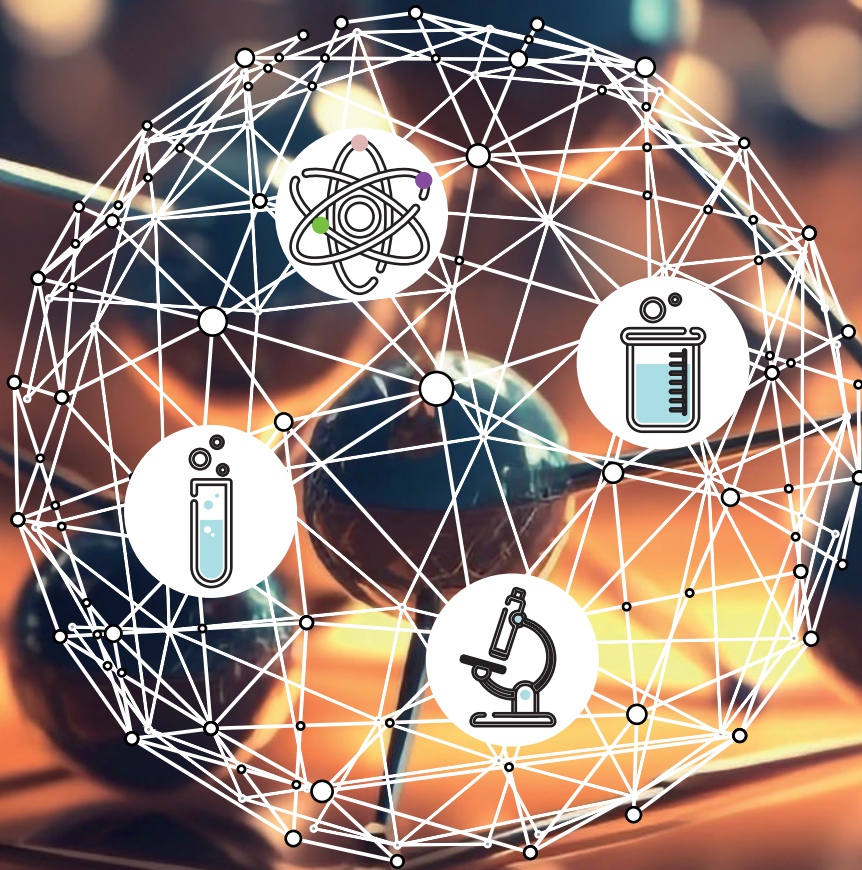


인증표준물질

Certified Reference Materials





중금속분석을 위한 시료전처리장비와 인증표준물질등 소모품 전문기업!



(주) 오디랩은 2008년 8월에 설립된 회사로 중금속분석에 사용되는 흑연블럭 산 분해장비인 에코프리 I, II, III 시리즈와 산 세척장치, 고순도 산 제조 장치, 유리분주기, ICP/ICP MS 소모품, 인증표준물질(CRM), 숙련도 평가물질 (PT) 등 을 제조, 수입판매하고 있습니다.

(주) 오디랩에서 제조 판매하는 흑연블럭 산 분해장비는 열선 가열판이나 마이크로웨이브의 단점을 보완한 제품으로 국내를 비롯하여 세계 7개국에 특허를 획득하였고 현재 해외로도 수출 중 에 있습니다.

또한 실험실에서 분석 데이터의 신뢰성확보를 위한 인증표준물질(CRM)과 표준물질(RM), 국제숙련도 물질을 전세계에서 수입하여 판매하고 있습니다. 인증표준물질은 고객이 찾으시는 제품을 탐색하여 드리고 있으며, 가장 근접한 제품으로 추천드리고 있습니다.

특히 유럽환경규제인 RoHS에 대응한 IEC62321시험법에 나오는 인증표준 물질을 국내 시험평가기관이나 국가기관에 공급하고 있으며, 환경부에서 실시하는 정도관리에 대응하여 LGC사에서 제공하는 환경관련 숙련도 물질을 공급하고 있습니다.

**저희 (주) 오디랩은 화학실험실의 동반자로서
분석의 재현성과 정확성, 신뢰성 확보를 위해
언제나 고객의 노력과 함께 하겠습니다**

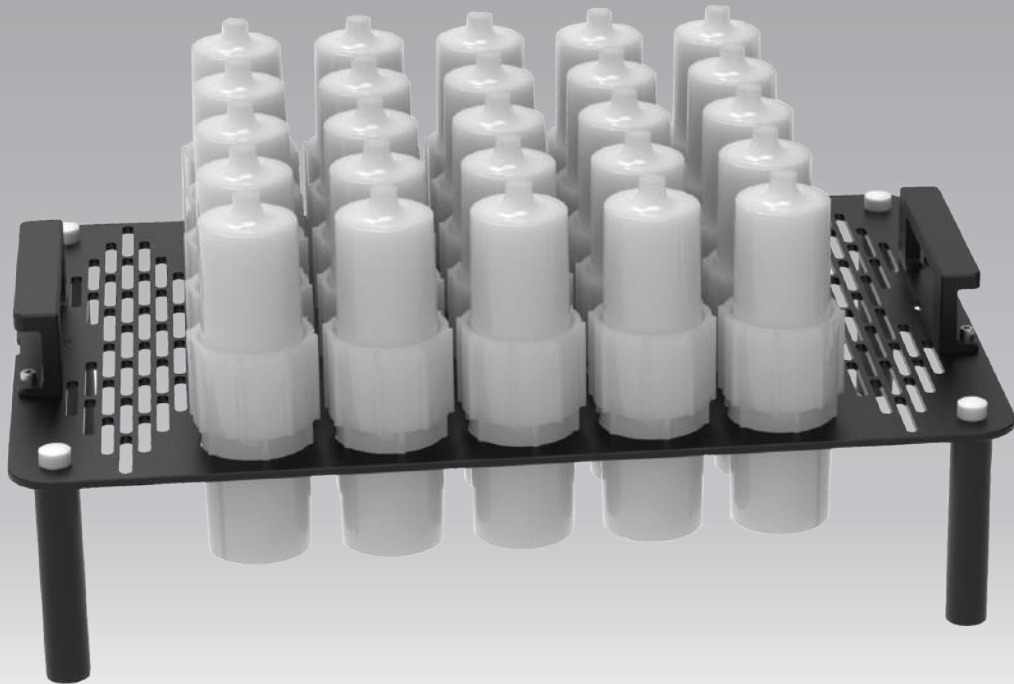
 ODLAB

자동 산분해장비

ADS25



견적문의



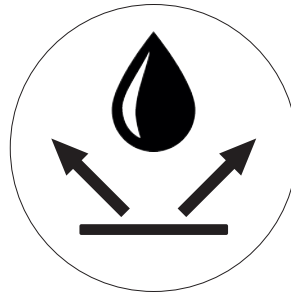
경량화 & 벤틸레이션

경량화 & 벤틸레이션 -



산순환 포집분해용기

산순환 포집분해용기 -



오염방지&내구성

오염방지&내구성 -



앱 연동 조작

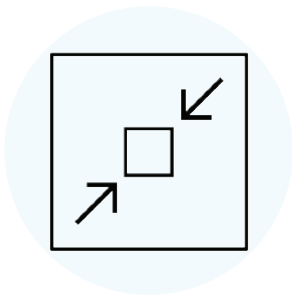
앱 연동 조작 -

이동 및 보관을 위해 플레이트를 타공디자인으로 경량화를 하였습니다 또한 타공을 통하여 원활하게 열기의 순환이 이루어 집니다.

좌우에 있는 리프트 장치로 산 순환 포집분해 용기 내부의 산을 가열 / 냉각 시켜서 사이펀 현상에 의해 리사이클 시켜 시료를 분해할 수 있도록 디자인 하였습니다.

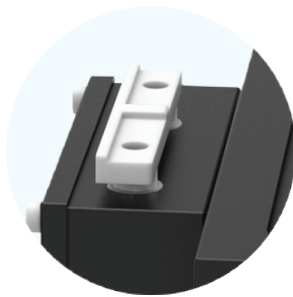
SUS 재질사용 및 테프론 특수코팅을 하여 표면이 쉽게 오염되지 않도록 제작하였습니다. 또한 상부 가열부와 하부 전자제어부는 서로 격리, 밀봉되어 열 또는 산 증기로 인하여 전자제어장치가 손상되지않도록 되어있습니다.

20 Step 으로 가열 / 냉각 으로 분해조건을 프로그램화 할 수 있으며, 앱을 사용하여 조절가능합니다.



컴팩트한 사이즈

컴팩트한 사이즈 -



오토메틱 리프팅

오토메틱 리프팅 -

메뉴얼 및 프로그래밍 기능으로 반복적인 가열 / 냉각을 할 수 있도록 리프팅 기능이 있습니다.



균일한 온도

균일한 온도 -

흑연 소재를 사용하여 균일한 온도를 제공하고 ($\pm 1^{\circ}\text{C}$ 온도편차를 갖는다) 제어는 0.2°C 로 제어된다.



수동 승강버튼

수동 승강버튼 -

리프트 장치를 수동버튼을 사용하여 상부 랙(Rack)을 상하로 움직여 사용자가 원할 시 용기의 상태를 언제든지 확인 할 수 있습니다.



GLASS EXPANSION
Quality By Design

ICP-OES / ICP-MS

모든 메이커 (애질런트, 씨모, 퍼킨..etc) 전제품



견적문의

Ash Particulate Dust

Ash, particulate and dust

Code	Product	Unit	
BCR-038	FLY ASH FROM PULVERISED COAL (trace elements)	5 g	
	The material consists of a fly ash powder in a glass ampoule containing approximately 5 - 6 g.		
	Certified Values		
Element	Mass fraction	Element Mass fraction	
As	48.0 mg/kg	Fe	33.8 g/kg
Cd	4.6 mg/kg	Hg	2.10 mg/kg
Cl	323 mg/kg	Mn	479 mg/kg
Co	53.8 mg/kg	Na	3.74 g/kg
Cr	192 mg/kg	Pb	262 mg/kg
Cu	176 mg/kg	Zn	581 mg/kg
F	538 mg/kg		
BCR-176R	FLY ASH (trace elements)	40 g	
	The samples consist of 40 g of fly ash in amber glass bottles, closed with polyethylene inserts, screw caps and a crimp seal		
	Certified Values		
Element	Mass fraction	Element Mass fraction	
As	54 mg/kg	Ni	117 mg/kg
Cd	226 mg/kg	Pb	5000 mg/kg
Co	26.7 mg/kg	Sb	850 mg/kg
Cr	810 mg/kg	Se	18.3 mg/kg
Cu	1050 mg/kg	Ti	1.32 mg/kg
Fe	13100 g/kg	Zn	16800 mg/kg
BCR-723	ROAD DUST (Pd, Pt, Rh)	25 g	
	The road dust material with a moisture content of approximately 3 % by mass is available in brown glass bottles with screw cap, containing approximately 25 g of a homogenised road dust with a particle top size of less than 90 µm.		
	Certified Values		
Element	Mass fraction		
Palladium	6.1 µg/kg		
Platinum	81.3 µg/kg		
Rhodium	12.8 µg/kg		
ERM-CZ120	FINE DUST (PM₁₀-LIKE) (elements)	0.5 g	
	The material consists of about 0.5 g of fine dust that was processed in a way to resemble PM10 as close as possible. It was packed into amber glass vials, closed with a rubber stopper (coated with PTFE) and an aluminium cap under argon atmosphere.		
	Certified Values		
Element	Mass fraction		
Arsenic	7.1 mg/kg		
Cadmium	0.90 mg/kg		
Lead	113 mg/kg		
Nickel	58 mg/kg		

Ash, particulate and dust

Code	Product	Unit																												
ERM-CZ110	FINE DUST (PM_{2,5}-LIKE)	150 mg																												
<p>ERM-CZ110 is a fine particles (PM_{2,5}-like) material prepared from particulate matter collected from a road tunnel in Poland. The CRM is available in glass vials containing at least 150 mg of powder. Filling was done under nitrogen atmosphere.</p>																														
<p>Certified Values</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Mass fraction</th> </tr> </thead> <tbody> <tr> <td>Na⁺</td> <td>20.4 g/kg</td> </tr> <tr> <td>K⁺</td> <td>3.3 g/kg</td> </tr> <tr> <td>Ca²⁺</td> <td>44 g/kg</td> </tr> <tr> <td>Mg²⁺</td> <td>1.8 g/kg</td> </tr> <tr> <td>Cl⁻</td> <td>26.2 g/kg</td> </tr> <tr> <td>NO₃⁻</td> <td>7.8 g/kg</td> </tr> <tr> <td>SO₄²⁻</td> <td>75 g/kg</td> </tr> </tbody> </table>			Element	Mass fraction	Na ⁺	20.4 g/kg	K ⁺	3.3 g/kg	Ca ²⁺	44 g/kg	Mg ²⁺	1.8 g/kg	Cl ⁻	26.2 g/kg	NO ₃ ⁻	7.8 g/kg	SO ₄ ²⁻	75 g/kg												
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ERM-CZ100	FINE DUST (PM₁₀-LIKE)	0.5 g																												
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BCR-490	FLY ASH (PCDD's and PCDF's)	30 g																												
<p>The sample consists of a homogeneous municipal waste incinerator fly ash in amber glass bottles containing approx. 30 g.</p>																														
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Ash, particulate and dust

Code	Product	Unit
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BCR-615 FLY ASH (PCDD's and PCDF's) 50 g

The sample consists of approximately 50 g of dried fly ash in brown glass bottles with a polyethylene insert and screw cap. The approximate total contents of PCDD and PCDF, expressed as toxicity equivalents (I-TEQ), amounts to less than 500 ng/kg.

Certified Values

Element	Mass fraction	Element	Mass fraction
2,3,7,8-T4CDD (D48)	27 ng/kg	1,2,3,7,8-P5CDF (F94)	176 ng/kg
1,2,3,7,8-P5CDD (D54)	92 ng/kg	2,3,4,7,8-P5CDF (F114)	125 ng/kg
1,2,3,4,7,8-H6CDD (D66)	74 ng/kg	1,2,3,4,7,8-H6CDF (F118)	203 ng/kg
1,2,3,6,7,8-H6CDD (D67)	103 ng/kg	1,2,3,6,7,8-H6CDF (F121)	204 ng/kg
1,2,3,7,8,9-H6CDD (D70)	108 ng/kg	1,2,3,7,8,9-H6CDF (F124)	13.3 ng/kg
1,2,3,4,6,7,8-H7CDD (D73)	0.87 µg/kg	2,3,4,6,7,8-H6CDF (F130)	130 ng/kg
O8CDD (D75)	1.75 µg/kg	1,2,3,4,6,7,8-H7CDF (F131)	0.75 µg/kg
2,3,7,8-T4CDF (F83)	86 ng/kg	1,2,3,4,7,8,9-H7CDF (F134)	61 ng/kg
		O8CDF (F135)	0.29 µg/kg

NIST-1648a Urban Particulate Matter 2 g

It is atmospheric particulate matter collected in an urban area and is intended primarily for use as a quality control material and in the evaluation of methods used in inorganic analysis and for the determination of selected polycyclic aromatic hydrocarbons (PAHs), nitro-substituted PAHs (nitro-PAHs), polychlorinated biphenyl (PCB) congeners, and chlorinated pesticides in atmospheric particulate material and similar matrices.

Certified Values

Element	Mass fraction	Element	Mass fraction
Aluminum (Al)	3.43 ± 0.13 %	Lead (Pb)	0.655 ± 0.033 %
Antimony (Sb)	45.4 ± 1.4 mg/kg	Magnesium (Mg)	0.813 ± 0.012 %
Arsenic (As)	115.5 ± 3.9 mg/kg	Manganese (Mn)	790 ± 44 mg/kg
Bromine (Br)	502 ± 10 mg/kg	Mercury (Hg)	1.323 ± 0.064 mg/kg
Calcium (Ca)	5.84 ± 0.19 %	Nickel (Ni)	81.1 ± 6.8 mg/kg
Cadmium (Cd)	73.7 ± 2.3 mg/kg	Potassium (K)	1.056 ± 0.049 %
Cerium (Ce)	54.6 ± 2.2 mg/kg	Rubidium (Rb)	51.0 ± 1.5 mg/kg
Chlorine (Cl)	4543 ± 47 mg/kg	Sodium (Na)	4240 ± 60 mg/kg
Cobalt (Co)	17.93 ± 0.68 mg/kg	Strontium (Sr)	215 ± 17 mg/kg
Chromium (Cr)	402 ± 13 mg/kg	Sulfur (S)	5.51 ± 0.36 %
Copper (Cu)	610 ± 70 mg/kg	Titanium (Ti)	4021 ± 86 mg/kg
Iron (Fe)	3.92 ± 0.21 %	Vanadium (V)	127 ± 11 mg/kg
		Zinc (Zn)	4800 ± 270 mg/kg

NIST-1649b Urban Dust 2 g

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), nitro-substituted PAHs (nitro-PAHs), polychlorinated biphenyl (PCB) congeners, chlorinated pesticides, and inorganic constituents in atmospheric particulate material and similar matrices.

Ash, particulate and dust

Code	Product	Unit
Certified Values		
Element	Mass fraction mg/kg	
4H-Cyclopenta[def]phenanthrene	0.255 ± 0.023	
Pyrene	4.98 ± 0.14	
1-Methylfluoranthene	0.114 ± 0.015	
3-Methylfluoranthene	0.328 ± 0.031	
1-Methylpyrene	0.363 ± 0.005	
Retene	0.238 ± 0.011	
Benzo[c]phenanthrene	0.460 ± 0.013	
Chrysene	3.045 ± 0.028	
Triphenylene	1.324 ± 0.004	
Benzo[b]fluoranthene	6.18 ± 0.18	
Benzo[j]fluoranthene	1.725 ± 0.043	
Benzo[k]fluoranthene	1.702 ± 0.049	
Benzo[e]pyrene	2.974 ± 0.053	
Perylene	0.614 ± 0.011	
Indeno[1,2,3-cd]pyrene	2.89 ± 0.16	
Dibenz[a,j]anthracene	0.305 ± 0.027	
Benzo[b]chrysene	0.339 ± 0.043	
Picene	0.399 ± 0.022	
Dibenzo[b,k]fluoranthene	0.670 ± 0.053	
Dibenzo[a,e]pyrene	0.567 ± 0.025	

Ash, particulate and dust

NIST-1650b Diesel Particulate Matter 200 mg

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs) and nitro-substituted PAHs (nitro-PAHs) in diesel particulate matter and similar matrices.

Certified Values			
Element	Mass Fraction (mg/kg)	Element	Mass Fraction (mg/kg)
Phenanthrene	65.6 ± 3.6	Benzo[b]fluoranthene	6.77 ± 0.92
1-Methylphenanthrene	32.1 ± 1.4	Benzo[j]fluoranthene	3.24 ± 0.50
2-Methylphenanthrene	72.3 ± 1.2	Benzo[k]fluoranthene	2.30 ± 0.18
3-Methylphenanthrene	56.7 ± 1.9	Benzo[e]pyrene	6.36 ± 0.37
9-Methylphenanthrene	36.6 ± 1.6	Benzo[a]pyrene	1.25 ± 0.12
Fluoranthene	48.1 ± 1.1	Perylene	0.167 ± 0.019
Pyrene	44.1 ± 1.2	Indeno[1,2,3-cd]pyrene	4.48 ± 0.21
Benzo[ghi]fluoranthene	11.1 ± 0.7	Benzo[ghi]perylene	6.04 ± 0.30
Benzo[c]phenanthrene	2.65 ± 0.24	Dibenz[a,c]anthracene	0.439 ± 0.048
Benz[a]anthracene	6.45 ± 0.39	Dibenz[a,h]anthracene	0.365 ± 0.082
Chrysene	13.4 ± 0.6	Dibenz[a,j]anthracene	0.387 ± 0.068
Triphenylene	9.49 ± 0.63	Benzo[b]chrysene	0.301 ± 0.019
Benzo[a]fluoranthene	0.384 ± 0.023	Picene	0.506 ± 0.058

NIST-1975 Diesel Particulate Matter 4 x 1.2 mL

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs) and nitro-substituted PAHs in diesel particulate extracts and similar matrices.

Certified Values			
Element	Mass fraction mg/kg	Element	Mass fraction mg/kg

Ash, particulate and dust

Code	Product	Unit
	Phenanthrene	8.00 ± 0.20
	Fluoranthene	13.5 ± 0.6
	Benz[a]anthracene	0.092 ± 0.015
	Chrysene	1.95 ± 0.07
	Triphenylene	2.38 ± 0.10
	Benzo[b]fluoranthene	3.20 ± 0.10
	Benzo[k]fluoranthene	0.174 ± 0.050
	Benzo[e]pyrene	0.268 ± 0.023

NIST-2583 Trace Elements in Indoor Dust (Nominal Mass Fraction of 90 mg/kg Lead) 8 g

It is intended for use in the evaluation of methods and for the calibration of apparatus used to determine lead and other trace elements in dust.

Certified Values

Element	Mass fraction mg/kg
Arsenic (As)	7.0 ± 1.6
Cadmium (Cd)	7.3 ± 3.7
Chromium (Cr)	80 ± 22
Lead (Pb)	85.9 ± 7.2
Mercury (Hg)	1.56 ± 0.19

NIST-2584 Trace Elements in Indoor Dust (Nominal Mass Fraction of 1 % Lead) 8 g

It is intended for use in the evaluation of methods and for the calibration of apparatus used to determine lead and other trace elements in dust.

Certified Values

Element	Mass fraction mg/kg
Arsenic (As)	17.4 ± 4.2
Cadmium (Cd)	10.0 ± 1.1
Chromium (Cr)	135.0 ± 9.1
Lead (Pb)	9761 ± 67
Mercury (Hg)	5.20 ± 0.24

NIST-2585 Organic Contaminants in House Dust 10 g

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, chlorinated pesticides, polybrominated diphenyl ether (PBDE) congeners, synthetic musks, perfluorinated alkyl acids (PFAAs), hexabromocyclododecane (HBCDD) isomers, and phosphorous flame retardants in house dust and similar matrices.

Certified Values

Element	Mass Fraction (dry-mass basis) (µg/kg)
Naphthalene	266 ± 8
Dibenzothiophene	109 ± 8
Phenanthrene	1920 ± 20
Anthracene	96.0 ± 5.2
4H-cyclopenta[def] phenanthrene	117 ± 10

Ash, particulate and dust

Code	Product	Unit
	3-Methylphenanthrene	293 ± 36
	2-Methylphenathrene	352 ± 40
	9-Methylphenanthrene	205 ± 16
	1-Methylphenanthrene	197 ± 29
	Fluoranthene	4380 ± 100
	Pyrene	3290 ± 30
	Benzo[ghi] fluoranthene	317 ± 11
	Benzo[c] phenanthrene	288 ± 10
	Benz[a] anthracene	1160 ± 54
	Chrysene	2260 ± 60
	Triphenylene	589 ± 17
	Benzo[b] fluoranthene	2700 ± 90
	Benzo[j] fluoranthene	1320 ± 110
	Benzo[k] fluoranthene	1330 ± 70
	Benzo[a] fluoranthene	74.5 ± 8.1
	Benzo[e] pyrene	2160 ± 80
	Benzo[a] pyrene	1140 ± 10
	Perylene	387 ± 23
	Benzo[ghi]perylene	2280 ± 40
	Indeno[1,2,3-cd]pyrene	2080 ± 100
	Dibenz[a,j]anthracene	267 ± 9
	Dibenz[a,c]anthracene	183 ± 25
	Dibenz[a,h]anthracene	301 ± 50
	Benzo[b]chrysene	182 ± 6
	Picene	413 ± 15
	Coronene	603 ± 38
	Dibenzo[b,k]fluoranthene	596 ± 22
	Dibenzo[a,e]pyrene	477 ± 67

Ash, particulate and dust

NIST-2786

Fine Atmospheric Particulate Matter
(Mean Particle Diameter < 4 µm)

100 mg to 140 mg

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), nitro-substituted PAHs (nitro-PAHs), polybrominated diphenyl ether (PBDE) congeners, hexabromocyclododecane (HBCD) isomers, sugars, polychlorinated dibenzo-p-dioxin (PCDD) and dibenzofuran (PCDF) congeners, inorganic constituents, and particle-size characteristics in atmospheric particulate material and similar matrices.

Certified Values

Element	Mass Fraction (mg/kg)
Fluorene	0.195 ± 0.014
Fluoranthene	10.28 ± 0.36
Pyrene	8.01 ± 0.22
Benzo[ghi]fluoranthene	3.158 ± 0.098
Benzo[c]phenanthrene	1.597 ± 0.052
Benz[a]anthracene	4.82 ± 0.17
Chrysene	6.82 ± 0.53

Ash, particulate and dust

Ash, particulate and dust

Code	Product	Unit
	Triphenylene	1.794 ± 0.041
	Benzo[b]fluoranthene	7.51 ± 0.36
	Benzo[j]fluoranthene	4.37 ± 0.32
	Benzo[k]fluoranthene	3.48 ± 0.32
	Benzo[a]fluoranthene	0.898 ± 0.037
	Benzo[e]pyrene	4.77 ± 0.28
	Benzo[a]pyrene	3.70 ± 0.13
	Perylene	0.769 ± 0.020
	Benzo[ghi]perylene	5.60 ± 0.41
	Indeno[1,2,3-cd]pyrene	4.87 ± 0.36
	Dibenz[a,c]anthracene	0.509 ± 0.052
	Dibenz[a,j]anthracene	0.610 ± 0.015
	Dibenz[a,h]anthracene	0.717 ± 0.029
	Benzo[b]chrysene	0.662 ± 0.022
	Picene	1.242 ± 0.031
	Coronene	2.156 ± 0.087
	Dibenzo[b,k]fluoranthene	1.013 ± 0.082
	Dibenzo[a,e]pyrene	0.812 ± 0.081

NIST-2787

Fine Atmospheric Particulate Matter
(Mean Particle Diameter < 10 µm)

100 mg to 140 mg

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs), nitro-substituted PAHs (nitro-PAHs), polybrominated diphenyl ether (PBDE) congeners, hexabromocyclododecane (HBCD) isomers, sugars, polychlorinated dibenzo-p-dioxin (PCDD) and dibenzofuran (PCDF) congeners, inorganic constituents, and particle-size characteristics in atmospheric particulate material and similar matrices.

Certified Values

Element	Mass Fraction (mg/kg)
Fluorene	0.150 ± 0.010
Fluoranthene	12.28 ± 0.21
Pyrene	9.60 ± 0.39
Retene	4.23 ± 0.26
Benzo[ghi]fluoranthene	3.44 ± 0.20
Chrysene	7.74 ± 0.76
Triphenylene	1.724 ± 0.016
Benzo[b]fluoranthene	6.56 ± 0.27
Benzo[j]fluoranthene	3.77 ± 0.25
Benzo[k]fluoranthene	2.94 ± 0.11
Benzo[a]fluoranthene	0.736 ± 0.017
Benzo[e]pyrene	4.05 ± 0.22
Benzo[a]pyrene	3.228 ± 0.074
Perylene	0.737 ± 0.012
Benzo[ghi]perylene	4.99 ± 0.14
Dibenz[a,c]anthracene	0.418 ± 0.067
Dibenz[a,j]anthracene	0.502 ± 0.012

Ash, particulate and dust

Code	Product	Unit
	Benzo[b]chrysene	0.581 ± 0.030
	Picene	1.074 ± 0.047
	Coronene	1.70 ± 0.15
	Dibenzo[b,k]fluoranthene	0.823 ± 0.027
	Dibenzo[a,e]pyrene	0.567 ± 0.034

NIST-2975

Diesel Particulate Matter (Industrial Forklift)

1 g

It is intended for use in evaluating analytical methods for the determination of selected polycyclic aromatic hydrocarbons (PAHs) and nitro-substituted PAHs (nitro-PAHs) in diesel particulate matter and similar matrices.

Certified Values

Element	Mass Fraction (mg/kg)
2-Methylphenanthrene	2.22 ± 0.21
1-Methylphenanthrene	0.923 ± 0.057
Triphenylene	5.32 ± 0.24
Benzo[j]fluoranthene	0.819 ± 0.093
Benzo[a]fluoranthene	0.066 ± 0.007
Dibenz[a,h + a,c]anthracene	0.523 ± 0.047
Picene	0.902 ± 0.091
Dibenzo[a,e]pyrene	0.599 ± 0.024
Dibenzo[b,k]fluoranthene	2.54 ± 0.08

