An aerial photograph of an industrial complex, likely a refinery or chemical plant. The facility is characterized by numerous storage tanks, distillation columns, and piping. A large, dark, circular reservoir is prominent in the foreground, with a winding canal or drainage system leading from it. The surrounding area appears to be a mix of industrial infrastructure and natural terrain.

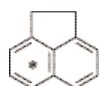
**Polycyclic
Aromatic
Hydrocarbon (PAH)
Standards
and Standard
Mixtures**

Carbon-13 Labeled Polycyclic Aromatic Hydrocarbon (PAH) Standards

Cambridge Isotope Laboratories, in cooperation with Cerilliant Corporation is pleased to offer Carbon-13 labeled Polycyclic Aromatic Hydrocarbons (PAHs), as a superior alternative to deuterated standards.

Although CIL has traditionally produced high-quality deuterated PAH analogs (pages 160-161), some analysts have observed back-exchange of proton for deuterium under harsh extraction conditions and in certain matrices. If precise quantitation is required, or complete recovery information is needed, the non-exchangeable Carbon-13 isotope label is the right standard to use.

Acenaphthene ($^{13}\text{C}_6, 99\%$)



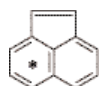
100 ± 10 µg/mL in Nonane
CLM-1643-1.2 1.2 mL

Benzo[*g,h,i*]perylene ($^{13}\text{C}_{12}, 99\%$)



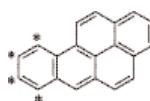
100 ± 10 µg/mL in Nonane
CLM-1364-1.2 1.2 mL

Acenaphthylene ($^{13}\text{C}_6, 99\%$)



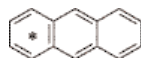
100 ± 10 µg/mL in Nonane
CLM-2477-1.2 1.2 mL

Benzo[*a*]pyrene ($^{13}\text{C}_4, 99\%$)



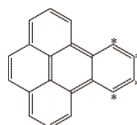
100 ± 10 µg/mL in Nonane
CLM-2722-1.2 1.2 mL

Anthracene ($^{13}\text{C}_6, 99\%$)



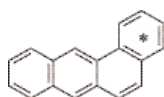
100 ± 10 µg/mL in Nonane
CLM-1333-1.2 1.2 mL

Benzo[*e*]pyrene (9,10,11,12- $^{13}\text{C}_4, 99\%$)



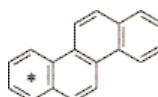
100 ± 10 µg/mL in Nonane
CLM-6170-1.2^{new} 1.2 mL

Benz[*a*]anthracene ($^{13}\text{C}_6, 99\%$)



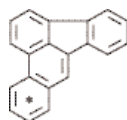
100 ± 10 µg/mL in Nonane
CLM-3602-1.2 1.2 mL

Chrysene ($^{13}\text{C}_6, 99\%$)



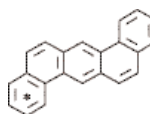
100 ± 10 µg/mL in Nonane
CLM-3757-1.2 1.2 mL

Benzo[*b*]fluoranthene ($^{13}\text{C}_6, 99\%$)



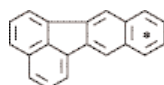
100 ± 10 µg/mL in Nonane
CLM-3599-1.2 1.2 mL

Dibenz[*a,h*]anthracene ($^{13}\text{C}_6, 99\%$)



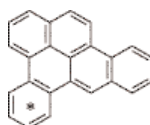
100 ± 10 µg/mL in Nonane
CLM-3598-1.2 1.2 mL

Benzo[*k*]fluoranthene ($^{13}\text{C}_6, 99\%$)



100 ± 10 µg/mL in Nonane
CLM-3756-1.2 1.2 mL

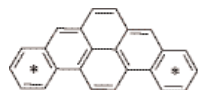
Dibenzo[*a,e*]pyrene ($^{13}\text{C}_6, 99\%$)



100 ± 10 µg/mL in Nonane
CLM-3835-1.2 1.2 mL

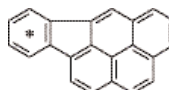
Carbon-13 Labeled Polycyclic Aromatic Hydrocarbon (PAH) Standards (continued)

Dibenzo[*a,i*]pyrene (¹³C₁₂,99%)



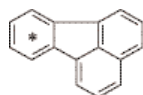
100 ± 10 µg/mL in Nonane
CLM-3774-1.2 1.2 mL

Indeno[1,2,3-*cd*]pyrene (¹³C₆,99%)



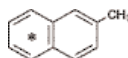
100 ± 10 µg/mL in Nonane
CLM-3600-1.2 1.2 mL

Fluoranthene (¹³C₆,99%)



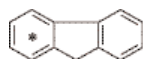
100 ± 10 µg/mL in Nonane
CLM-3597-1.2 1.2 mL

2-Methylnaphthalene (¹³C₆,99%)



100 ± 10 µg/mL in Nonane
CLM-3621-1.2 1.2 mL

Fluorene (¹³C₆,99%)



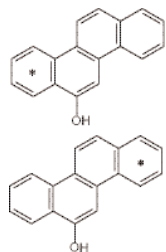
100 ± 10 µg/mL in Nonane
CLM-3596-1.2 1.2 mL

Naphthalene (¹³C₆,99%)



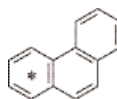
100 ± 10 µg/mL in Nonane
CLM-1332-1.2 1.2 mL

6-Hydroxychrysene (¹³C₆,98%) Mix of labeling



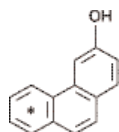
50 ± 5 µg/mL in Acetonitrile
CLM-4860-1.2 1.2 mL

Phenanthrene (¹³C₆,99%)



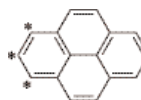
100 ± 10 µg/mL in Nonane
CLM-2451-1.2 1.2 mL

3-Hydroxyphenanthrene (ring-¹³C₆,99%)



50 ± 5 µg/mL in Acetonitrile
CLM-4859-1.2 1.2 mL

Pyrene (¹³C₃,99%)



100 ± 10 µg/mL in Nonane
CLM-3601-1.2 1.2 mL

Cambridge Isotope Laboratories is producing a suite of ¹³C-labeled PAH Metabolites. Please inquire about developments that will have occurred since the printing of this catalog.

Deuterated Polycyclic Aromatic Hydrocarbon (PAH) Standards

CATALOG #	COMPOUND	FORMULA	CONCENTRATION	AMOUNT
DLM-108-1.2	Acenaphthene (D ₁₀ ,98%)	C ₁₂ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-108-0.1	Acenaphthene (D ₁₀ ,98%)	C ₁₂ D ₁₀	neat	0.1 g
DLM-108-1	Acenaphthene (D ₁₀ ,98%)	C ₁₂ D ₁₀	neat	1 g
DLM-108-5	Acenaphthene (D ₁₀ ,98%)	C ₁₂ D ₁₀	neat	5 g
DLM-2204-1.2	Acenaphthylene (D ₈ ,98%)	C ₁₂ D ₈	200 µg/mL in Isooctane	1.2 mL
DLM-2204-0.1	Acenaphthylene (D ₈ ,98%)	C ₁₂ D ₈	neat	0.1 g
DLM-849-0.1	Acridine (D ₉ ,98%)	C ₁₃ D ₉ N	neat	0.1 g
DLM-849-0.5	Acridine (D ₉ ,98%)	C ₁₃ D ₉ N	neat	0.5 g
DLM-102-1.2	Anthracene (D ₁₀ ,98%)	C ₁₄ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-102-1	Anthracene (D ₁₀ ,98%)	C ₁₄ D ₁₀	neat	1 g
DLM-102-5	Anthracene (D ₁₀ ,98%)	C ₁₄ D ₁₀	neat	5 g
DLM-610-1.2	Benz[a]anthracene (D ₁₂ ,98%)	C ₁₈ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-610-0.1	Benz[a]anthracene (D ₁₂ ,98%)	C ₁₈ D ₁₂	neat	0.1 g
DLM-610-1	Benz[a]anthracene (D ₁₂ ,98%)	C ₁₈ D ₁₂	neat	1 g
DLM-2136-1.2	Benzo[b]fluoranthene (D ₁₂ ,98%)	C ₂₀ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-2136-0.01	Benzo[b]fluoranthene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.01 g
DLM-1923-1.2	Benzo[k]fluoranthene (D ₁₂ ,98%)	C ₂₀ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-1923-0.01	Benzo[k]fluoranthene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.01 g
DLM-2135-1.2	Benzo[g,h,i]perylene (D ₁₂ ,98%)	C ₂₂ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-2135-0.01	Benzo[g,h,i]perylene (D ₁₂ ,98%)	C ₂₂ D ₁₂	neat	0.01 g
DLM-258-1.2	Benzo[a]pyrene (D ₁₂ ,98%)	C ₂₀ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-258-0.01	Benzo[a]pyrene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.01 g
DLM-258-0.05	Benzo[a]pyrene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.05 g
DLM-258-0.1	Benzo[a]pyrene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.1 g
DLM-257-1.2	Benzo[e]pyrene (D ₁₂ ,98%)	C ₂₀ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-257-0.01	Benzo[e]pyrene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.01 g
DLM-261-1.2	Chrysene (D ₁₂ ,98%)	C ₁₈ D ₁₂	200 µg/mL in Toluene-d ₈	1.2 mL
DLM-261-0.1	Chrysene (D ₁₂ ,98%)	C ₁₈ D ₁₂	neat	0.1 g
DLM-261-1	Chrysene (D ₁₂ ,98%)	C ₁₈ D ₁₂	neat	1 g
DLM-2715-1.2	Coronene (D ₁₂ ,97%)	C ₂₄ D ₁₂	200 µg/mL in Benzene	1.2 mL
DLM-2715-0.1	Coronene (D ₁₂ ,97%)	C ₂₄ D ₁₂	neat	0.1 g
DLM-3843-1.2	Dibenz[a,j]acridine (D ₁₃ ,98%)	C ₂₁ D ₁₃ N	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-677-1.2	Dibenz[a,h]anthracene (D ₁₄ ,97%)	C ₂₂ D ₁₄	200 µg/mL in Toluene-d ₈	1.2 mL
DLM-677-0.1	Dibenz[a,h]anthracene (D ₁₄ ,97%)	C ₂₂ D ₁₄	neat	0.1 g
DLM-3740-1.2 ^{new}	Dibenzo[a,i]pyrene (D ₁₄ ,98%)	C ₂₄ D ₁₄	200 µg/mL in Toluene-d ₈	1.2 mL
DLM-3841-1.2	7H-Dibenzo[c,g]carbazole (D ₁₂ ,98%)	C ₂₀ D ₁₃ N	50 µg/mL in Toluene-d ₈	1.2 mL

list continues on next page

Deuterated Polycyclic Aromatic Hydrocarbon (PAH) Standards

(continued)

list continues from previous page

CATALOG #	COMPOUND	FORMULA	CONCENTRATION	AMOUNT
DLM-2845-1.2	9,10-Dimethylanthracene (D ₁₄ ,98%)	C ₁₆ D ₁₄	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-2852-1.2	1,6-Dimethylnaphthalene (D ₁₂ ,98%)	C ₁₂ D ₁₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-2854-1.2	1,8-Dimethylnaphthalene (D ₁₂ ,98%)	C ₁₂ D ₁₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-2853-1.2	2,6-Dimethylnaphthalene (D ₁₂ ,98%)	C ₁₂ D ₁₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-2140-1.2	Fluoranthene (D ₁₀ ,98%)	C ₁₆ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-2140-0.1	Fluoranthene (D ₁₀ ,98%)	C ₁₆ D ₁₀	neat	0.1 g
DLM-1123-1.2	Fluorene (D ₁₀ ,98%)	C ₁₃ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-1123-0.1	Fluorene (D ₁₀ ,98%)	C ₁₃ D ₁₀	neat	0.1 g
DLM-1123-1	Fluorene (D ₁₀ ,98%)	C ₁₃ D ₁₀	neat	1 g
DLM-2148-1.2	Indeno[1,2,3- <i>cd</i>]pyrene (D ₁₂ ,98%)	C ₂₂ D ₁₂	200 µg/mL in Isooctane	1.2 mL
DLM-2148-0.01	Indeno[1,2,3- <i>cd</i>]pyrene (D ₁₂ ,98%)	C ₂₂ D ₁₂	neat	0.01 g
DLM-3842-1.2	5-Methylchrysene (Methyl-D ₃ ,98%)	C ₁₉ D ₃ H ₁₁	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-1607-1	1-Methylnaphthalene (D ₁₀ ,98%)	C ₁₁ D ₁₀	neat	1 g
DLM-1322-1.2	2-Methylnaphthalene (D ₁₀ ,98%)	C ₁₁ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-365-1.2	Naphthalene (D ₈ ,99%)	C ₁₀ D ₈	200 µg/mL in Isooctane	1.2 mL
DLM-365-1	Naphthalene (D ₈ ,99%)	C ₁₀ D ₈	neat	1 g
DLM-365-5	Naphthalene (D ₈ ,99%)	C ₁₀ D ₈	neat	5 g
DLM-365-10	Naphthalene (D ₈ ,99%)	C ₁₀ D ₈	neat	10 g
DLM-3836-1.2	5-Nitroacenaphthene (D ₉ ,98%)	C ₁₂ D ₉ NO ₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-4712-1.2	9-Nitroanthracene (D ₉ ,98%)	C ₁₄ D ₉ NO ₂	50 µg/mL in Toluene	1.2 mL
DLM-3839-1.2	6-Nitrochrysene (D ₁₁ ,98%)	C ₁₈ D ₁₁ NO ₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-4711-1.2	3-Nitrofluoranthene (D ₉ ,98%) (Chemical Purity: 87%)	C ₁₆ D ₉ NO ₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-3837-1.2	2-Nitrofluorene (D ₉ ,98%)	C ₁₃ D ₉ NO ₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-1528-1.2	1-Nitropyrene (D ₉ ,98%)	C ₁₈ D ₉ NO ₂	50 µg/mL in Toluene-d ₈	1.2 mL
DLM-366-1.2	Perylene (D ₁₂ ,98%)	C ₂₀ D ₁₂	200 µg/mL in Toluene-d ₈	1.2 mL
DLM-366-0.1	Perylene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	0.1 g
DLM-366-1	Perylene (D ₁₂ ,98%)	C ₂₀ D ₁₂	neat	1 g
DLM-371-1.2	Phenanthrene (D ₁₀ ,98%)	C ₁₄ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-371-0.1	Phenanthrene (D ₁₀ ,98%)	C ₁₄ D ₁₀	neat	0.1 g
DLM-371-1	Phenanthrene (D ₁₀ ,98%)	C ₁₄ D ₁₀	neat	1 g
DLM-155-1.2	Pyrene (D ₁₀ ,98%)	C ₁₆ D ₁₀	200 µg/mL in Isooctane	1.2 mL
DLM-155-0.1	Pyrene (D ₁₀ ,98%)	C ₁₆ D ₁₀	neat	0.1 g
DLM-155-0.5	Pyrene (D ₁₀ ,98%)	C ₁₆ D ₁₀	neat	0.5 g
DLM-601-0.1	Triphenylene (D ₁₂ ,98%)	C ₁₈ D ₁₂	neat	0.1 g
DLM-601-1	Triphenylene (D ₁₂ ,98%)	C ₁₈ D ₁₂	neat	1 g

Unlabeled Polycyclic Aromatic Hydrocarbon (PAH) Standards

CATALOG #	COMPOUND	FORMULA	CONCENTRATION	AMOUNT
ULM-7413-1.2 ^{new}	Acenaphthene	C ₁₂ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-7422-1.2 ^{new}	Acenaphthylene	C ₁₂ H ₈	200 µg/mL in Isooctane	1.2 mL
ULM-7412-1.2 ^{new}	Anthracene	C ₁₄ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-2415-1.2	Benz[<i>a</i>]anthracene	C ₁₈ H ₁₂	1 mg/mL in Methanol	1.2 mL
ULM-2415-0.1	Benz[<i>a</i>]anthracene	C ₁₈ H ₁₂	neat	0.1 g
ULM-2416-1.2	Benzo[<i>b</i>]fluoranthene	C ₂₀ H ₁₂	1 mg/mL in Acetone	1.2 mL
ULM-2416-0.1	Benzo[<i>b</i>]fluoranthene	C ₂₀ H ₁₂	neat	0.1 g
ULM-2411-25	Benzo[<i>j</i>]fluoranthene	C ₂₀ H ₁₂	neat	25 mg
ULM-2417-1.2	Benzo[<i>k</i>]fluoranthene	C ₂₀ H ₁₂	1 mg/mL in Acetone	1.2 mL
ULM-2417-0.1	Benzo[<i>k</i>]fluoranthene	C ₂₀ H ₁₂	neat	0.1 g
ULM-2418-1.2	Benzo[<i>g,h,i</i>]perylene	C ₂₂ H ₁₂	1 mg/mL in CH ₂ Cl ₂	1.2 mL
ULM-2418-25	Benzo[<i>g,h,i</i>]perylene	C ₂₂ H ₁₂	neat	25 mg
ULM-2412-1.2	Benzo[<i>a</i>]pyrene	C ₂₀ H ₁₂	1 mg/mL in Acetone	1.2 mL
ULM-2412-0.1	Benzo[<i>a</i>]pyrene	C ₂₀ H ₁₂	neat	0.1 g
ULM-7423-1.2 ^{new}	Benzo[<i>e</i>]pyrene	C ₂₀ H ₁₂	200 µg/mL in Isooctane	1.2 mL
ULM-7424-1.2 ^{new}	Chrysene	C ₁₈ H ₁₂	200 µg/mL in Toluene	1.2 mL
ULM-6576-1.2 ^{new}	Coronene	C ₂₄ H ₁₂	200 µg/mL in Benzene	1.2 mL
ULM-3884-1.2	Dibenz[<i>a,j</i>]acridine	C ₂₁ H ₁₃ N	50 µg/mL in Toluene	1.2 mL
ULM-3884-25	Dibenz[<i>a,j</i>]acridine	C ₂₁ H ₁₃ N	neat	25 mg
ULM-2422-1.2	Dibenz[<i>a,h</i>]anthracene	C ₂₂ H ₁₄	1 mg/mL in CH ₂ Cl ₂	1.2 mL
ULM-2422-0.1	Dibenz[<i>a,h</i>]anthracene	C ₂₂ H ₁₄	neat	0.1 g
ULM-3885-1.2	7H-Dibenzo[<i>c,g</i>]carbazole	C ₂₀ H ₁₃ N	50 µg/mL in Toluene	1.2 mL
ULM-6671-1.2 ^{new}	Dibenzo[<i>a,e</i>]fluoranthene	C ₂₄ H ₁₄	200 µg/mL in Toluene	1.2 mL
ULM-1226-0.01	Dibenzo[<i>a,e</i>]pyrene	C ₂₄ H ₁₄	neat	10 mg
ULM-1227-25	Dibenzo[<i>a,h</i>]pyrene	C ₂₄ H ₁₄	neat	25 mg
ULM-2423-1.2	Dibenzo[<i>a,i</i>]pyrene	C ₂₄ H ₁₄	200 µg/mL in Toluene	1.2 mL
ULM-1253-1.2 ^{new}	Dibenzo[<i>a,l</i>]pyrene	C ₂₄ H ₁₄	200 µg/mL in Toluene	1.2 mL
ULM-1253-25	Dibenzo[<i>a,l</i>]pyrene	C ₂₄ H ₁₄	neat	25 mg
ULM-7421-1.2 ^{new}	Fluoranthene	C ₁₆ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-7414-1.2 ^{new}	Fluorene	C ₁₃ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-6182-1.2 ^{new}	1,6-Dimethylnaphthalene	C ₁₂ H ₁₂	50 µg/mL in Toluene	1.2 mL
ULM-6181-1.2 ^{new}	1,8-Dimethylnaphthalene	C ₁₂ H ₁₂	50 µg/mL in Toluene	1.2 mL
ULM-7271-1.2 ^{new}	2,6-Dimethylnaphthalene	C ₁₂ H ₁₂	50 µg/mL in Toluene	1.2 mL
ULM-2426-1.2	Indeno[1,2,3- <i>cd</i>]pyrene	C ₂₂ H ₁₂	1 mg/mL in Chloride	1.2 mL
ULM-2426-25	Indeno[1,2,3- <i>cd</i>]pyrene	C ₂₂ H ₁₂	neat	25 mg

list continues on next page

Unlabeled Polycyclic Aromatic Hydrocarbon (PAH) Standards (continued)

list continues from previous page

CATALOG #	COMPOUND	FORMULA	CONCENTRATION	AMOUNT
ULM-6235-1.2 ^{new}	5-Methylchrysene	C ₁₉ H ₁₄	50 µg/mL in Toluene	1.2 mL
ULM-7416-1.2 ^{new}	2-Methylnaphthalene	C ₁₁ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-7425-1.2 ^{new}	Naphthalene	C ₁₀ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-3881-1.2	6-Nitrochrysene	C ₁₈ H ₁₁ NO ₂	50 µg/mL in Toluene	1.2 mL
ULM-6600-1.2 ^{new}	3-Nitrofluoranthene	C ₁₆ H ₉ NO ₂	50 µg/mL in Toluene	1.2 mL
ULM-3883-1.2	2-Nitrofluorene	C ₁₃ H ₉ NO ₂	50 µg/mL in Toluene	1.2 mL
ULM-3978-1.2	1-Nitropyrene	C ₁₈ H ₉ NO ₂	50 µg/mL in Toluene	1.2 mL
ULM-7426-1.2 ^{new}	Perylene	C ₂₀ H ₁₂	200 µg/mL in Isooctane	1.2 mL
ULM-7427-1.2 ^{new}	Phenanthrene	C ₁₄ H ₁₀	200 µg/mL in Isooctane	1.2 mL
ULM-7417-1.2 ^{new}	Pyrene	C ₁₆ H ₁₀	200 µg/mL in Toluene	1.2 mL
ULM-7428-1.2 ^{new}	p-Terphenyl	C ₁₈ H ₁₄	200 µg/mL in Isooctane	1.2 mL

Isotope Labeled PAH Standard Mixtures

CATALOG #	COMPOUND	AMOUNT
ES-4087	US EPA 16 PAH Cocktail (¹³ C ₆ ,99%)	1.2 mL in Nonane
	Labled Compounds:	Concentration (µg/mL)
	Acenaphthene (¹³ C ₆ ,99%)	5
	Acenaphthylene (¹³ C ₆ ,99%)	5
	Anthracene (¹³ C ₆ ,99%)	5
	Benz[<i>a</i>]anthracene (¹³ C ₆ ,99%)	5
	Benzo[<i>b</i>]fluoranthene (¹³ C ₆ ,99%)	5
	Benzo[<i>k</i>]fluoranthene (¹³ C ₆ ,99%)	5
	Benzo[<i>g,h,i</i>]perylene (¹³ C ₁₂ ,99%)	5
	Benzo[<i>a</i>]pyrene (¹³ C ₄ ,99%)	5
	Chrysene (¹³ C ₆ ,99%)	5
	Dibenz[<i>a,h</i>]anthracene (¹³ C ₆ ,99%)	5
	Fluoranthene (¹³ C ₆ ,99%)	5
	Fluorene (¹³ C ₆ ,99%)	5
	Indeno[1,2,3- <i>cd</i>]pyrene (¹³ C ₆ ,99%)	5
	Naphthalene (¹³ C ₆ ,99%)	5
	Phenanthrene (¹³ C ₆ ,99%)	5
	Pyrene (¹³ C ₆ ,99%)	5

Isotope Labeled PAH Standard Mixtures (continued)

CATALOG #	COMPOUND	AMOUNT
ES-2043	“EEC Six” PAH Cocktail (These standards are required by the European Economic Community Directive for water quality tests.)	1 mL in Benzene (D ₆ ,99.6%)
	Labeled Compounds:	Concentration (µg/mL)
	Benzo[<i>b</i>]fluoranthene (D ₁₂ ,98%)	1000
	Benzo[<i>k</i>]fluoranthene (D ₁₂ ,98%)	1000
	Benzo[<i>g,h,i</i>]perylene (D ₁₂ ,98%)	1000
	Benzo[<i>a</i>]pyrene (D ₁₂ ,98%)	1000
	Indeno[1,2,3- <i>cd</i>]pyrene (D ₁₂ ,98%)	1000
	Fluoranthene (D ₁₀ ,98%)	1000

CATALOG #	COMPOUND	AMOUNT
ES-2528	PAH Cocktail for CARB Method 429	1 mL in Benzene (D ₆ ,99.6%)
	Labeled Compounds:	Concentration (µg/mL)
	Acenaphthene (D ₁₀ ,98%)	100
	Acenaphthylene (D ₈ ,98%)	100
	Anthracene (D ₁₀ ,98%)	100
	Benz[<i>a</i>]anthracene (D ₁₂ ,98%)	100
	Benzo[<i>b</i>]fluoranthene (D ₁₂ ,98%)	100
	Benzo[<i>k</i>]fluoranthene (D ₁₂ ,98%)	100
	Benzo[<i>g,h,i</i>]perylene (D ₁₂ ,98%)	100
	Benzo[<i>a</i>]pyrene (D ₁₂ ,98%)	100
	Chrysene (D ₁₂ ,98%)	100
	Dibenz[<i>a,h</i>]anthracene (D ₁₄ ,98%)	100
	Fluoranthene (D ₁₀ ,98%)	100
	Fluorene (D ₁₀ ,98%)	100
	Indeno[1,2,3- <i>cd</i>]pyrene (D ₁₂ ,98%)	100
	Naphthalene (D ₈ ,98%)	100
	Phenanthrene (D ₁₀ ,98%)	100
	Pyrene (D ₁₀ ,98%)	100

Isotope Labeled PAH Standard Mixtures (continued)

CATALOG #	COMPOUND	AMOUNT
ES-2044	PAH Surrogate Cocktail	1 mL in 50% CD ₂ Cl ₂ (D ₂ ,99.9%) and 50% Methanol (D ₂ ,99.8%)
	Labeled Compounds:	Concentration (µg/mL)
	Acenaphthylene (D ₈ ,98%)	200
	Benzo[a]pyrene (D ₁₂ ,98%)	200
	Benzo[g,h,i]perylene (D ₁₂ ,98%)	200
	Fluoranthene (D ₁₀ ,98%)	200
	Naphthalene (D ₈ ,99%)	200
	Phenanthrene (D ₁₀ ,98%)	200
	Pyrene (D ₁₀ ,98%)	200

Isotope Labeled Polychlorinated Naphthalene (PCN) Standards

CATALOG #	COMPOUND (ISOTOPE, ATOM % ENRICHMENT)	CONCENTRATION	AMOUNT
ECN-5240	1,2,3,4-Tetrachloronaphthalene (¹³ C ₁₀ ,99%) (Chemical Purity: 96%)	10 µg/mL in Isooctane	1.2 mL
ECN-5241	1,3,5,7-Tetrachloronaphthalene (¹³ C ₁₀ ,99%)	10 µg/mL in Isooctane	1.2 mL
ECN-5250	1,2,3,5,7-Pentachloronaphthalene (¹³ C ₁₀ ,99%)	10 µg/mL in Isooctane	1.2 mL
ECN-5260	1,2,3,4,5,7-Hexachloronaphthalene (¹³ C ₁₀ ,99%)	10 µg/mL in Isooctane	1.2 mL
ECN-5261	1,2,3,5,6,7-Hexachloronaphthalene (¹³ C ₁₀ ,98%) (contains 0.2% native)	10 µg/mL in Isooctane	1.2 mL
ECN-5270	1,2,3,4,5,6,7-Heptachloronaphthalene (¹³ C ₁₀ ,98%) (contains 2% native)	10 µg/mL in Isooctane	1.2 mL
ECN-5280	Octachloronaphthalene (¹³ C ₁₀ ,99%)	10 µg/mL in Isooctane	1.2 mL

Unlabeled Polychlorinated Naphthalene (PCN) Standards

CATALOG #	COMPOUND	CONCENTRATION	AMOUNT
ECN-2610	1-Monochloronaphthalene (Chemical Purity: 90%, 10% 2-Monochloronaphthalene)	100 µg/mL in Nonane	1 mL
ECN-2611	2-Monochloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2620	1,2-Dichloronaphthalene (Chemical Purity: 92%)	100 µg/mL in Nonane	1 mL
ECN-2621	1,4-Dichloronaphthalene (Chemical Purity: 92%)	100 µg/mL in Nonane	1 mL
ECN-2622	1,5-Dichloronaphthalene (Chemical Purity: 91%)	100 µg/mL in Nonane	1 mL
ECN-2623	1,8-Dichloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2624	2,3-Dichloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2630	1,2,3-Trichloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2640	1,2,3,4-Tetrachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2642	1,2,5,6-Tetrachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2641	1,3,5,7-Tetrachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2643	2,3,6,7-Tetrachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2652	1,2,3,4,6-Pentachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2651	1,2,3,5,7-Pentachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2650	1,2,3,5,8-Pentachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2653	1,2,3,6,7-Pentachloronaphthalene (Chemical Purity: 96%)	100 µg/mL in Nonane	1 mL
ECN-2660	1,2,3,4,6,7-Hexachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2663	1,2,3,5,6,7-Hexachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2664	1,2,3,5,6,8-Hexachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2662	1,2,3,5,7,8-Hexachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2665	1,2,3,6,7,8-Hexachloronaphthalene (Chemical Purity: 97%)	100 µg/mL in Nonane	1 mL
ECN-2666	1,2,4,5,6,8-Hexachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2661	1,2,4,5,7,8-Hexachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2670	1,2,3,4,5,6,7-Heptachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2671	1,2,3,4,5,6,8-Heptachloronaphthalene	100 µg/mL in Nonane	1 mL
ECN-2680	Octachloronaphthalene	100 µg/mL in Nonane	1 mL

Halowax Technical Mixtures

CATALOG #	COMPOUND	CONCENTRATION	AMOUNT
ECN-1000	HALOWAX 1000	100 µg/mL in Hexane	2 mL
ECN-1013	HALOWAX 1013	100 µg/mL in Hexane	2 mL
ECN-1051	HALOWAX 1051	100 µg/mL in Hexane	2 mL

Polychlorinated Naphthalene (PCN) Standard Mixtures

CATALOG #	COMPOUND	AMOUNT
ECN-5102 ^{new}	Tetra-Octa PCN Mixture	1.2 mL in Isooctane
	Labeled PCNs	Concentration (µg/mL)
	1,2,3,4-TetraCN (¹³ C ₁₀ ,99%)	1.0
	1,3,5,7-TetraCN (¹³ C ₁₀ ,99%)	1.0
	1,2,3,5,7-PentaCN (¹³ C ₁₀ ,99%)	1.0
	1,2,3,5,6,7-HexaCN (¹³ C ₁₀ ,98%)	1.0
	1,2,3,4,5,6,7-HeptaCN (¹³ C ₁₀ ,98%)	1.0
	OctaCN (¹³ C ₁₀ ,99%)	1.0

CATALOG #	COMPOUND	AMOUNT
ECN-5178 ^{new}	Tetra-Octa PCN Mixture	1.2 mL in Nonane
	Unlabeled PCNs	Concentration (µg/mL)
	1,2,3,4-TetraCN	1.0
	1,3,5,7-TetraCN	1.0
	1,2,3,5,7-PentaCN	1.0
	1,2,3,5,6,7-HexaCN	1.0
	1,2,3,4,5,6,7-HeptaCN	1.0
	OctaCN	1.0

Substituted Benzothiophenes

Substituted dibenzothiophenes, sulfur analogs of the chlorinated dibenzofurans, are of interest to analysts due to their remarkable similarities to the chlorinated dioxin class of compounds. A very high mass resolution is necessary to distinguish a chlorinated dibenzothiophene from a chlorinated dioxin. This fact, coupled with the lack of commercially available pure isomers of these sulfur-containing compounds, has led to some speculation that in certain cases, compounds being quantitated as dioxins were, in reality, dibenzothiophenes.

CATALOG #	COMPOUND	FORMULA	CONCENTRATION	AMOUNT
ET-4025	2,3,7,8-Tetrachlorodibenzothiophene (unlabeled)	C ₁₄ Cl ₄ H ₄ S	50 µg/mL in Nonane	1.2 mL
DLM-4308-1.2	Benzo[<i>b</i>]naphtho[2,1- <i>d</i>]-thiophene (D ₁₀ ,96%)	C ₁₆ D ₁₀ S	100 µg/mL in Benzene-d ₆	1.2 mL
ULM-7430-1.2 ^{new}	Benzo[<i>b</i>]naphtho[2,1- <i>d</i>]-thiophene (Unlabeled)	C ₁₆ H ₁₀ S	100 µg/mL in Benzene	1.2 mL