8,9-HeptaCDF	–	–	1.25	–	–
1,2,3,4,6,7,8-HeptaCDF	0.25	0.625	1.25	2.5	5.0
1,2,3,4,6,7,8-HeptaCDD	0.25	0.625	1.25	2.5	5.0
OctaCDD	0.5	1.25	2.5	5.0	10.0
OctaCDF	0.5	1.25	2.5	5.0	10.0
Labeled					
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	1.0	1.0	1.0	1.0	1.0
OctaCDD ($^{13}C_{12}$, 99%)	1.0	1.0	1.0	1.0	1.0
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	–	–	0.25	–	–

NEW	EDF-8280-KIT	Method 8280 "Starter Kit" *	1 Kit

Contains one each of the following items:

EDF-2519-A	Method 8280 Calibration Solutions [CS1-CS5]
EDF-2520	Method 8280 Internal Standard Solution
ED-2521	Method 8280 Recovery Standard Solution
ED-2522	Method 8280 Cleanup Standard Solution
EDF-2523	Method 8280 Matrix Spiking Solution

*Modified Method 8280 "Starter Kit" also available

US EPA Method 8280 Standard Mixtures

Catalog No.	Compound	Amount
EDF-4095	Modified Method 8280 Calibration Solutions [CS1-CS5] (All 17 toxic congeners at all five levels)	Set of 5 × 0.2 mL in nonane
EDF-4095-1	Modified Method 8280 Calibration Standard [CS1]	0.2 mL in nonane
EDF-4095-2	Modified Method 8280 Calibration Standard [CS2]	0.2 mL in nonane
EDF-4095-3	Modified Method 8280 Calibration Standard [CS3]	0.2 mL in nonane
EDF-4095-4	Modified Method 8280 Calibration Standard [CS4]	0.2 mL in nonane
EDF-4095-5	Modified Method 8280 Calibration Standard [CS5]	0.2 mL in nonane

All concentrations are in ng/µL (ppm)

Unlabeled	CS1	CS2	CS3	CS4	CS5
2,3,7,8-TetraCDD	0.1	0.25	0.5	1.0	2.0
2,3,7,8-TetraCDF	0.1	0.25	0.5	1.0	2.0
1,2,3,7,8-PentaCDD	0.1	0.25	0.5	1.0	2.0
1,2,3,7,8-PentaCDF	0.1	0.25	0.5	1.0	2.0
2,3,4,7,8-PentaCDF	0.1	0.25	0.5	1.0	2.0
1,2,3,4,7,8-HexaCDD	0.25	0.625	1.25	2.5	5.0
1,2,3,4,7,8-HexaCDF	0.25	0.625	1.25	2.5	5.0
1,2,3,6,7,8-HexaCDD	0.25	0.625	1.25	2.5	5.0
1,2,3,6,7,8-HexaCDF	0.25	0.625	1.25	2.5	5.0
1,2,3,7,8,9-HexaCDD	0.25	0.625	1.25	2.5	5.0
1,2,3,7,8,9-HexaCDF	0.25	0.625	1.25	2.5	5.0
2,3,4,6,7,8-HexaCDF	0.25	0.625	1.25	2.5	5.0
1,2,3,4,6,7,8-HeptaCDD	0.25	0.625	1.25	2.5	5.0
1,2,3,4,6,7,8-HeptaCDF	0.25	0.625	1.25	2.5	5.0
1,2,3,4,7,8,9-HeptaCDF	0.25	0.625	1.25	2.5	5.0
OctaCDD	0.5	1.25	2.5	5.0	10.0
OctaCDF	0.5	1.25	2.5	5.0	10.0
Labeled					
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	0.25	0.25	0.25	0.25	0.25
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	0.5	0.5	0.5	0.5	0.5
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	1.0	1.0	1.0	1.0	10
OctaCDD ($^{13}C_{12}$, 99%)	1.0	1.0	1.0	1.0	1.0

EDF-2681	Supplemental Internal Standard Solution (not required by US EPA Method 8280)	1.2 mL in nonane

Labeled	(ng/µL)
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	5
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	5
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	5
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10
OctaCDF ($^{13}C_{12}$, 99%)	10

US EPA Method 8280 Standard Mixtures

Catalog No.	Compound	Amount
EDF-2520	Method 8280 Internal Standard Solution	1.2 mL in nonane

Labeled	(ng/µL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	5
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	5
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	5
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10
OctaCDD ($^{13}C_{12}$, 99%)	10

ED-2521	Method 8280 Recovery Standard Solution	1.2 mL in nonane

Labeled	(ng/µL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	5
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	5

ED-2522	Method 8280 Cleanup Standard Solution	1.2 mL in nonane

Labeled	(ng/µL)
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	5

EDF-2523	Method 8280 Matrix Spiking Solution	1.2 mL in nonane

Unlabeled	(ng/µL)
2,3,7,8-TetraCDD	2.5
2,3,7,8-TetraCDF	2.5
1,2,3,7,8-PentaCDF	6.25
1,2,3,7,8-PentaCDD	6.25
1,2,3,6,7,8-HexaCDF	6.25
1,2,3,6,7,8-HexaCDD	6.25
1,2,3,4,6,7,8-HeptaCDF	6.25
1,2,3,4,6,7,8-HeptaCDD	6.25
OctaCDD	12.5
OctaCDF	12.5

EDF-4096	Modified Method 8280 Matrix Spiking Solution (all 17 toxic congeners)	1.2 mL in nonane

Unlabeled	(ng/µL)
2,3,7,8-TetraCDD	2.5
2,3,7,8-TetraCDF	2.5
1,2,3,7,8-PentaCDD	6.25
1,2,3,7,8-PentaCDF	6.25
2,3,4,7,8-PentaCDF	6.25
1,2,3,4,7,8-HexaCDD	6.25
1,2,3,4,7,8-HexaCDF	6.25
1,2,3,6,7,8-HexaCDD	6.25
1,2,3,6,7,8-HexaCDF	6.25
1,2,3,7,8,9-HexaCDD	6.25
1,2,3,7,8,9-HexaCDF	6.25
2,3,4,6,7,8-HexaCDF	6.25
1,2,3,4,6,7,8-HeptaCDD	6.25
1,2,3,4,6,7,8-HeptaCDF	6.25
1,2,3,4,7,8,9-HeptaCDF	6.25
OctaCDD	12.5
OctaCDF	12.5

Dioxin and Furan Plus PCB Standard Mixtures

Catalog No.	Compound	Amount
EDF-5443	Two-Column Dioxin and Furan and PCB Calibration Solutions [CS1H-CS6H]	Set of 6 × 0.2 mL in nonane
EDF-5443-CS1H	Two-Column Dioxin and Furan and PCB Calibration Solution [CS1H]	0.2 mL in nonane
EDF-5443-CS2H	Two-Column Dioxin and Furan and PCB Calibration Solution [CS2H]	0.2 mL in nonane
EDF-5443-CS3H	Two-Column Dioxin and Furan and PCB Calibration Solution [CS3H]	0.2 mL in nonane
EDF-5443-CS4H	Two-Column Dioxin and Furan and PCB Calibration Solution [CS4H]	0.2 mL in nonane
EDF-5443-CS5H	Two-Column Dioxin and Furan and PCB Calibration Solution [CS5H]	0.2 mL in nonane
EDF-5443-CS6H	Two-Column Dioxin and Furan and PCB Calibration Solution [CS6H]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	IUPAC	CS1H	CS2H	CS3H	CS4H	CS5H	CS6H
2,3,7,8-TetraCDF		0.1	0.5	2.0	10	50	200
1,3,6,8-TetraCDF		0.1	0.5	2.0	10	50	200
1,2,7,8-TetraCDF		0.1	0.5	2.0	10	50	200
1,2,8,9-TetraCDF		0.1	0.5	2.0	10	50	200
1,2,3,7,8-PentaCDF		0.1	0.5	2.0	10	50	200
2,3,4,7,8-PentaCDF		0.1	0.5	2.0	10	50	200
1,2,3,4,7,8-HexaCDF		0.2	1.0	4.0	20	100	400
1,2,3,6,7,8-HexaCDF		0.2	1.0	4.0	20	100	400
2,3,4,6,7,8-HexaCDF		0.2	1.0	4.0	20	100	400
1,2,3,7,8,9-HexaCDF		0.2	1.0	4.0	20	100	400
1,2,3,4,6,7,8-HeptaCDF		0.2	1.0	4.0	20	100	400
1,2,3,4,7,8,9-HeptaCDF		0.2	1.0	4.0	20	100	400
OctaCDF		0.5	2.5	10	50	250	1000
2,3,7,8-TetraCDD		0.1	0.5	2.0	10	50	200
1,3,6,8-TetraCDD		0.1	0.5	2.0	10	50	200
1,3,7,9-TetraCDD		0.1	0.5	2.0	10	50	200
1,2,8,9-TetraCDD		0.1	0.5	2.0	10	50	200
1,2,3,7,8-PentaCDD		0.1	0.5	2.0	10	50	200
1,2,3,4,7,8-HexaCDD		0.2	1.0	4.0	20	100	400
1,2,3,6,7,8-HexaCDD		0.2	1.0	4.0	20	100	400
1,2,3,7,8,9-HexaCDD		0.2	1.0	4.0	20	100	400
1,2,3,4,6,7,8-HeptaCDD		0.2	1.0	4.0	20	100	400
OctaCDD		0.5	2.5	10	50	250	1000
3,4,4′,5-TetraCB	81	0.2	0.5	2.0	10	50	200
3,3′,4,4′-TetraCB	77	0.2	0.5	2.0	10	50	200
3,3′,4,4′,5-PentaCB	126	0.2	0.5	2.0	10	50	200
3,3′,4,4′,5,5′-HexaCB	169	0.2	0.5	2.0	10	50	200
2′,3,4,4′,5-PentaCB	123	0.2	0.5	2.0	10	50	200
2,3′,4,4′,5-PentaCB	118	0.2	0.5	2.0	10	50	200
2,3,3′,4,4′-PentaCB	105	0.2	0.5	2.0	10	50	200
2,3,4,4′,5-PentaCB	114	0.2	0.5	2.0	10	50	200
2,3′,4,4′,5,5′-HexaCB	167	0.2	0.5	2.0	10	50	200
2,3,3′,4,4′,5-HexaCB	156	0.2	0.5	2.0	10	50	200
2,3,3′,4,4′,5′-HexaCB	157	0.2	0.5	2.0	10	50	200
2,3,3′,4,4′,5,5′-HeptaCB	189	0.2	0.5	2.0	10	50	200
2,2′,3,3′,4,4′,5-HeptaCB	170	0.2	0.5	2.0	10	50	200
2,2′,3,4,4′,5,5′-HeptaCB	180	0.2	0.5	2.0	10	50	200

(continued on next page)

Dioxin and Furan Plus PCB Standard Mixtures

(continued from previous page)

All concentrations are in ng/mL (ppb)

Labeled	IUPAC	CS1H	CS2H	CS3H	CS4H	CS5H	CS6H
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,6,7-HexaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)		20	20	20	20	20	20
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,6-PentaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10
OctaCDF ($^{13}C_{12}$, 99%)		20	20	20	20	20	20
3,4,4′,5-TetraCB ($^{13}C_{12}$, 99%)	81	10	10	10	10	10	10
3,3′,4,4′-TetraCB ($^{13}C_{12}$, 99%)	77	10	10	10	10	10	10
3,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	126	10	10	10	10	10	10
3,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	169	10	10	10	10	10	10
2′,3,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	123	10	10	10	10	10	10
2,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	118	10	10	10	10	10	10
2,3,3′,4,4′-PentaCB ($^{13}C_{12}$, 99%)	105	10	10	10	10	10	10
2,3,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	114	10	10	10	10	10	10
2,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	167	10	10	10	10	10	10
2,3,3′,4,4′,5-HexaCB ($^{13}C_{12}$, 99%)	156	10	10	10	10	10	10
2,3,3′,4,4′,5′-HexaCB ($^{13}C_{12}$, 99%)	157	10	10	10	10	10	10
2,3,3′,4,4′,5,5′-HeptaCB ($^{13}C_{12}$, 99%)	189	10	10	10	10	10	10
2,2′,3,3′,4,4′,5-HeptaCB ($^{13}C_{12}$, 99%)	170	10	10	10	10	10	10
2,2′,3,4,4′,5,5′-HeptaCB ($^{13}C_{12}$, 99%)	180	10	10	10	10	10	10
2,3′,4′,5-TetraCB ($^{13}C_{12}$, 99%)	70	10	10	10	10	10	10
2,3,3′,5,5′-PentaCB ($^{13}C_{12}$, 99%)	111	10	10	10	10	10	10
2,2′,3,4,4′,5′-HexaCB ($^{13}C_{12}$, 99%)	138	10	10	10	10	10	10
2,2′,3,3′,5,5′,6-HeptaCB ($^{13}C_{12}$, 99%)	178	10	10	10	10	10	10
3,3′,4,5′-TetraCB ($^{13}C_{12}$, 99%)	79	10	10	10	10	10	10

Dioxin and Furan Plus PCB Standard Mixtures

Catalog No.	Compound	Amount
EDF-5444	Two-Column Dioxin and Furan and PCB Cleanup Spike	0.6 mL in nonane
NEW EDF-5444-C	Two-Column Dioxin and Furan and PCB Cleanup Spike with 1,3,6,8-TetraCDD	0.6 mL in nonane

Labeled	IUPAC	EDF-5444 (ng/mL)	EDF-5444-C (ng/mL)
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)		–	1000
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)		1000	1000
OctaCDD ($^{13}C_{12}$, 99%)		2000	2000
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)		1000	1000
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)		1000	1000
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)		1000	1000
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		1000	1000
OctaCDF ($^{13}C_{12}$, 99%)		2000	2000
3,4,4′,5-TetraCB ($^{13}C_{12}$, 99%)	81	1000	1000
3,3′,4,4′-TetraCB ($^{13}C_{12}$, 99%)	77	1000	1000
3,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	126	1000	1000
3,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	169	1000	1000
2′,3,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	123	1000	1000
2,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	118	1000	1000
2,3,3′,4,4′-PentaCB ($^{13}C_{12}$, 99%)	105	1000	1000
2,3,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	114	1000	1000
2,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	167	1000	1000
2,3,3′,4,4′,5-HexaCB ($^{13}C_{12}$, 99%)	156	1000	1000
2,3,3′,4,4′,5′-HexaCB ($^{13}C_{12}$, 99%)	157	1000	1000
2,3,3′,4,4′,5,5′-HeptaCB ($^{13}C_{12}$, 99%)	189	1000	1000
2,2′,3,4,4′,5,5′-HeptaCB ($^{13}C_{12}$, 99%)	180	1000	1000

EDF-5431	Two-Column Dioxin and Furan Syringe Spike	1.2 mL in nonane
EDF-5431-20X	Two-Column Dioxin and Furan Syringe Spike	1.2 mL in nonane

Labeled	EDF-5431 (ng/mL)	EDF-5431-20X (ng/mL)
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	50	1000
1,2,3,4,6-PentaCDF ($^{13}C_{12}$, 99%)	50	1000
1,2,3,4,6,7-HexaCDD ($^{13}C_{12}$, 99%)	50	1000
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	50	1000

Dioxin and Furan Plus PCB Standard Mixtures

Catalog No.	Compound	Amount
EC-5325	Modified JIS PCB Syringe Spike	1.2 mL in nonane
EC-5325-0.2X	Modified JIS PCB Syringe Spike	10 mL in nonane
EC-5325-20X	Modified JIS PCB Syringe Spike	1.2 mL in nonane

Labeled	IUPAC	EC-5325 (ng/mL)	EC-5325-0.2X (ng/mL)	EC-5325-20X (ng/mL)
2,3′,4′,5-TetraCB ($^{13}C_{12}$, 99%)	70	50	10	1000
2,3,3′,5,5′-PentaCB ($^{13}C_{12}$, 99%)	111	50	10	1000
2,2′,3,4,4′,5′-HexaCB ($^{13}C_{12}$, 99%)	138	50	10	1000
2,2′,3,3′,5,5′,6-HeptaCB ($^{13}C_{12}$, 99%)	178	50	10	1000

EC-5326	Modified JIS PCB Sampling Spike	1.2 mL in nonane
EC-5326-20X	Modified JIS PCB Sampling Spike	1.2 mL in nonane

Labeled	IUPAC	EC-5326 (ng/mL)	EC-5326-20X (ng/mL)
3,3′,4,5′-TetraCB ($^{13}C_{12}$, 99%)	79	50	1000

Dioxin and Furan Plus PCB Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5524	Dioxin/Furan/CP-PCB Calibration Series [CDC1-CDC7]	Set of 7 × 0.25 mL in nonane
NEW	EDF-5524-0.1	Dioxin/Furan/CP-PCB Calibration Series [CDC0.1]	0.25 mL in nonane
NEW	EDF-5524-0.3	Dioxin/Furan/CP-PCB Calibration Series [CDC0.3]	0.25 mL in nonane
NEW	EDF-5524-1	Dioxin/Furan/CP-PCB Calibration Series [CDC1]	0.25 mL in nonane
NEW	EDF-5524-2	Dioxin/Furan/CP-PCB Calibration Series [CDC2]	0.25 mL in nonane
NEW	EDF-5524-3	Dioxin/Furan/CP-PCB Calibration Series [CDC3]	0.25 mL in nonane
NEW	EDF-5524-4	Dioxin/Furan/CP-PCB Calibration Series [CDC4]	0.25 mL in nonane
NEW	EDF-5524-5	Dioxin/Furan/CP-PCB Calibration Series [CDC5]	0.25 mL in nonane
NEW	EDF-5524-6	Dioxin/Furan/CP-PCB Calibration Series [CDC6]	0.25 mL in nonane
NEW	EDF-5524-7	Dioxin/Furan/CP-PCB Calibration Series [CDC7]	0.25 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	IUPAC	CDC0.1	CDC0.3	CDC1	CDC2	CDC3	CDC4	CDC5	CDC6	CDC7
2,3,7,8-TetraCDD		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
2,3,7,8-TetraCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,7,8-PentaCDD		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,7,8-PentaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
2,3,4,7,8-PentaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,4,7,8-HexaCDD		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,4,7,8-HexaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,6,7,8-HexaCDD		0.01	0.03	0.1	0.3	1	3	10	30	100
1,2,3,6,7,8-HexaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,7,8,9-HexaCDD		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,7,8,9-HexaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
2,3,4,6,7,8-HexaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
1,2,3,4,6,7,8-HeptaCDD		0.01	0.03	0.1	0.3	1	3	10	30	100
1,2,3,4,6,7,8-HeptaCDF		0.01	0.03	0.1	0.3	1	3	10	30	100
1,2,3,4,7,8,9-HeptaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
OctaCDD		0.1	0.3	1	3	10	30	100	300	1000
OctaCDF		0.001	0.003	0.01	0.03	0.1	0.3	1	3	10
3,3′,4,4′-TetraCB	77	0.01	0.03	0.1	0.3	1	3	10	30	100
3,4,4′,5-TetraCB	81	0.01	0.03	0.1	0.3	1	3	10	30	100
3,3′,4,4′,5-PentaCB	126	0.01	0.03	0.1	0.3	1	3	10	30	100
3,3′,4,4′,5,5′-HexaCB	169	0.01	0.03	0.1	0.3	1	3	10	30	100
Labeled										
1,2,3,4-TetraCDD ($^{13}C_6$, 99%)		10	10	10	10	10	10	10	10	10
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)		30	30	30	30	30	30	30	30	30
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)		30	30	30	30	30	30	30	30	30
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)		30	30	30	30	30	30	30	30	30
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)		100	100	100	100	100	100	100	100	100
OctaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10
3,3′,4,4′-TetraCB ($^{13}C_{12}$, 99%)	77	30	30	30	30	30	30	30	30	30
3,3′,5,5′-TetraCB ($^{13}C_{12}$, 99%)	80	30	30	30	30	30	30	30	30	30
3,4,4′,5-TetraCB ($^{13}C_{12}$, 99%)	81	30	30	30	30	30	30	30	30	30
3,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	126	30	30	30	30	30	30	30	30	30
3,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	169	30	30	30	30	30	30	30	30	30
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		10	10	10	10	10	10	10	10	10

Dioxin and Furan Plus PCB Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5525	Dioxin/Furan/CP-PCB Internal Standard	5.8 mL in methanol/nonane
NEW	EDF-5525-100X-1.2	Dioxin/Furan/CP-PCB Internal Standard 100X Stock	1.2 mL in methanol/nonane

Labeled	IUPAC	EDF-5525 (pg/µL)	EDF-5525-100X-1.2 (pg/µL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)		0.5	50
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)		0.5	50
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)		1.5	150
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)		0.5	50
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		0.5	50
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)		1.5	150
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)		1.5	150
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		0.5	50
OctaCDD ($^{13}C_{12}$, 99%)		5	500
OctaCDF ($^{13}C_{12}$, 99%)		0.5	50
3,3′,4,4′-TetraCB ($^{13}C_{12}$, 99%)	77	1.5	150
3,4,4′,5-TetraCB ($^{13}C_{12}$, 99%)	81	1.5	150
3,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	126	1.5	150
3,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	169	1.5	150

	Catalog No.	Compound	Amount
NEW	EDF-5526	Dioxin/Furan/CP-PCB Recovery Standard	5.8 mL in 88% hexane/ 10% nonane/2% dodecane
NEW	EDF-5526-100X-1.2	Dioxin/Furan/CP-PCB Recovery Standard 100X Stock	1.2 mL in 88% hexane/ 10% nonane/2% dodecane

Labeled	IUPAC	EDF-5526 (pg/µL)	EDF-5526-100X-1.2 (pg/µL)
1,2,3,4-TetraCDD ($^{13}C_{6}$, 99%)		0.5	50
3,3′,5,5′-TetraCB ($^{13}C_{12}$, 99%)	80	1.5	150
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		0.5	50
2,4,6,8-TetraBDF ($^{13}C_{12}$, 99%)		1.0	100

Dioxin and Furan Plus PCB Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5538	Dioxin/Furan/CP-PCB PAR Standard	10 mL in nonane/toluene/ isooctane

Unlabeled	IUPAC	(pg/µL)
2,3,7,8-TetraCDD		20
2,3,7,8-TetraCDF		20
1,2,3,7,8-PentaCDD		20
1,2,3,7,8-PentaCDF		20
2,3,4,7,8-PentaCDF		20
1,2,3,4,7,8-HexaCDD		20
1,2,3,4,7,8-HexaCDF		20
1,2,3,6,7,8-HexaCDD		200
1,2,3,6,7,8-HexaCDF		20
1,2,3,7,8,9-HexaCDD		20
1,2,3,7,8,9-HexaCDF		20
2,3,4,6,7,8-HexaCDF		20
1,2,3,4,6,7,8-HeptaCDD		200
1,2,3,4,6,7,8-HeptaCDF		200
1,2,3,4,7,8,9-HeptaCDF		20
OctaCDD		2000
OctaCDF		20
3,3′,4,4′-TetraCB	77	200
3,4,4′,5-TetraCB	81	200
3,3′,4,4′,5-PentaCB	126	200
3,3′,4,4′,5,5′-HexaCB	169	200

Dioxin and Furan Plus PCB Standard Mixtures

Catalog No.	Compound	Amount
EDF-4144	Internal Standard for Dioxin, Furan and PCB in Tissue	750 µL in nonane

Labeled	IUPAC	(ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)		25.0
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)		25.0
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)		25.0
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)		25.0
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)		25.0
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)		60.0
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)		62.5
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)		60.0
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		62.5
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)		60.0
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)		62.5
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		62.5
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)		60.0
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)		62.5
OctaCDD ($^{13}C_{12}$, 99%)		125
OctaCDF ($^{13}C_{12}$, 99%)		125
3,3′,4,4′-TetraCB ($^{13}C_{12}$, 99%)	77	24.0
3,4,4′,5-TetraCB ($^{13}C_{12}$, 99%)	81	24.0
3,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	126	36.0
3,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	169	48.0

EDF-4145	Recovery Standard for Dioxin, Furan and PCB in Tissue	750 µL in nonane

Labeled	IUPAC	(ng/mL)
1,2,3,4-TetraCDD ($^{13}C_6$, 99%)		25.0
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		62.5
3,3′,5,5′-TetraCB ($^{13}C_{12}$, 99%)	80	48.0

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

Dioxin and Furan Plus PCB Standard Mixtures

Catalog No.	Compound	Amount
EDF-5393	Dioxin Cleanup Spike	1.2 mL in nonane

Labeled	IUPAC	(ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)		20
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)		20
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)		20
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)		20
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)		20
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)		20
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)		20
OctaCDD ($^{13}C_{12}$, 99%)		40
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)		20
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)		20
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)		20
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)		20
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)		20
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		20
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)		20
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)		20
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)		20
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)		20
OctaCDF ($^{13}C_{12}$, 99%)		40
3,4,4′,5-TetraCB ($^{13}C_{12}$, 99%)	81	20
3,3′,4,4′-TetraCB ($^{13}C_{12}$, 99%)	77	20
3,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	126	20
3,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	169	20
2′,3,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	123	20
2,3′,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	118	20
2,3,3′,4,4′-PentaCB ($^{13}C_{12}$, 99%)	105	20
2,3,4,4′,5-PentaCB ($^{13}C_{12}$, 99%)	114	20
2,3′,4,4′,5,5′-HexaCB ($^{13}C_{12}$, 99%)	167	20
2,3,3′,4,4′,5-HexaCB ($^{13}C_{12}$, 99%)	156	20
2,3,3′,4,4′,5′-HexaCB ($^{13}C_{12}$, 99%)	157	20
2,3,3′,4,4′,5,5′-HeptaCB ($^{13}C_{12}$, 99%)	189	20
2,2′,3,3′,4,4′,5-HeptaCB ($^{13}C_{12}$, 99%)	170	20
2,2′,3,4,4′,5,5′-HeptaCB ($^{13}C_{12}$, 99%)	180	20

EF-5394	Dioxin Syringe Spike	1.2 mL in nonane
NEW EF-5394-0.5X	Dioxin Syringe Spike	1.2 mL in nonane

Labeled	EDF-5394 (ng/µL)	EDF-5394-0.5X (ng/µL)
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	20	10
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	20	10
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	20	10

EDF-5395	Dioxin Sampling Spike	1.2 mL in nonane

Labeled	IUPAC	(ng/µL)
1,2,3,4-TetraCDF ($^{13}C_{12}$, 99%)		50
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)		50
3,3′,4,5′-TetraCB ($^{13}C_{12}$, 99%)	79	50

Non-2,3,7,8-Containing Dioxin and Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-5392	Dioxin/Furan Calibration Solutions [CS1-CS6]	Set of 6 × 0.2 mL in nonane
EDF-5392-1	Dioxin/Furan Calibration Solution [CS1]	0.2 mL in nonane
EDF-5392-2	Dioxin/Furan Calibration Solution [CS2]	0.2 mL in nonane
EDF-5392-3	Dioxin/Furan Calibration Solution [CS3]	0.2 mL in nonane
EDF-5392-4	Dioxin/Furan Calibration Solution [CS4]	0.2 mL in nonane
EDF-5392-5	Dioxin/Furan Calibration Solution [CS5]	0.2 mL in nonane
EDF-5392-6	Dioxin/Furan Calibration Solution [CS6]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS1	CS2	CS3	CS4	CS5	CS6
2,3,7,8-TetraCDD	0.1	0.5	2	10	50	200
1,3,6,8-TetraCDD	0.1	0.5	2	10	50	200
1,3,7,9-TetraCDD	0.1	0.5	2	10	50	200
1,2,8,9-TetraCDD	0.1	0.5	2	10	50	200
1,2,3,7,8-PentaCDD	0.1	0.5	2	10	50	200
1,2,3,4,7,8-HexaCDD	0.2	1	4	20	100	400
1,2,3,6,7,8-HexaCDD	0.2	1	4	20	100	400
1,2,3,7,8,9-HexaCDD	0.2	1	4	20	100	400
1,2,3,4,6,7,8-HeptaCDD	0.2	1	4	20	100	400
OctaCDD	0.5	2.5	10	50	250	1000
2,3,7,8-TetraCDF	0.1	0.5	2	10	50	200
1,3,6,8-TetraCDF	0.1	0.5	2	10	50	200
1,2,7,8-TetraCDF	0.1	0.5	2	10	50	200
1,2,8,9-TetraCDF	0.1	0.5	2	10	50	200
1,2,3,7,8-PentaCDF	0.1	0.5	2	10	50	200
2,3,4,7,8-PentaCDF	0.1	0.5	2	10	50	200
1,2,3,4,7,8-HexaCDF	0.2	1	4	20	100	400
1,2,3,6,7,8-HexaCDF	0.2	1	4	20	100	400
2,3,4,6,7,8-HexaCDF	0.2	1	4	20	100	400
1,2,3,7,8,9-HexaCDF	0.2	1	4	20	100	400
1,2,3,4,6,7,8-HeptaCDF	0.2	1	4	20	100	400
1,2,3,4,7,8,9-HeptaCDF	0.2	1	4	20	100	400
OctaCDF	0.5	2.5	10	50	250	1000
Cleanup						
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
OctaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20
Syringe						
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,6-PentaCDF ($^{13}C_{12}$, 99%) (alternate)	10	10	10	10	10	10
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
Sampling						
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10
1,2,3,4-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10

Dioxin and Furan Food/Feed/QQQ Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5554	Dioxin and Furan Food / Feed / QQQ Calibration Series [CS1-CS8] *	Set of 8 × 0.25 mL in nonane
NEW	EDF-5554-L	Dioxin and Furan Food / Feed / QQQ Calibration Series [CS1-CS7] *	Set of 7 × 0.25 mL in nonane
NEW	EDF-5554-H	Dioxin and Furan Food / Feed / QQQ Calibration Series [CS2-CS8] *	Set of 7 × 0.25 mL in nonane
NEW	EDF-5554-CS0.4	Dioxin and Furan Food / Feed / QQQ Calibration Series [CS0.4] *	0.25 mL in nonane
NEW	EDF-5554-CS0.2	Dioxin and Furan Food / Feed / QQQ Calibration Series [CS0.2] *	0.25 mL in nonane

Individual calibration solutions and user-defined combinations are available. Please inquire.

All concentrations are in pg/µL (ppb)

Unlabeled	CS0.2	CS0.4	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8
2,3,7,8-TetraCDD	0.01	0.02	0.05	0.1	0.5	2	5	25	50	200
2,3,7,8-TetraCDF	0.01	0.02	0.05	0.1	0.5	2	5	25	50	200
1,2,3,7,8-PentaCDD	0.01	0.02	0.05	0.1	0.5	2	5	25	50	200
1,2,3,7,8-PentaCDF	0.01	0.02	0.05	0.1	0.5	2	5	25	50	200
2,3,4,7,8-PentaCDF	0.01	0.02	0.05	0.1	0.5	2	5	25	50	200
1,2,3,4,7,8-HexaCDD	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,6,7,8-HexaCDD	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,7,8,9-HexaCDD	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,4,7,8-HexaCDF	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,6,7,8-HexaCDF	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,7,8,9-HexaCDF	0.02	0.04	0.1	0.2	1	4	10	50	100	400
2,3,4,6,7,8-HexaCDF	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,4,6,7,8-HeptaCDD	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,4,6,7,8-HeptaCDF	0.02	0.04	0.1	0.2	1	4	10	50	100	400
1,2,3,4,7,8,9-HeptaCDF	0.02	0.04	0.1	0.2	1	4	10	50	100	400
OctaCDD	0.05	0.1	0.25	0.5	2.5	10	25	125	250	1000
OctaCDF	0.05	0.1	0.25	0.5	2.5	10	25	125	250	1000
Extraction										
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10	10	10
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
OctaCDD ($^{13}C_{12}$, 99%)	50	50	50	50	50	50	50	50	50	50
OctaCDF ($^{13}C_{12}$, 99%)	50	50	50	50	50	50	50	50	50	50
Cleanup										
1,2,3,4-TetraCDD ($^{13}C_{6}$, 99%)	10	10	10	10	10	10	10	10	10	10
Injection										
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10	10	10
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20	20	20

*In production; please inquire for final specifications.

Dioxin and Furan Food/Feed/QQQ Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5555	Dioxin and Furan Food / Feed / QQQ Extraction Standard Solution *	1.2 mL in nonane
NEW	EDF-5555-10X	Dioxin and Furan Food / Feed / QQQ Extraction Standard Solution *	1.2 mL in nonane

Labeled	EDF-5555 (pg/µL)	EDF-5555-10X (pg/µL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	20	200
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	20	200
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	20	200
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	20	200
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	20	200
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	20	200
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	20	200
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	20	200
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	20	200
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	20	200
OctaCDD ($^{13}C_{12}$, 99%)	50	500
OctaCDF ($^{13}C_{12}$, 99%)	50	500

NEW	EDF-5556	Dioxin and Furan Food/Feed/QQQ Injection Standard Solution *	1.2 mL in nonane
NEW	EDF-5556-10X	Dioxin and Furan Food/Feed/QQQ Injection Standard Solution *	1.2 mL in nonane

Labeled	EDF-5556 (pg/µL)	EDF-5556-10X (pg/µL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	20	200
1,2,3,4,6,9-HexaCDF ($^{13}C_{12}$, 99%)	40	400
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	40	400

NEW	EDF-5574	Dioxin and Furan Food/Feed/QQQ Cleanup Standard Solution *	1.2 mL in nonane
NEW	EDF-5574-10X	Dioxin and Furan Food/Feed/QQQ Cleanup Standard Solution *	1.2 mL in nonane

Labeled	EDF-5574 (pg/µL)	EDF-5574-10X (pg/µL)
1,2,3,4-TetraCDD ($^{13}C_{6}$, 99%)	20	200

NEW	EDF-5557	Dioxin and Furan Food/Feed/QQQ PAR Standard Solution *	1.2 mL in nonane

Unlabeled	(pg/µL)
2,3,7,8-TetraCDD	500
2,3,7,8-TetraCDF	500
1,2,3,7,8-PentaCDD	500
1,2,3,7,8-PentaCDF	500
2,3,4,7,8-PentaCDF	500
1,2,3,4,7,8-HexaCDD	1000
1,2,3,6,7,8-HexaCDD	1000
1,2,3,7,8,9-HexaCDD	1000
1,2,3,4,7,8-HexaCDF	1000
1,2,3,6,7,8-HexaCDF	1000
1,2,3,7,8,9-HexaCDF	1000
2,3,4,6,7,8-HexaCDF	1000

Unlabeled	(pg/µL)
1,2,3,4,6,7,8-HeptaCDD	1000
1,2,3,4,6,7,8-HeptaCDF	1000
1,2,3,4,7,8,9-HeptaCDF	1000
OctaCDD	2500
OctaCDF	2500

*In production; please inquire for final specifications.

Two-Column Dioxin and Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-5429-6H	Two-Column Dioxin and Furan Calibration Solutions [CS1H-CS6H]	Set of 6 × 0.2 mL in nonane
EDF-5429-7H	Two-Column Dioxin and Furan Calibration Solutions [CS1H-CS7H]	Set of 7 × 0.2 mL in nonane
EDF-5429-CS1H	Two-Column Dioxin and Furan Calibration Solution [CS1H]	0.2 mL in nonane
EDF-5429-CS2H	Two-Column Dioxin and Furan Calibration Solution [CS2H]	0.2 mL in nonane
EDF-5429-CS3H	Two-Column Dioxin and Furan Calibration Solution [CS3H]	0.2 mL in nonane
EDF-5429-CS4H	Two-Column Dioxin and Furan Calibration Solution [CS4H]	0.2 mL in nonane
EDF-5429-CS5H	Two-Column Dioxin and Furan Calibration Solution [CS5H]	0.2 mL in nonane
EDF-5429-CS6H	Two-Column Dioxin and Furan Calibration Solution [CS6H]	0.2 mL in nonane
EDF-5429-CS7H	Two-Column Dioxin and Furan Calibration Solution [CS7H]	0.2 mL in nonane
EDF-5429-CS8H	Two-Column Dioxin and Furan Calibration Solution [CS8H]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS1H	CS2H	CS3H	CS4H	CS5H	CS6H	CS7H	CS8H
2,3,7,8-TetraCDF	0.1	0.5	2.0	10	50	200	500	1000
1,3,6,8-TetraCDF	0.1	0.5	2.0	10	50	200	500	1000
1,2,7,8-TetraCDF	0.1	0.5	2.0	10	50	200	500	1000
1,2,8,9-TetraCDF	0.1	0.5	2.0	10	50	200	500	1000
1,2,3,7,8-PentaCDF	0.1	0.5	2.0	10	50	200	500	1000
2,3,4,7,8-PentaCDF	0.1	0.5	2.0	10	50	200	500	1000
1,2,3,4,7,8-HexaCDF	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,6,7,8-HexaCDF	0.2	1.0	4.0	20	100	400	1000	2000
2,3,4,6,7,8-HexaCDF	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,7,8,9-HexaCDF	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,4,6,7,8-HeptaCDF	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,4,7,8,9-HeptaCDF	0.2	1.0	4.0	20	100	400	1000	2000
OctaCDF	0.5	2.5	10	50	250	1000	2500	5000
2,3,7,8-TetraCDD	0.1	0.5	2.0	10	50	200	500	1000
1,3,6,8-TetraCDD	0.1	0.5	2.0	10	50	200	500	1000
1,3,7,9-TetraCDD	0.1	0.5	2.0	10	50	200	500	1000
1,2,8,9-TetraCDD	0.1	0.5	2.0	10	50	200	500	1000
1,2,3,7,8-PentaCDD	0.1	0.5	2.0	10	50	200	500	1000
1,2,3,4,7,8-HexaCDD	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,6,7,8-HexaCDD	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,7,8,9-HexaCDD	0.2	1.0	4.0	20	100	400	1000	2000
1,2,3,4,6,7,8-HeptaCDD	0.2	1.0	4.0	20	100	400	1000	2000
OctaCDD	0.5	2.5	10	50	250	1000	2500	5000
Labeled								
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6-PentaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
OctaCDF ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,7-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	10	10
OctaCDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	20	20

Two-Column Dioxin and Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-5430	Two-Column Dioxin and Furan Cleanup Spike	1.2 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	50
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	50
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	50
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	50
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	50
OctaCDF ($^{13}C_{12}$, 99%)	100
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	50
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	50
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	50
OctaCDD ($^{13}C_{12}$, 99%)	100

EDF-5431	Two-Column Dioxin and Furan Syringe Spike	1.2 mL in nonane
EDF-5431-20X	Two-Column Dioxin and Furan Syringe Spike	1.2 mL in nonane

Labeled	EDF-5431 (ng/mL)	EDF-5431-20X (ng/mL)
1,2,7,8-TetraCDF ($^{13}C_{12}$, 99%)	50	1000
1,2,3,4,6-PentaCDF ($^{13}C_{12}$, 99%)	50	1000
1,2,3,4,6,7-HexaCDD ($^{13}C_{12}$, 99%)	50	1000
1,2,3,4,6,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	50	1000

NEW	ED-5432	Two-Column Dioxin and Furan Sampling Spike	1.2 mL in nonane

Labeled	(ng/mL)
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	50

Isotope-Labeled Dioxin and Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-4067	Tetra-OctaCDD and CDF Standard Solution (2,3,7,8-isomers)	1.2 mL in nonane
EDF-4067-A	Tetra-OctaCDD and CDF Standard Solution (2,3,7,8-isomers excluding 1,2,3,7,8,9-HexaCDD)	1.2 mL in nonane
EDF-5041	Non-2,3,7,8-Containing PCDF Cleanup Standard	1.2 mL in nonane
NEW EDF-5041-20	Non-2,3,7,8-Containing PCDF Cleanup Standard 1/20 Dilution	5 mL in nonane

Labeled	EDF-4067 (ng/mL)	EDF-4067-A (ng/mL)	EDF-5041 (ng/mL)	EDF-5041-20 (ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	1000	1000	2000	100
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	1000	–	2000	100
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	1000	1000	2000	100
OctaCDD ($^{13}C_{12}$, 99%)	1000	2000	4000	200
OctaCDF ($^{13}C_{12}$, 99%)	1000	2000	4000	200

EDF-5304	Dioxin and Furan Cleanup Spike	1.2 mL in nonane
EDF-5174-40X	1,3,6,8-TCDD/F Containing Cleanup Spike	1.2 mL in nonane

Labeled	EDF-5304 (ng/mL)	EDF-5174-40X (ng/mL)
1,3,6,8-TetraCDD ($^{13}C_{12}$, 99%)	1000	200
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	1000	200
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	1000	200
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000	200
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000	200
1,2,3,7,8,9-HexaCDD ($^{13}C_{12}$, 99%)	1000	200
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	1000	200
OctaCDD ($^{13}C_{12}$, 99%)	2000	400
1,3,6,8-TetraCDF ($^{13}C_{12}$, 99%)	1000	200
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	1000	200
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000	200
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000	200
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000	200
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000	200
1,2,3,7,8,9-HexaCDF ($^{13}C_{12}$, 99%)	1000	200
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000	200
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	1000	200
1,2,3,4,7,8,9-HeptaCDF ($^{13}C_{12}$, 99%)	1000	200
OctaCDF ($^{13}C_{12}$, 99%)	2000	400

Isotope-Labeled Dioxin and Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-4964-A	JIS Dioxin/Furan Type 1 Cleanup Standard Solution	0.5 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	2000
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	2000
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	2000
2,3,4,7,8-PentaCDF ($^{13}C_{12}$, 99%)	2000
1,2,3,4,7,8-HexaCDD ($^{13}C_{12}$, 99%)	2000
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2000
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	2000
1,2,3,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2000
2,3,4,6,7,8-HexaCDF ($^{13}C_{12}$, 99%)	2000
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	2000
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	2000
OctaCDD ($^{13}C_{12}$, 99%)	4000
OctaCDF ($^{13}C_{12}$, 99%)	4000

EDF-957	Carbon-13 Quantifying Cocktail (2,3,7,8-PCDD/PCDF isomers)	Set of 3 × 0.4 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	1000
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,7,8-PentaCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,7,8-PentaCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,6,7,8-HexaCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,4,7,8-HexaCDF ($^{13}C_{12}$, 99%)	1000
1,2,3,4,6,7,8-HeptaCDD ($^{13}C_{12}$, 99%)	1000
1,2,3,4,6,7,8-HeptaCDF ($^{13}C_{12}$, 99%)	1000
OctaCDD ($^{13}C_{12}$, 99%)	1000
OctaCDF ($^{13}C_{12}$, 99%)	1000

Unlabeled Dioxin and Furan Standard Mixtures

	Catalog No.	Compound	Amount
NEW	EDF-5493	Dioxin/Furan Native Mix All 17 2,3,7,8 Isomers + 1,3,6,8-TetraCDD/F + 1,3,7,9-TetraCDD	1.2 mL in nonane

Unlabeled	(ng/mL)
1,3,6,8-TetraCDD	1000
2,3,7,8-TetraCDD	1000
1,3,7,9-TetraCDD	1000
1,2,3,7,8-PentaCDD	1000
1,2,3,4,7,8-HexaCDD	2000
1,2,3,6,7,8-HexaCDD	2000
1,2,3,7,8,9-HexaCDD	2000
1,2,3,4,6,7,8-HeptaCDD	2000
OctaCDD	5000
1,3,6,8-TetraCDF	1000
2,3,7,8-TetraCDF	1000
1,2,3,7,8-PentaCDF	1000
2,3,4,7,8-PentaCDF	2000
1,2,3,4,7,8-HexaCDF	2000
1,2,3,6,7,8-HexaCDF	2000
1,2,3,7,8,9-HexaCDF	2000
2,3,4,6,7,8-HexaCDF	2000
1,2,3,4,7,8,9-HeptaCDF	2000
OctaCDF	5000

ED-906B-5	TCDD-HpCDD Standard Solution (B) (2,3,7,8 isomers)	1.2 mL in nonane
ED-906B-25	TCDD-HpCDD Standard Solution (B) (2,3,7,8 isomers)	1.2 mL in nonane

Unlabeled	ED-906B-5 (ng/mL)	ED-906B-25 (ng/mL)
2,3,7,8-TetraCDD	5000	25,000
1,2,3,7,8-PentaCDD	5000	25,000
1,2,3,4,7,8-HexaCDD	5000	25,000
1,2,3,6,7,8-HexaCDD	5000	25,000
1,2,3,7,8,9-HexaCDD	5000	25,000
1,2,3,4,6,7,8-HeptaCDD	5000	25,000

EF-909B-5	TCDF-HpCDF Standard Solution (B) (2,3,7,8 isomers)	1.2 mL in nonane
EF-909B-25	TCDF-HpCDF Standard Solution (B) (2,3,7,8 isomers)	1.2 mL in nonane

Unlabeled	ED-909B-5 (ng/mL)	ED-909B-25 (ng/mL)
2,3,7,8-TetraCDF	5000	25,000
1,2,3,7,8-PentaCDF	5000	25,000
2,3,4,7,8-PentaCDF	5000	25,000
1,2,3,4,7,8-HexaCDF	5000	25,000
1,2,3,6,7,8-HexaCDF	5000	25,000
1,2,3,7,8,9-HexaCDF	5000	25,000
2,3,4,6,7,8-HexaCDF	5000	25,000
1,2,3,4,6,7,8-HeptaCDF	5000	25,000
1,2,3,4,7,8,9-HeptaCDF	5000	25,000

Unlabeled Dioxin and Furan Standard Mixtures

Catalog No.	Compound	Amount
ED-4135	Chlorodioxin Mix – High	1 mL in nonane

Unlabeled	(ng/mL)
2-MonoCDD	5000
2,8-DiCDD	5000
2,3,7-TriCDD	5000
2,3,7,8-TetraCDD	5000
1,2,3,7,8-PentaCDD	5000
1,2,3,4,7,8-HexaCDD	5000
1,2,3,6,7,8-HexaCDD	5000
1,2,3,7,8,9-HexaCDD	5000
1,2,3,4,6,7,8-HeptaCDD	5000
OctaCDD	5000

EF-4134	Chlorodibenzofuran Mix – High	1 mL in nonane

Unlabeled	(ng/mL)
2-MonoCDF	5000
2,4-DiCDF	5000
2,4,6-TriCDF	5000
2,3,7,8-TetraCDF	5000
1,2,3,7,8-PentaCDF	5000
2,3,4,7,8-PentaCDF	5000
1,2,3,4,7,8-HexaCDF	5000
1,2,3,6,7,8-HexaCDF	5000
2,3,4,6,7,8-HexaCDF	5000
1,2,3,7,8,9-HexaCDF	5000
1,2,3,4,6,7,8-HeptaCDF	5000
1,2,3,4,7,8,9-HeptaCDF	5000
OctaCDF	5000

Window Defining Mixtures

Catalog No.	Compound	Amount
EDF-4147	PCDD/PentaCDF Window Defining and Isomer Specificity Mix (DB-5 and DB-225 Columns)	1.2 mL in nonane

Unlabeled	(ng/mL)
1,3,6,8-TetraCDD	200
1,2,8,9-TetraCDD	200
2,3,7,8-TetraCDD	200
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	200
1,2,3,7/1,2,3,8-TetraCDD	200
1,2,3,9-TetraCDD	200
1,3,6,8-TetraCDF	200
1,2,8,9-TetraCDF	200
2,3,7,8-TetraCDF	200
2,3,7,8-TetraCDF ($^{13}C_{12}$, 99%)	200
2,3,4,7-TetraCDF	200
1,2,3,9-TetraCDF	200
1,2,4,6,8/1,2,4,7,9-PentaCDD	200
1,2,3,8,9-PentaCDD	200
1,3,4,6,8-PentaCDF	200
1,2,3,8,9-PentaCDF	200
1,2,4,6,7,9/1,2,4,6,8,9-HexaCDD	200
1,2,3,4,6,7-HexaCDD	200
1,2,3,4,6,8-HexaCDF	200
1,2,3,4,8,9-HexaCDF	200
1,2,3,4,6,7,9-HeptaCDD	200
1,2,3,4,6,7,8-HeptaCDF	200
1,2,3,4,6,7,8-HeptaCDD	200
1,2,3,4,7,8,9-HeptaCDF	200

ED-1732-S	TCDD-HpCDD Window Defining Mixture (DB-5)	0.5 mL in nonane

Unlabeled	(ng/mL)
1,3,6,8-TetraCDD	800
1,2,8,9-TetraCDD	800
1,2,4,6,8/1,2,4,7,9-PentaCDD	800
1,2,3,8,9-PentaCDD	800
1,2,3,4,6,7-HexaCDD	800
1,2,4,6,7,9/1,2,4,6,8,9-HexaCDD	800
1,2,3,4,6,7,8-HeptaCDD	800
1,2,3,4,6,7,9-HeptaCDD	800

EF-1731-S	TCDF-HpCDF Window Defining Mixture (DB-5)	0.5 mL in nonane

Unlabeled	(ng/mL)
1,3,6,8-TetraCDF	800
1,2,8,9-TetraCDF	800
1,3,4,6,8-PentaCDF	800
1,2,3,8,9-PentaCDF	800
1,2,3,4,6,8-HexaCDF	800
1,2,3,4,8,9-HexaCDF	800
1,2,3,4,6,7,8-HeptaCDF	800
1,2,3,4,7,8,9-HeptaCDF	800

Column Performance Mixtures

Catalog No.	Compound	Amount
ED-908	TCDD Column Performance Solution Mixture	1.2 mL in nonane

Unlabeled	(ng/mL)
1,2,3,4-TetraCDD	10
1,2,3,7/1,2,3,8-TetraCDD	10
1,2,7,8-TetraCDD	10
1,4,7,8-TetraCDD	10
2,3,7,8-TetraCDD	10

ED-935-A	Modified TCDD Column Performance Check Solution	0.5 mL in nonane

Unlabeled	(ng/mL)
2,3,7,8-TetraCDD	100
1,2,3,4-TetraCDD	100
1,4,7,8-TetraCDD	100
1,2,3,7/1,2,3,8-TetraCDD	100
1,2,7,8-TetraCDD	200
2,3,7,8-TetraCDD ($^{13}C_{12}$, 99%)	250
2,3,7,8-TetraCDD ($^{37}Cl_4$, 96%)	7
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	500

Instrument Performance Mixture

	Catalog No.	Compound	Amount
NEW	ED-5461	1,2,3,4-TCDD Instrument Performance Check	0.1 mL in nonane

Unlabeled	(pg/mL)
1,2,3,4-TetraCDD	100
Labeled	
1,2,3,4-TetraCDD ($^{13}C_{12}$, 99%)	100

Bromodioxin/Furan Calibration Solutions

Catalog No.	Compound	Amount
EDF-5407	Bromodioxin/Furan Calibration Standard Solutions [CS1-CS5]	Set of 5 × 0.2 mL in nonane
EDF-5407-1	Bromodioxin/Furan Calibration Standard Solution [CS1]	0.2 mL in nonane
EDF-5407-2	Bromodioxin/Furan Calibration Standard Solution [CS2]	0.2 mL in nonane
EDF-5407-3	Bromodioxin/Furan Calibration Standard Solution [CS3]	0.2 mL in nonane
EDF-5407-4	Bromodioxin/Furan Calibration Standard Solution [CS4]	0.2 mL in nonane
EDF-5407-5	Bromodioxin/Furan Calibration Standard Solution [CS5]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS1	CS2	CS3	CS4	CS5
2,3,7,8-TetraBDD	0.1	0.4	2.0	10	50
1,2,3,7,8-PentaBDD	0.2	0.8	4.0	20	100
1,2,3,4,7,8-HexaBDD	0.6	2.4	12.0	60	300
1,2,3,6,7,8-HexaBDD	0.6	2.4	12.0	60	300
1,2,3,7,8,9-HexaBDD	0.6	2.4	12.0	60	300
1,2,3,4,6,7,8-HeptaBDD	0.75	3.0	15.0	75	375
OctaBDD	1.0	4.0	20.0	100	500
2,3,7,8-TetraBDF	0.2	0.8	4.0	20	100
2,4,6,8-TetraBDF	0.2	0.8	4.0	20	100
1,2,3,7,8-PentaBDF	0.4	1.6	8.0	40	200
2,3,4,7,8-PentaBDF	0.4	1.6	8.0	40	200
1,2,3,4,7,8-HexaBDF	0.6	2.4	12.0	60	300
1,2,3,4,6,7,8-HeptaBDF	0.75	3.0	15.0	75	375
OctaBDF	1.0	4.0	20.0	100	500
Labeled					
2,3,7,8-TetraBDD ($^{13}C_{12}$, 99%)	20	20	20	20	20
1,2,3,7,8-PentaBDD ($^{13}C_{12}$, 99%)	20	20	20	20	20
1,2,3,4,7,8-HexaBDD ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,6,7,8-HexaBDD ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,7,8,9-HexaBDD ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,4,6,7,8-HeptaBDD ($^{13}C_{12}$, 99%)	100	100	100	100	100
OctaBDD ($^{13}C_{12}$, 99%)	150	150	150	150	150
2,3,7,8-TetraBDF ($^{13}C_{12}$, 99%)	20	20	20	20	20
2,4,6,8-TetraBDF ($^{13}C_{12}$, 99%)	20	20	20	20	20
1,2,3,7,8-PentaBDF ($^{13}C_{12}$, 99%)	20	20	20	20	20
2,3,4,7,8-PentaBDF ($^{13}C_{12}$, 99%)	20	20	20	20	20
1,2,3,4,7,8-HexaBDF ($^{13}C_{12}$, 99%)	50	50	50	50	50
1,2,3,4,6,7,8-HeptaBDF ($^{13}C_{12}$, 99%)	100	100	100	100	100
OctaBDF ($^{13}C_{12}$, 99%)	150	150	150	150	150

Bromodioxin/Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-5408	Bromodioxin/Furan Cleanup Spike	0.5 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraBDD ($^{13}C_{12}$, 99%)	100
1,2,3,7,8-PentaBDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaBDD ($^{13}C_{12}$, 99%)	250
1,2,3,6,7,8-HexaBDD ($^{13}C_{12}$, 99%)	250
1,2,3,4,6,7,8-HeptaBDD ($^{13}C_{12}$, 99%)	500
OctaBDD ($^{13}C_{12}$, 99%)	750
2,3,7,8-TetraBDF ($^{13}C_{12}$, 99%)	100
2,3,4,7,8-PentaBDF ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaBDF ($^{13}C_{12}$, 99%)	250
1,2,3,4,6,7,8-HeptaBDF ($^{13}C_{12}$, 99%)	500
OctaBDF ($^{13}C_{12}$, 99%)	750

EDF-5409-A	Bromodioxin/Furan Syringe Spike	1.2 mL in nonane:toluene

Labeled	(ng/mL)
1,2,3,7,8,9-HexaBDD ($^{13}C_{12}$, 99%)	500
1,2,3,7,8-PentaBDF ($^{13}C_{12}$, 99%)	200

EF-5410	Bromodioxin/Furan Sampling Spike	1.2 mL in nonane

Labeled	(ng/mL)
2,4,6,8-TetraBDF ($^{13}C_{12}$, 99%)	200

NEW EDF-5517	Bromodioxin/Furan Native PAR Solution	1.2 mL in nonane

Unlabeled	(ng/mL)
2,3,7,8-TetraBDD	50
1,2,3,7,8-PentaBDD	100
1,2,3,4,7,8-HexaBDD	300
1,2,3,6,7,8-HexaBDD	300
1,2,3,7,8,9-HexaBDD	300
1,2,3,4,6,7,8-HeptaBDD	375
OctaBDD	500
2,3,7,8-TetraBDF	100
2,4,6,8-TetraBDF	100
1,2,3,7,8-PentaBDF	200
2,3,4,7,8-PentaBDF	200
1,2,3,4,7,8-HexaBDF	300
1,2,3,4,6,7,8-HeptaBDF	375
OctaBDF	500

Bromodioxin/Furan Calibration Solutions

Catalog No.	Compound	Amount
EDF-5381	PBDD/F Calibration Solutions [CS1-CS7]	Set of 7 × 0.2 mL in nonane
EDF-5381-CS1	PBDD/F Calibration Solution [CS1]	0.2 mL in nonane
EDF-5381-CS2	PBDD/F Calibration Solution [CS2]	0.2 mL in nonane
EDF-5381-CS3	PBDD/F Calibration Solution [CS3]	0.2 mL in nonane
EDF-5381-CS4	PBDD/F Calibration Solution [CS4]	0.2 mL in nonane
EDF-5381-CS5	PBDD/F Calibration Solution [CS5]	0.2 mL in nonane
EDF-5381-CS6	PBDD/F Calibration Solution [CS6]	0.2 mL in nonane
EDF-5381-CS7	PBDD/F Calibration Solution [CS7]	0.2 mL in nonane

All concentrations are in ng/mL (ppb)

Unlabeled	CS1	CS2	CS3	CS4	CS5	CS6	CS7
2,3,7,8-TetraBDD	0.1	0.4	2	10	20	40	—
1,2,3,7,8-PentaBDD	0.2	0.8	4	20	40	80	—
1,2,3,4,7,8-HexaBDD	0.75	3	15	75	150	300	—
1,2,3,6,7,8-HexaBDD	0.75	3	15	75	150	300	—
1,2,3,7,8,9-HexaBDD	0.75	3	15	75	150	300	—
OctaBDD	1	4	20	100	200	400	800
2,3,7,8-TetraBDF	0.5	2	10	50	100	200	—
2,4,6,8-TetraBDF	0.5	2	10	50	100	200	—
1,2,3,7,8-PentaBDF	0.5	2	10	50	100	200	—
2,3,4,7,8-PentaBDF	0.5	2	10	50	100	200	—
1,2,3,4,7,8-HexaBDF	0.75	3	15	75	150	300	—
1,2,3,4,6,7,8-HeptaBDF	0.75	3	15	75	150	300	600
OctaBDF	1	4	20	100	200	400	800
Labeled							
2,3,7,8-TetraBDD ($^{13}C_{12}$, 99%)	10	10	10	10	10	10	—
1,2,3,7,8-PentaBDD ($^{13}C_{12}$, 99%)	20	20	20	20	20	20	—
1,2,3,4,7,8-HexaBDD ($^{13}C_{12}$, 99%)	75	75	75	75	75	75	—
1,2,3,6,7,8-HexaBDD ($^{13}C_{12}$, 99%)	75	75	75	75	75	75	
1,2,3,7,8,9-HexaBDD ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	—
OctaBDD ($^{13}C_{12}$, 99%)	225	225	225	225	225	225	225
2,3,7,8-TetraBDF ($^{13}C_{12}$, 99%)	40	40	40	40	40	40	—
2,4,6,8-TetraBDF ($^{13}C_{12}$, 99%)	40	40	40	40	40	40	—
1,2,3,7,8-PentaBDF ($^{13}C_{12}$, 99%)	40	40	40	40	40	40	—
2,3,4,7,8-PentaBDF ($^{13}C_{12}$, 99%)	40	40	40	40	40	40	—
1,2,3,4,7,8-HexaBDF ($^{13}C_{12}$, 99%)	40	40	40	40	40	40	—
1,2,3,4,6,7,8-HeptaBDF ($^{13}C_{12}$, 99%)	100	100	100	100	100	100	—
OctaBDF ($^{13}C_{12}$, 99%)	225	225	225	225	225	225	225

Bromodioxin/Furan Standard Mixtures

Catalog No.	Compound	Amount
EDF-5382	PBDD/F Cleanup Spike	0.5 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraBDD ($^{13}C_{12}$, 99%)	50
1,2,3,7,8-PentaBDD ($^{13}C_{12}$, 99%)	100
1,2,3,4,7,8-HexaBDD ($^{13}C_{12}$, 99%)	375
1,2,3,6,7,8-HexaBDD ($^{13}C_{12}$, 99%)	375
OctaBDD ($^{13}C_{12}$, 99%)	1125
2,3,7,8-TetraBDF ($^{13}C_{12}$, 99%)	200
2,3,4,7,8-PentaBDF ($^{13}C_{12}$, 99%)	200
1,2,3,4,7,8-HexaBDF ($^{13}C_{12}$, 99%)	375
1,2,3,4,6,7,8-HeptaBDF ($^{13}C_{12}$, 99%)	500
OctaBDF ($^{13}C_{12}$, 99%)	1125

EDF-5383	PBDD/F Syringe Spike Stock	1.2 mL in nonane
EDF-5383-4X	PBDD/F Syringe Spike Stock	1.2 mL in nonane

Labeled	EDF-5383 (ng/mL)	EDF-5383-4X (ng/mL)
1,2,3,7,8,9-HexaBDD ($^{13}C_{12}$, 99%)	500	2000
1,2,3,7,8-PentaBDF ($^{13}C_{12}$, 99%)	200	800

EF-5384	PBDD/F Sampling Stock	1.2 mL in nonane
EF-5384-4X	PBDD/F Sampling Stock	1.2 mL in nonane

Labeled	EF-5384 (ng/mL)	EF-5384-4X (ng/mL)
2,4,6,8-TetraBDF ($^{13}C_{12}$, 99%)	200	800

Bromodioxin/Furan Standard Mixtures

Catalog No.	Compound	Amount
ED-5073	Brominated Dioxin/Furan Internal Standard	1.2 mL in nonane

Labeled	(ng/mL)
2,3,7,8-TetraBDD ($^{13}C_{12}$, 99%)	200
1,2,3,6,7,8-HexaBDD ($^{13}C_{12}$, 99%)	50
1,2,3,7,8,9-HexaBDD ($^{13}C_{12}$, 99%)	150

EDF-5059	Polybrominated Dioxin and Furan Mixture	1.2 mL in nonane

Unabeled	(ng/mL)
2,3,7,8-TetraBDD	1000
1,2,3,7,8-PentaBDD	1000
1,2,3,4,7,8-HexaBDD	1000
1,2,3,6,7,8-HexaBDD	1000
1,2,3,7,8,9-HexaBDD	1000
OctaBDD	1000
2,3,7,8-TetraBDF	1000
1,2,3,7,8-PentaBDF	1000
2,3,4,7,8-PentaBDF	1000
1,2,3,4,7,8-HexaBDF	1000
1,2,3,4,6,7,8-HeptaBDF	1000