

## DIOXIN/FURAN STANDARDS FOR JIS METHODS K0311 AND K0312

CATALOG#		COMPOUND (ISOTOPE,ATOM% ENRICHMENT)	AMOUNT				
EDF-4961	New	JIS Dioxin/Furan Calibration Solutions [STD1-STD5]	Set of 5 x 0.2ml in Nonane				
All Concentrations are in ng/ml (ppb)							
		Unlabeled Compounds	STD1	STD2	STD3	STD4	STD5
		2,3,7,8-TetraCDD	0.4	2.0	10	40	200
		1,2,3,7,8-PentaCDD	0.4	2.0	10	40	200
		1,2,3,4,7,8-HexaCDD	1.0	5.0	25	100	500
		1,2,3,6,7,8-HexaCDD	1.0	5.0	25	100	500
		1,2,3,7,8,9-HexaCDD	1.0	5.0	25	100	500
		1,2,3,4,6,7,8-HeptaCDD	1.0	5.0	25	100	500
		OctaCDD	2.0	10	50	200	1000
		2,3,7,8-TetraCDF	0.4	2.0	10	40	200
		1,2,3,7,8-PentaCDF	0.4	2.0	10	40	200
		2,3,4,7,8-PentaCDF	0.4	2.0	10	40	200
		1,2,3,4,7,8-HexaCDF	1.0	5.0	25	100	500
		1,2,3,6,7,8-HexaCDF	1.0	5.0	25	100	500
		1,2,3,7,8,9-HexaCDF	1.0	5.0	25	100	500
		2,3,4,6,7,8-HexaCDF	1.0	5.0	25	100	500
		1,2,3,4,6,7,8-HeptaCDF	1.0	5.0	25	100	500
		1,2,3,4,7,8,9-HeptaCDF	1.0	5.0	25	100	500
		OctaCDF	2.0	10	50	200	1000
		<sup>13</sup> C-Labeled Compounds					
		1,2,3,4-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		2,3,7,8-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,7,8-PentaCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,4,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,6,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,7,8,9-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,4,6,7,8-HeptaCDD( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		OctaCDD( <sup>13</sup> C <sub>12</sub> ,99%)	200	200	200	200	200
		2,3,7,8-TetraCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,7,8-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		2,3,4,7,8-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,4,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,6,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,7,8,9-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		2,3,4,6,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,4,6,7,8-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		1,2,3,4,7,8,9-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	100	100	100	100	100
		OctaCDF( <sup>13</sup> C <sub>12</sub> ,99%)	200	200	200	200	200
EDF-4961-0.25	New	JIS Dioxin/Furan Calibration Solution with native analytes at 0.25 x concentrations of STD1					0.2ml in Nonane
EDF-4961-0.1	New	JIS Dioxin/Furan Calibration Solution with native analytes at 0.1xconcentrations of STD1					0.2ml in Nonane

**DIOXIN/FURAN STANDARDS FOR JIS METHODS K0311 AND K0312**

CATALOG#		COMPOUND (ISOTOPE,ATOM% ENRICHMENT)	AMOUNT
EDF-4963	New	JIS Dioxin/Furan Type 1 Sampling Standard Solution <sup>13</sup> C-Labeled Compounds Concentration(ng/ml) 1,2,3,7,8-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8,9-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,8,9-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10	1.2ml in Nonane
EDF-4963-A	New	JIS Dioxin/Furan Type 1 Sampling Standard Solution, 2 μg/ml	0.5ml in Nonane
EDF-4964	New	JIS Dioxin/furan Type 1 Clean-up Standard Solution <sup>13</sup> C-Labeled Compounds Concentration(ng/ml) 2,3,7,8-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,7,8-TetraCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8-PentaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,4,7,8-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,6,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,6,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,4,6,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,6,7,8-HeptaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,6,7,8-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 OctaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 20 OctaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 20	1.2ml in Nonane
EDF-4964-A	New	JIS Dioxin/Furan Type 1 Clean-up Standard Solution, 2 μg/ml	0.5ml in Nonane
EDF-4965	New	JIS Dioxin/Furan Type 1&2 Syringe Solution <sup>13</sup> C-Labeled Compounds Concentration(ng/ml) 1,2,3,4-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8,9-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10	1.2ml in Nonane
EDF-4965-A	New	JIS Dioxin/Furan Type1&2 Syringe Standard Solution, 2 μg/ml	0.5ml in Nonane
EDF-4966	New	JIS Dioxin/Furan Type2 Sampling Standard Solution <sup>13</sup> C-Labeled Compounds Concentration(ng/ml) 1,2,7,8-TetraCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,8,9-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10	1.2ml in Nonane
EDF-4966-A	New	JIS Dioxin/Furan Type 2 Sampling Standard Solution, 2 μg/ml	0.5ml in Nonane

## DIOXIN/FURAN STANDARDS FOR JIS METHODS K0311 AND K0312

CATALOG#		COMPOUND (ISOTOPE,ATOM% ENRICHMENT)	AMOUNT
EDF-496 7	New	JIS Dioxin/Furan Type 2 clean-up Standard Solution <sup>13</sup> C-Labeled Compounds Concentration(ng/ml) 2,3,7,8-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,7,8-TetraCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8-PentaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,6,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,6,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,6,7,8-HeptaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,6,7,8-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 OctaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 20	1.2ml in Nonane
EDF-4967-A	New	JIS Dioxin/Furan Type 2 Clean-up Standard Solution,2 μ g/ml	0.5ml in Nonane
EDF-4974	New	JIS Wastewater Dioxin/Furan Type 1 Clean-up Standard Solutions <sup>13</sup> C-Labeled Compounds Concentration(ng/ml) 2,3,7,8-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,7,9-TetraCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8-PentaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,9-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,4,7,8-PentaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,9-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,6,7,8-HexaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,6,7,9-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8,9-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 2,3,4,6,7,8-HexaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,6,7,8-HeptaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,6,7,9-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,4,7,8,9-HeptaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 10 OctaCDD( <sup>13</sup> C <sub>12</sub> ,99%) 20 OctaCDF( <sup>13</sup> C <sub>12</sub> ,99%) 20	1.2ml in Nonane
EDF-4974-A	New	JIS Wastewater Dioxin/Furan Type 1 Clean-up Standard Solution,2 μ g/ml	0.5ml in Nonane
EDF-4975	New	JIS Wastewater Dioxin/Furan Type 2 Syringe Standard Solutions Labeled Compuonds Concentration(ng/ml) 2,3,7,8-TetraCDD ( <sup>13</sup> C <sub>12</sub> ,99%) 10 1,2,3,7,8,9-HexaCDD ( <sup>13</sup> C <sub>12</sub> ,99%) 10	1.2ml in Nonane
EDF-4975-A	New	JIS Wastewater Dioxin/Furan Type 2 Syringe Standard Solution, 2 μ g/ml	0.5ml in Nonane

## DIOXIN/FURAN STANDARDS MIXTURES

CATALOG#	COMPOUND	(ISOTOPE,ATOM% ENRICHMENT)	AMOUNT																																																																																																																						
ED-4158	New	Calibration Curve Standard Solutions CS1-CS15 for 2,3,7,8-TetraCDD	15 × 200 μl in Nonane																																																																																																																						
ED-4159	New	Calibration Curve CS1-CS3 only for 2,3,7,8-TetraCDD	3 × 200 μl in Nonane																																																																																																																						
ED-4160	New	Calibration Curve CS4-CS15 only for 2,3,7,8-TetraCDD	12 × 200 μl in Nonane																																																																																																																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">ED-4159</th> <th colspan="15">ED-4160</th> </tr> <tr> <th colspan="4">Concentration (ng/ml)</th> <th colspan="15">Concentration (ng/ml)</th> </tr> <tr> <th></th> <th>CS1</th> <th>CS2</th> <th>CS3</th> <th>CS4</th> <th>CS5</th> <th>CS6</th> <th>CS7</th> <th>CS8</th> <th>CS9</th> <th>CS10</th> <th>CS11</th> <th>CS12</th> <th>CS13</th> <th>CS14</th> <th>CS15</th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>2,3,7,8-TCDD</td> <td>0.01</td> <td>0.02</td> <td>0.05</td> <td></td> <td>0.1</td> <td>0.2</td> <td>0.5</td> <td>1</td> <td>2</td> <td>5</td> <td>10</td> <td>15</td> <td>20</td> <td>30</td> <td>40</td> <td>50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2,3,7,8-TCDD(<sup>13</sup>C<sub>12</sub>,99%)</td> <td>50</td> <td>50</td> <td>50</td> <td></td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td>50</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2,3,7,8-TCDD(<sup>13</sup>C<sub>6</sub>,99%)</td> <td>25</td> <td>25</td> <td>25</td> <td></td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td>25</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					ED-4159				ED-4160															Concentration (ng/ml)				Concentration (ng/ml)																CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	CS13	CS14	CS15				2,3,7,8-TCDD	0.01	0.02	0.05		0.1	0.2	0.5	1	2	5	10	15	20	30	40	50				2,3,7,8-TCDD( <sup>13</sup> C <sub>12</sub> ,99%)	50	50	50		50	50	50	50	50	50	50	50	50	50	50	50				2,3,7,8-TCDD( <sup>13</sup> C <sub>6</sub> ,99%)	25	25	25		25	25	25	25	25	25	25	25	25	25	25	25			
	ED-4159				ED-4160																																																																																																																				
	Concentration (ng/ml)				Concentration (ng/ml)																																																																																																																				
	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	CS13	CS14	CS15																																																																																																										
2,3,7,8-TCDD	0.01	0.02	0.05		0.1	0.2	0.5	1	2	5	10	15	20	30	40	50																																																																																																									
2,3,7,8-TCDD( <sup>13</sup> C <sub>12</sub> ,99%)	50	50	50		50	50	50	50	50	50	50	50	50	50	50	50																																																																																																									
2,3,7,8-TCDD( <sup>13</sup> C <sub>6</sub> ,99%)	25	25	25		25	25	25	25	25	25	25	25	25	25	25	25																																																																																																									
ED-4161	New	Internal Standard Solution for 2,3,7,8-Tetrachlorodibenzo-p-dioxin  <sup>13</sup> C-Labeled Compound Concentration(ng/ml) 2,3,7,8-TetraCDD( <sup>13</sup> C <sub>12</sub> ,99%) 25	750 μl in Nonane																																																																																																																						
ED-4162	New	Recovery Standard Solution for 2,3,7,8-Tetrachlorodibenzo-p-dioxin  <sup>13</sup> C-Labeled Compound concentration(ng/ml) 1,2,3,4-TetraCDD( <sup>13</sup> C <sub>8</sub> ,99%) 25	750 μl in Nonane																																																																																																																						

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

### Dibenzo-p-dioxin Congeners Minimum purity 98%

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

### Brominated Dibenzo-p-Dioxins



Compound	Cat. No.	Conc.	Matrix	1 mL
1,3,7-Tribromodibenzo-p-dioxin	BDD-301S	10 µg/mL	Toluene	
	BDD-301S-2.5X	25 µg/mL	Toluene	
1,3,8-Tribromodibenzo-p-dioxin	BDD-302S	10 µg/mL	Toluene	
	BDD-302S-2.5X	25 µg/mL	Toluene	
1,2,3,7-Tetrabromodibenzo-p-dioxin	BDD-401S	10 µg/mL	Toluene	
	BDD-401S-2.5X	25 µg/mL	Toluene	
1,2,3,8-Tetrabromodibenzo-p-dioxin	BDD-402S	10 µg/mL	Toluene	
	BDD-402S-2.5X	25 µg/mL	Toluene	
Tetrabromodibenzo-p-dioxin-Mixed Isomers 1,2,4,7-Tetrabromodibenzo-p-dioxin/ 1,2,4,8-Tetrabromodibenzo-p-dioxin	BDD-403S	10 µg/mL	Toluene	
	BDD-403S-2.5X	25 µg/mL	Toluene	
2,3,7,8-Tetrabromodibenzo-p-dioxin 50585-41-6	X-001	1 mg	NEAT	

## Canadian Dioxin Mixtures

### Custom Window Defining Mixture

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

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

High  
Concentration  
Low Cost

### Custom Calibration Mixture

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

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

## Standards of Interest

For more Canadian Methods see International Regional Section

## Method 8280A Dioxins & Furans by HRGC/LRMS

### Dioxin Mixture

M-8280A		1 x 1 mL
M-8280A-PAK	SAVE 20%	5 x 1 mL
5 µg/mL each in Toluene		5 comps.

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

### Furan Mixture

M-8280B		1 x 1 mL
M-8280B-PAK	SAVE 20%	5 x 1 mL
5 µg/mL each in Toluene		5 comps.

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

### Column Performance Check

M-8280-CPC		1 x 1 mL
M-8280-CPC-PAK	SAVE 20%	5 x 1 mL
5 µg/mL each in Toluene		7 comps.

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

## Method 1613 Dioxins & Furans by HRGC/HRMS

### Method 1613 Precision and Recovery Standard

M-1613-PAR Bold (-04)		1 x 1 mL
M-1613-PAR-PAK	SAVE 20%	5 x 1 mL
All units in ng/mL in Nonane		17 comps.

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

### 2,3,7,8 Isomers only Mix

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

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

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

### Technical Note

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

### Calibration Set

M-1613-CAL-SET (-01,-02,-03,-04,-05)		5 x 1 mL
All in ng/mL in Nonane		17 comps.

## Chlorinated Dibenzofuran Congeners Minimum purity 98%

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

## Custom Synthesized Rare Chemicals

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

