



CIL

Cambridge Isotope Laboratories, Inc.  
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ENVIRONMENTAL STANDARDS

# Environmental Contaminant Product Standards

## 2007 New Product Guide

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# New

# 2007 New Product Guide

CIL has been steadily producing analytical standards in many application areas over the last year. The following standards represent our new offerings in the areas of POPs, Pesticides, Halogenated Aromatic Compounds and other Pollutant classes. And new this year we are pleased to introduce our new line of Perfluorinated compounds.

New Environmental Contaminants Standards are being developed frequently, so please consult our web site at: [isotope.com](http://isotope.com) for the latest updates and product announcements.

## Perfluorinated Compounds (PFCs)

With the recent announcement of EPA's PFOA Stewardship Program, which aims to reduce/eliminate PFOA emissions by 2010/2015, these new standards will be invaluable to analytical laboratories with their M+8 mass differential from native.

Part Number	Description	Amount
CLM-8005-1.2	Perfluorooctanoic Acid (PFOA) ( $^{13}\text{C}_8$ , 99%) 50 ug/mL in methanol	1.2 mL
ULM-7451-1.2	Perfluorooctanoic Acid (PFOA) (unlabeled) 50 ug/mL in methanol	1.2 mL
CLM-8060-1.2	Perfluorononanoic Acid (PFNA) ( $^{13}\text{C}_9$ , 99%) 50 ug/mL in methanol	1.2 mL
ULM-8066-1.2	Perfluorononanoic Acid (PFNA) (unlabeled) 50 ug/mL in methanol	1.2 mL

## Brominated Flame Retardants (BFRs)

CIL has developed the following new Brominated Flame Retardant standards and a new Brominated Diphenyl Ether Certified Standard to further enhance CIL's Brominated Flame Retardant product line.

Part Number	Description	Amount
BDE-7-CS	2,4-DiBDE (BDE-7) 50 ug/ml in nonane (unlabeled) Certified Standard	1.2 mL
CLM-8006-1.2	Tetrachlorobisphenol A (ring- $^{13}\text{C}_{12}$ , 99%) 50 ug/ml in methanol	1.2 mL
ULM-7606-1.2	Tetrachlorobisphenol A (unlabeled) 50 ug/ml in methanol	1.2 mL

## Halogenated Phenolic Compounds

The halogenated and substituted benzene and phenol standard product line was introduced in our 2005/2006 catalog. CIL is expanding that product line with the following new brominated and chlorinated phenols, benzenes, and anisoles. A new high concentration mono- through hexa- chlorobenzene cocktail is also now available.

Part Number	Description	Amount
ULM-7420-1.2	4-Chlorophenol (unlabeled) 100 ug/ml in nonane	1.2 mL
CLM-8007-1.2	2,6-Dibromophenol ( $^{13}\text{C}_6$ , 99%) 100 ug/ml in toluene	1.2 mL
ULM-7603-1.2	2,6-Dibromophenol (unlabeled) 100 ug/ml in toluene	1.2 mL
CLM-1921-1.2	Hexabromobenzene ( $^{13}\text{C}_6$ , 99%) 100 ug/mL in toluene	1.2 mL
CLM-8003-1.2	Pentachloroanisole ( $^{13}\text{C}_6$ , 99%) 100 ug/ml in toluene	1.2 mL
ULM-7605-1.2	Pentachloroanisole (unlabeled) 100 ug/ml in toluene	1.2 mL
ULM-7525-1.2	2,4,5-Trichlorophenol (unlabeled) 100 ug/ml in methanol	1.2 mL
CLM-6743-1.2	2,4,6-Tribromophenol ( $^{13}\text{C}_6$ , 99%) 100 ug/ml in toluene	1.2 mL
ES-5401	Mono-Hexa Chlorobenzene Solution ( $^{13}\text{C}_6$ , 99%) 500 ug/mL in toluene	1.2 mL

## Brominated Dioxin and Furan Standards and Mixtures

CIL introduces three new pairs of  $^{13}\text{C}_{12}$  labeled and unlabeled brominated dioxin and furan standards and a new brominated dioxin/furan mixture. These new offerings add to CIL's brominated versions of the 17 toxic 2,3,7,8 dioxins and furans.

Part Number	Description	Amount
ED-5357-1.2	1,2,3,4,6,7,8-HeptaBDD ( $^{13}\text{C}_{12}$ , 99%) 5 ug/ml in nonane	1.2 mL
ED-5356-1.2	1,2,3,4,6,7,8-HeptaBDD (unlabeled) 5 ug/ml in nonane	1.2 mL
EF-5076	2-MonoBDF ( $^{13}\text{C}_{12}$ , 99%) 5 ug/ml in nonane	4 X 1.2 mL
EF-5075	2-MonoBDF (unlabeled) 5 ug/ml in nonane	8 X 1.2 mL
EF-5080	2,4,8-TriBDF ( $^{13}\text{C}_{12}$ , 99%) 5 ug/ml in nonane	4 X 1.2 mL
EF-5079	2,4,8-TriBDF (unlabeled) 5 ug/ml in nonane	8 X 1.2 mL
ED-5073	Brominated Dioxin/Furan Internal Standard ( $^{13}\text{C}_{12}$ , 99%)	1.2 mL

## Chlorinated Dioxin and Furan Mixtures

In addition to adding more standards for the Japanese Industrial Standards (JIS) Method for dioxins and furans, CIL has more mixtures for non-2,3,7,8-containing mixtures and other new dioxin and furan mixtures available. Please continue to look to CIL for novel dioxin and furan mixtures.

Part Number	Description	Amount
EF-4134	Chlorodibenzofuran Mix-High (unlabeled)	1 mL
ED-4135	Chlorodioxin Mix-High (unlabeled)	1 mL
EDF-5063	Custom Calibration Curve w/ <sup>13</sup> C-1,2,3,4,6,8,9-HPCDF (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%) CS1-CS5	5 X 0.2 mL
EDF-5304	Dioxin & Furan Clean Up Spike ( <sup>13</sup> C <sub>12</sub> , 99%)	1.2 mL
EDF-5192	Dioxin/Furan Cleanup Spike ( <sup>13</sup> C <sub>12</sub> , 99%)	1.2 mL
EDF-5338	Dioxin/Furan Syringe Spike ( <sup>13</sup> C <sub>12</sub> , 99%) in nonane	1.2 mL
EDF-4137-A	Internal Standard Mix-High ( <sup>13</sup> C <sub>12</sub> , 99%)	1 mL
EDF-5187	JIS Dioxin/Furan Calibration Solution STD1-STD5 Custom <sup>12</sup> C/ <sup>13</sup> C label in nonane	5 X 0.2 mL
EDF-5040-3	Non-2,3,7,8-Containing PCDF Calibration Solution CS3 (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%)	200 uL
EDF-5040-4	Non-2,3,7,8-Containing PCDF Calibration Solution CS4 (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%)	200 uL
EDF-4136-A	Pre-Sampling Spike Mix ( <sup>13</sup> C <sub>12</sub> , 99%; <sup>37</sup> Cl <sub>4</sub> , 96%)	1 mL
EF-4138-10	Sampling Standard for EN-1948-2 (U- <sup>13</sup> C <sub>12</sub> , 99%)	2 X 5 mL
EF-4139-10	Extraction Standard for EN-1948-2 (U- <sup>13</sup> C <sub>12</sub> , 99%)	2 X 5 mL
EDF-5316	Unlabeled Dioxin/Furan Standard Solution in nonane (500-2500 ng/mL)	1.2 mL
EDF-4144-B	Internal Standard Dioxin, Furan, & PCB in Tissue in methanol	5 mL
ED-935-A	Modified ED-935 TCDD Column Performance Check Solution	0.5 mL

## Explosive Standards

CIL has added labeled and unlabeled HMX to our explosives standards product line. Also now available is an RDX standard with additional labeling.

Part Number	Description	Amount
CNLM-7963-S	HMX ( <sup>13</sup> C <sub>4</sub> , 99%; ring- <sup>15</sup> N <sub>4</sub> , 98%) 1 mg/mL in CH <sub>3</sub> CN	1 mL
ULM-7969-1	HMX (unlabeled) 1 mg/mL in CH <sub>3</sub> CN	1 mL
CNLM-7987-S	RDX ( <sup>13</sup> C <sub>3</sub> , 99%; <sup>15</sup> N <sub>3</sub> , 98%) 1 mg/mL in acetonitrile	1 mL

## Pharmaceutical and Personal Care Products (PPCPs)

Introduced in 2004, the Pharmaceutical and Personal Care Product (PPCP) standards product line has numerous additions. Please continue to look to CIL for innovative standards for this emerging field of environmental study.

Part Number	Description	Amount
CLM-4748-1.2	1,6-Anhydro-beta-d-glucose (Levogluconan) (U- <sup>13</sup> C <sub>6</sub> , 98%) 100 ug/mL in DMSO	1.2 mL
ULM-8000-1.2	1,6-Anhydro-beta-d-glucose (Levogluconan) (unlabeled) 100 ug/mL in DMSO	1.2 mL
DLM-4633-1.2	3-Chloro-1,2-Propanediol 1 mg/ml in methanol (propane-D <sub>5</sub> , 98%) (contains~10% 2-chloro-1,3-propanediol)	1.2 mL
ULM-7998-1.2	3-Chloro-1,2-Propanediol (unlabeled) 1 mg/ml in methanol	1.2 mL
DLM-4766-1.2	2-Methylisoborneol (2-methyl-D <sub>3</sub> , 98%) 100 ug/ml in nonane	1.2 mL
DLM-3039-1.2	Phenylbutazone (diphenyl-D <sub>10</sub> , 98%) 1 mg/mL in methanol-D <sub>4</sub>	1.2 mL
ULM-7378-1.2	Phenylbutazone (unlabeled) 1 mg/mL in methanol	1.2 mL
DLM-8085-1.2	Testosterone (D <sub>5</sub> , 98%) 100 ug/mL in methylene chloride	1.2 mL
ULM-8081-1.2	Testosterone (unlabeled) 100 ug/mL in methylene chloride	1.2 mL
DLM-6083-1.2	2,4,6-Trichloroanisole (D <sub>5</sub> , 98%) 1 mg/mL in methanol-D	1.2 mL
ULM-7999-1.2	2,4,6-Trichloroanisole (unlabeled) 1 mg/mL in methanol	1.2 mL

## Polyaromatic Hydrocarbon Standards (PAHs)

New unlabeled PAH metabolites, deuterated standards, and a SIM Recovery standard are now available from CIL.

Part Number	Description	Amount
ULM-6234-1.2	9,10-Dimethylanthracene (unlabeled) 50 ug/ml in toluene	1.2 mL
ULM-6181-1.2	1,8-Dimethylnaphthalene (unlabeled) 50 ug/ml in toluene	1.2 mL
DLM-4304-10	Ethylbenzene (D <sub>10</sub> , 99%)	10 G
DLM-3875-10	Naphthalene (D <sub>8</sub> , 99.5%)	10 G
ES-5386	PAH-SIM Recovery Standard Mixture (D, 98%) 1 mg/mL in CD <sub>2</sub> Cl <sub>2</sub>	1.2 mL

## Polychlorinated Biphenyl Mixtures

CIL continues to expand our PCB line, with new extended JIS Calibration standards, more WHO mixtures, and new labeled and unlabeled mixtures added to our extensive PCB mixture product line.

Part Number	Description	Amount
EC-4941	<sup>13</sup> C-Labeled PCB Mixture 1 ug/mL in nonane PCBs-77/81/123/126/167/169/180/189	1.2 mL
EC-5157-5	<sup>13</sup> C-Labeled PCB Standard (PCB-70 & PCB-170) ( <sup>13</sup> C <sub>12</sub> , 99%) 2 ng/mL in nonane	5 mL
EC-5180	PCB Sampling Spike ( <sup>13</sup> C <sub>12</sub> , 99%) 100 ng/mL in nonane	1.2 mL
EC-5360	Modified JIS PCB Alt A Extended Calibration Solutions CS0.4H-CS6H (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%)	7 X 0.2 mL
EC-5181-10X-1.2	PCB Syringe Spike ( <sup>13</sup> C <sub>12</sub> , 99%) 1 ug/ml in nonane	1.2 mL
EC-4942	PCBs-77/81/105/114/118/123/126/156/157/167/169/ (unlabeled) mix (1 ug/mL in isooctane)	1.2 mL
EC-5044	WHO PCB+PCB-170+PCB-180 Calibration Solutions CS1-CS5 (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%)	5 X 200 uL
EC-5047	WHO PCB+PCB-170+PCB-180 Sampling Standard ( <sup>13</sup> C <sub>12</sub> , 99%)	1.2 mL
EC-5315	WHO+170+180+Syringe PCB Calibration Solutions (low) CS1-CS5 (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%)	5 X 0.2 mL
EC-5366	CDC PCB Calibration Solutions CS1-CS10 (unlabeled/ <sup>13</sup> C <sub>12</sub> ) in nonane	10X0.2 mL
EC-5367	CDC PCB Spiking Standard ( <sup>13</sup> C <sub>12</sub> , 99%) in methanol	10 mL
EC-5396	CO-PCB Calibration Solutions CS1-CS6(unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%) in nonane	6 X 0.2 mL
EC-5397	CO-PCB Syringe Spike ( <sup>13</sup> C <sub>12</sub> , 99%)	1.2 mL

## European Air Method EN-1948-4 PCB Mixtures

CIL is proud to present a full suite of standards for the European Air Method EN-1948-4 for PCB analysis. CIL has long provided standards for the dioxin and furan side of EN-1948, and now provides standards for the new PCB method as well.

Part Number	Description	Amount
EC-5380	EN-1948-4 WHO PCB Calibration Series (CS1-CS6) (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%) in isooctane:nonane	6 X 0.2 mL
EC-5370-1/10X-10	EN-1948-4 PCB Sampling Spike ( <sup>13</sup> C <sub>12</sub> , 99%) 10 ng/mL in nonane	10 mL
EC-5370	EN-1948-4 PCB Sampling Standard ( <sup>13</sup> C <sub>12</sub> , 99%) 100 ng/mL in nonane	1.2 mL
EC-5372-1/10X-10	EN-1948-4 WHO PCB Extraction Spike ( <sup>13</sup> C <sub>12</sub> , 99%) 10 ng/mL in nonane	10 mL
EC-5372	EN-1948-4 WHO PCB Extraction Standard ( <sup>13</sup> C <sub>12</sub> , 99%) 100 ng/mL in nonane	1.2 mL
EC-5371	EN-1948-4 PCB Recovery Standard ( <sup>13</sup> C <sub>12</sub> , 99%) 100 ng/mL in nonane	1.2 mL
EC-5385	EN-1948-4 Marker PCB Calibration Series (CS1-CS6) (unlabeled/ <sup>13</sup> C <sub>12</sub> , 99%) in isooctane:nonane	6 X 0.2 mL
EC-5379-1/10X-10	EN-1948-4 Marker PCB Extraction Spike ( <sup>13</sup> C <sub>12</sub> , 99%) 100 ng/mL in nonane	10 mL
EC-5379	EN-1948-4 Marker PCB Extraction Standard ( <sup>13</sup> C <sub>12</sub> , 99%) 1000 ng/mL in nonane	1.2 mL

## PCB Metabolites

Three new methoxylated PCBs join CIL's expanding line of PCB metabolites. Please contact CIL if there are other PCB metabolites of interest.

Part Number	Description	Amount
MEOCB-5109-1.2	4-Methoxy-2,3,3',4',5-PentaCB (unlabeled) 50 ug/mL in nonane	1.2 mL
MEOCB-5111-1.2	4-Methoxy-2,2',3,4',5,5'-HexaCB (unlabeled) 50 ug/mL in nonane	1.2 mL
MEOCB-5135-1.2	4-Methoxy-2,2',3,4',5,5',6-HeptaCB (unlabeled) 50 ug/mL in nonane	1.2 mL

## Pesticide Standards and Mixtures

Three new pesticide metabolites are added to our prolific pesticide standard line, as well as more labeled and unlabeled standards and a new Pesticide mixture.

Part Number	Description	Amount
CLM-3687-1.2	Alachlor Acetylcysteine Adduct (ring- <sup>13</sup> C <sub>6</sub> , 99%) 100 ug/mL in acetonitrile	1.2 mL
ULM-8096-1.2	Carbaryl (unlabeled) 100 ug/ml in nonane	1.2 mL
CLM-8087-1.2	<i>cis</i> -Chlordane ( <sup>13</sup> C <sub>10</sub> , 99%) 100 ug/ml in nonane	1.2 mL
CLM-7528-1.2	Desethyl Desisopropyl Atrazine ( <sup>13</sup> C <sub>3</sub> , 99%) 100 ug/mL in acetonitrile	1.2 mL
ULM-8001-1.2	Desethyl Desisopropyl Atrazine (unlabeled) 100 ug/mL in acetonitrile	1.2 mL
ULM-7418-1.2	2,4-Dichlorophenoxyacetic Acid (unlabeled) 100 ug/mL in acetonitrile	1.2 mL
DLM-7151-1.2	Dimethoate (O,O-dimethyl-D <sub>6</sub> , 98%) 100 ug/mL in acetonitrile	1.2 mL
ULM-7972-1.2	Dimethoate (unlabeled) 100 ug/mL in acetonitrile	1.2 mL
CLM-7531-1.2	Endosulfan Sulfate ( <sup>13</sup> C <sub>9</sub> , 99%) 100 ug/ml in nonane	1.2 mL
ULM-7990-1.2	Endosulfan Sulfate (unlabeled) 100 ug/ml in nonane	1.2 mL
ULM-7869-1.2	<i>trans</i> -Heptachlor Epoxide (unlabeled) 100 ug/mL in nonane	1.2 mL
CLM-4542-SA-1.2	3-Phenoxybenzoic Acid (phenoxy- <sup>13</sup> C <sub>6</sub> , 99%) 100 ug/mL in acetonitrile	1.2 mL
ES-5177-500X-N-0.5	Persistent Pesticide Spiking Solution ( <sup>13</sup> C, 99%) in nonane	0.5 mL

## Persistent Organic Pollutant Mixtures

Persistent Organic Pollutants (POPs) are a growing environmental concern, and CIL has produced a large number of standards for the analytical community to use in the analysis of these items. Please contact your CIL representative for further information on standards available for this exciting new product line.

Part Number	Description	Amount
ES-5341	POPs Pesticides, Non-Toxaphene, Non-HCH Calibration solutions CS1-CS5 (unlabeled/ <sup>13</sup> C, 99%) in nonane	5 X 0.2 mL
ES-5342	POPs Pesticides, Non-Toxaphene, Non-HCH HRMS Clean-Up Spike ( <sup>13</sup> C, 99%) in nonane	1.2 mL
ES-5343	POPs HRMS HCH Calibration Solutions CS1-CS5 (unlabeled/ <sup>13</sup> C <sub>6</sub> , 99%) in nonane	5 X 0.2 mL
ES-5344	POPs HRMS HCH Clean-Up Spike ( <sup>13</sup> C <sub>6</sub> , 99%) 20 ng/mL in nonane	1.2 mL
ES-5345	POPs Toxaphene Calibration Solutions CS1-CS5 (unlabeled/ <sup>13</sup> C <sub>10</sub> , 99%) in nonane	5 X 0.2 mL
ES-5346	POPs Toxaphene Surrogate Solution ( <sup>13</sup> C <sub>10</sub> , 99%) 100 ng/mL in nonane	1.2 mL
ES-5348	POPs Pesticides Calibration Solutions CS1-CS6 (unlabeled/ <sup>13</sup> C, 99%) in nonane	6 X 0.2 mL
ES-5349	POPs Pesticides HRMS Clean-Up Spike ( <sup>13</sup> C,99%) in nonane	1.2 mL
ES-5349-L	POPs Pesticides LRMS Clean-Up Spike ( <sup>13</sup> C,99%) in nonane	0.5 mL
EC-5350	POPs Pesticides HRMS (PCB) Syringe Spike ( <sup>13</sup> C, 99%) 100 ng/mL in nonane	1.2 mL
EC-5350-L	POPs Pesticides LRMS (PCB) Syringe Spike ( <sup>13</sup> C, 99%) 1 ug/ml in nonane	1.2 mL
ES-5351	POPs Toxaphene Calibration Solutions with PCB Syringe CS1-CS6 (unlabeled/ <sup>13</sup> C, 99%) in nonane	6 X 0.2 mL
ES-5352-L	POPs Toxaphene Surrogate Solution with PCB Syringe ( <sup>13</sup> C <sub>10</sub> , 99%) 1 ug/ml in nonane	1.2 mL
ES-5364	CDC Priority Pollutant Calibration Solutions CS1-CS10 (unlabeled/ <sup>13</sup> C, 99%) in nonane	10X0.2 mL
ES-5365	CDC Priority Pollutant Spiking Standard ( <sup>13</sup> C, 99%) in methanol	10 mL

## Other New Products:

Other products that may be of interest to the analytical community are represented in this listing.

Part Number	Description	Amount
CNLM-8150-1.2	Melamine ( <sup>13</sup> C <sub>3</sub> , 99%; Amino - <sup>15</sup> N <sub>3</sub> , 98%) 95%CP 100 ug/mL in water	1.2mL
ULM-8156-1.2	Melamine (unlabeled) 100 ug/mL in water	1.2mL
CNLM-4661-1.2	Cyanuric Acid (U- <sup>13</sup> C <sub>3</sub> , 99%; U- <sup>15</sup> N <sub>3</sub> , 98%+) 100 ug/mL in water	1.2 mL
ULM-8157-1.2	Cyanuric Acid (unlabeled) 100 ug/mL in water	1.2 mL
CLM-8008-1.2	Hexachlorophene ( <sup>13</sup> C <sub>13</sub> , 99%) 50 ug/mL in methanol	1.2 mL
ULM-8009-1.2	Hexachlorophene (unlabeled) 50 ug/mL in methanol	1.2 mL
ULM-7919-1.2	Monoisobutyl Phthalate unlabeled 100 ug/mL in acetonitrile	1.2 mL
DLM-7136-1.2	Tributyltin Chloride (D <sub>27</sub> , 98%) 100 ug/mL in methylene chloride-D <sub>2</sub>	1.2 mL
ULM-8061-1.2	Tributyltin Chloride (unlabeled) 100 ug/mL in methylene chloride	1.2 mL