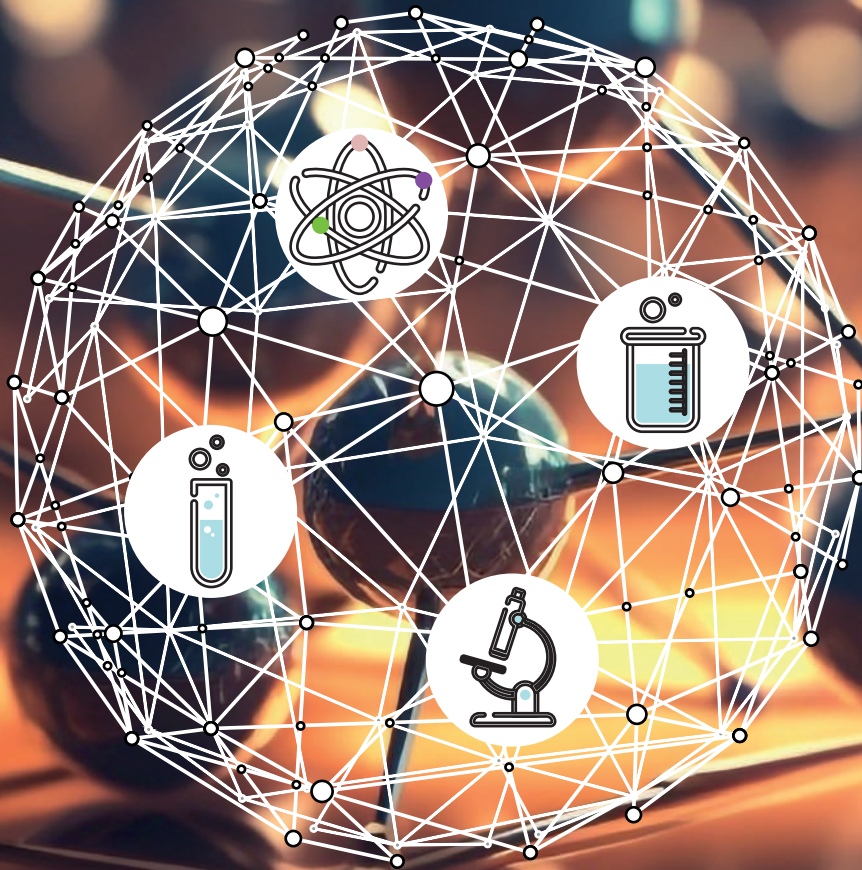


인증표준물질

Certified Reference Materials





중금속분석을 위한 시료전처리장치와 인증표준물질등 소모품 전문기업!

ODDLAB



(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**

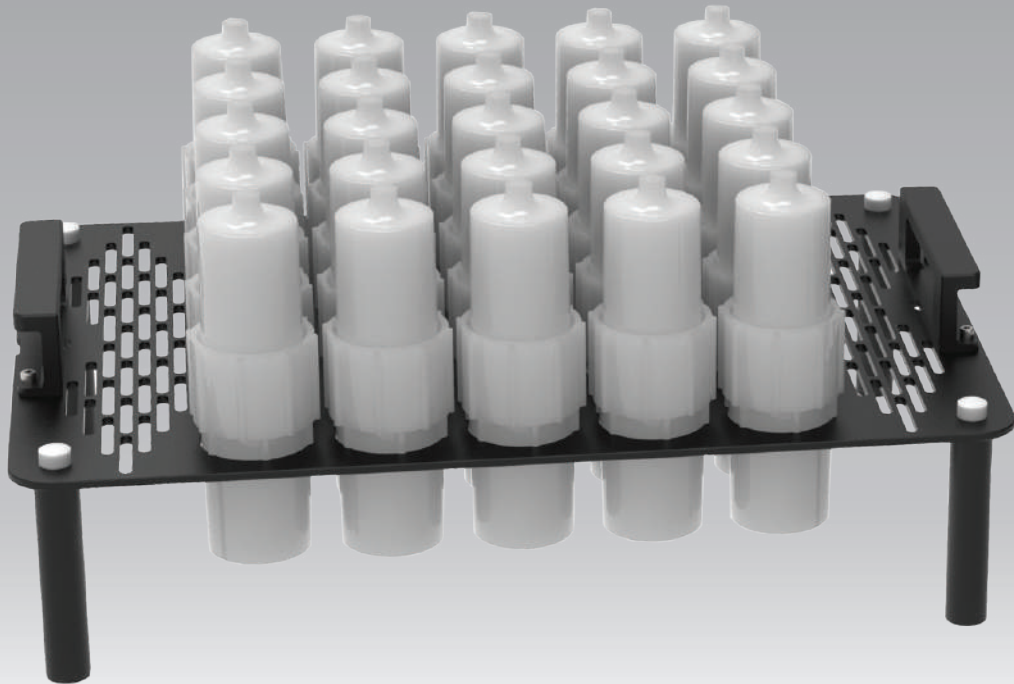
ODLAB

자동 산분해장비

ADS25



견적문의



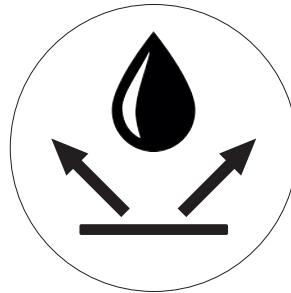
경량화 & 벤틸레이션

경량화 & 벤틸레이션 -



산순환 포집분해용기

산순환 포집분해용기 -



오염방지&내구성

오염방지&내구성 -



앱 연동 조작

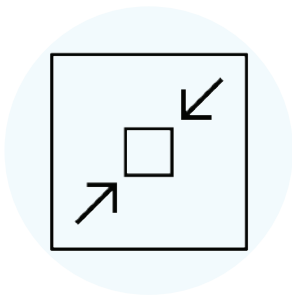
앱 연동 조작 -

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.

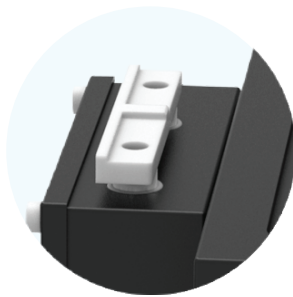
SUS 재질사용 및 테프론 특수코팅을 하여 표면이 쉽게 오염되지 않도록 제작하였습니다. 또한 상부 가열부와 하부 전자제어부는 서로 격리, 밀봉되어 열 또는 산 증기로 인하여 전자제어장치가 손상되지않도록 되어있습니다.

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

Plastics Elastomer Filter media

본 자료는 시기에 따라 제품 단종 및 수치의 변경이
있을 수 있으니 본사로 문의 부탁드립니다.

Plastics & Elastomer & Filter media

Code	Product	Unit
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BAM-P011 Polystyrene 1 g

The Certified Reference Material BAM-P011 is distributed in packaging sizes of 1 g, 2 g, 5 g and 10 g. The weight of single pellets of the polymer material is approximately 20 mg.

Certified Value

Characteristic	Molar Mass in g/mol
Number-averaged M_n	122,000
Z-averaged M_z	473,000
M at peak maximum M_p	256,000
Ratio	- no unit -
M_w/M_n	2.33

BAM-P012 Polystyrene 1 g

The Certified Reference Material BAM-P012 is distributed in packaging sizes of 1 g, 2 g, 5 g and 10 g. The weight of single pellets of the polymer material is approximately 20 mg.

Certified Value

Characteristic	Molar Mass in g/mol
Number-averaged M_n	141,000
Z-averaged M_z	555,000
M at peak maximum M_p	340,000
Ratio	- no unit -
M_w/M_n	2.43

BAM-B001 Polycyclic aromatic hydrocarbons in rubber toy 10 g

It is available as ground rubber from a commercial toy product contaminated with polycyclic aromatic hydrocarbons (PAHs).

Certified Value

Measurand	Mass fraction in mg kg ⁻¹	Measurand	Mass fraction in mg kg ⁻¹
Fluorene	1.71	Benzo[b]fluoranthene	0.57
Phenanthrene	15.4	Benzo[k]fluoranthene	0.213
Anthracene	2.9	Benzo[j]fluoranthene	0.40
Fluoranthene	4.3	Benzo[e]pyrene	1.21
Pyrene	11.4	Benzo[a]pyrene	1.41
Benz[a]anthracene	2.17	Indeno[1,2,3-cd]pyrene	0.28
Chrysene	2.08	Benzo[ghi]perylene	1.43

BAM-H010-D1 Cd, Cr, Pb, Br, (Hg) in acrylnitrile-butadiene-styrene (ABS) Disc diameter 40 mm x 1 mm

The samples are available in the form of 100 g granules in 250 mL wide-mouth vials and in the form of 1, 2 and 6 mm thick discs with a diameter of 4 cm.

Certified Value

Measurand	Mass fraction in mg kg ⁻¹	Measurand	Mass fraction in mg kg ⁻¹
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Plastics & Elastomer & Filter media

Code	Product	Unit
	Fluorene	1.71
	Phenanthrene	15.4
	Anthracene	2.9
	Fluoranthene	4.3
	Pyrene	11.4
	Benz[a]anthracene	2.17
	Chrysene	2.08
	Benzo[b]fluoranthene	0.57
	Benzo[k]fluoranthene	0.213
	Benzo[j]fluoranthene	0.40
	Benzo[e]pyrene	1.21
	Benzo[a]pyrene	1.41
	Indeno[1,2,3-cd]pyrene	0.28
	Benzo[ghi]perylene	1.43

BAM-H010-D2 Cd, Cr, Pb, Br, (Hg) in acrylnitrile-butadiene-styrene (ABS) Disc diameter 40 mm x 2 mm

The material is available in form of granulate (100 g in 250 mL glasses) and in the form of discs with a diameter of 4 cm and heights of 1, 2, or 6 mm.

Certified value

Element	Mass Fraction in µg/g	Element	Mass Fraction in µg/g
Lead	479	Cadmium	93
Bromine	240	Chromium	470

BAM-H010-D6 Cd, Cr, Pb, Br, (Hg) in acrylnitrile-butadiene-styrene (ABS) Disc diameter 40 mm x 6 mm

The material is available in form of granulate (100 g in 250 mL glasses) and in the form of discs with a diameter of 4 cm and heights of 1, 2, or 6 mm.

Certified value

Element	Mass Fraction in µg/g	Element	Mass Fraction in µg/g
Lead	479	Cadmium	93
Bromine	240	Chromium	470

BAM-H010 granular Cd, Cr, Pb, Br, (Hg) in acrylnitrile-butadiene-styrene (ABS) 250 ml glass bottle with 100 g granular material

The material is available in form of granulate (100 g in 250 mL glasses) and in the form of discs with a diameter of 4 cm and heights of 1, 2, or 6 mm.

Certified value

Element	Mass Fraction in µg/g	Element	Mass Fraction in µg/g
Lead	479	Cadmium	93
Bromine	240	Chromium	470

BCR-545 WELDING DUST LOADED ON FILTER (Cr VI, Cr) 14 g

The material consists of a glassfibre filter loaded with welding dust. Additional information on the preparation and the certified values is given in the certification report.

Certified value

Element	Certified value [g/kg]	Element	Certified value [g/kg]
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Plastics & Elastomer & Filter media

Code	Product	Unit
	Cr(VI)	40.2
	total leachable Cr	39.5

ERM-EC590 POLYETHYLENE (Br, BDE and BB in LDPE) 20 g

The sample consists of 20 g polyethylene granulate that has been spiked with technical mixtures of Penta-BDE, Octa-BDE, Deca-BDE and Deca-BB as well as Sb2O3. No other additives are present.

Certified Value

	Certified value [g/kg]
Br	2.13
2,2',4,4'-TetraBDE (BDE-47)	0.23
2,2',4,4',5-PentaBDE (BDE-99)	0.302
2,2',4,4',6-PentaBDE (BDE-100)	0.063
2,2',4,4',5,5'-HexaBDE (BDE-153)	0.047
2,2',4,4',5,6'-HexaBDE (BDE-154)	0.0257
2,2',3,4,4',5,6'-HeptaBDE (BDE-183)	0.132
2,2',3,3',4,4',6,6'-OctaBDE + 2,2',3,4,4',5,6,6'-OctaBDE (BDE-197+204)	0.076
DecaBDE (BDE-209)	0.65
DecaBB (BB-209)	0.63

ERM-EC591 POLYPROPYLENE (Br, BDE and BB in PP) 20 g

The sample consists of 20 g polypropylene granulate that has been spiked with technical mixtures of Penta-BDE, Octa-BDE, Deca-BDE and Deca-BB as well as Sb2O3. In addition, Ca-stearate, Irgafos 1638, Irganox 1010 have been added.

Certified Value

	Certified value [g/kg]
Br	2.08
2,4,4'-TriBDE (BDE-28)	0.0025
2,2',4,4'-TetraBDE (BDE-47)	0.245
2,2',4,4',5-PentaBDE (BDE-99)	0.32
2,2',4,4',6-PentaBDE (BDE-100)	0.066
2,2',4,4',5,5'-HexaBDE (BDE-153)	0.044
2,2',4,4',5,6'-HexaBDE (BDE-154)	0.026
2,2',3,4,4',5,6'-HeptaBDE (BDE-183)	0.087
2,2',3,3',4,4',6,6'-OctaBDE + 2,2',3,4,4',5,6,6'-OctaBDE (BDE-197+204)	0.052
DecaBDE (BDE-209)	0.78
DecaBB (BB-209)	0.74

ERM-EC680m POLYPROPYLENE (Br, BDE and BB in PP) 20 g

The sample consists of approximately 100 g granulate of low-density polyethylene (LDPE) spiked with various pigments to obtain the desired element contents.

Plastics & Elastomer & Filter media

Code	Product	Unit
	Certified value	
	Element	Certified value [mg/kg]
	As	4.7
	Br	181
	Cd	20.8
	Cr	9.6
	Hg	2.56
	Element	Certified value [mg/kg]
	Pb	11.3
	S	86
	Sb	9.6
	Sn	20.7
	Zn	194

ERM-EC681m **POLYETHYLENE (elements, high level)** 100 g

The sample consists of approximately 100 g granulate of low-density polyethylene (LDPE) spiked with various pigments to obtain the desired element contents.

Certified value			
Element	Certified value	Element	Certified value
As	17.0 mg/kg	Pb	69.7 mg/kg
Br	1.43 g/kg	S	0.64 g/kg
Cd	146 mg/kg	Sb	86 mg/kg
Cl	0.38 g/kg	Sn	99 mg/kg
Cr	45.1 mg/kg	Zn	1.17 g/kg
Hg	9.9 mg		

NIST-1961 **Nominal 30-µm Diameter Polystyrene Spheres** 5 mL

It is intended for use as a primary particle size reference standard for the calibration of particle measuring instruments including flow-through counters and optical and electron microscopes.

Certified value	
Number Average Diameter µm	29.64

NIST-1964 **Polystyrene Spheres (Nominal Diameter 60 nm)** 5 mL

It is intended for the calibration/validation of particle sizing instruments, including electron microscopes, differential mobility analyzers, scanning surface inspection systems, and other light scattering instruments.

Certified value	
Modal Diameter	60.39 nm ± 0.63 nm

NIST-705a **Polystyrene Spheres (Nominal Diameter 60 nm)** 5 mL

It is intended for the calibration of instruments used in polymer science and technology for the determination of molecular weight and for use in checking dynamic thermal analytical instruments.

Certified value			
Property	Certified value	Standard deviation of the mean	Degrees of freedom

Plastics & Elastomer & Filter media

Code	Product	Certified value	Standard deviation of the mean	Unit
	Number-average molecular weight, M_n , g/mol (Measured by membrane osmometry)	170,900 ^a	580	Degrees of freedom 12
	Weight-average molecular weight, M_w g/mol :			
	Measured by light scattering	179,300 ^b	740	9
	Measured by sedimentation equilibrium	189,800 ^b	2100	22
	Limiting viscosity number, mL/g :			
	at 25 °C in benzene	74.3 ^b	0.18	5
	at 25 °C in benzene	74.5 ^c	0.23	13
	at 25 °C in cyclohexane	35.4 ^b	0.24	6
	Ratios of molecular weight (Based on fractionation)	$M_z : M_w : M_n = 1.12 : 1.07 : 1$		

NIST-706a **Polystyrene (Broad Molecular Mass Distribution)** 18 g

It is intended primarily for use in calibration and performance evaluation of instruments used to determine the molar mass and molar mass distribution.

Certified Value

Property Certified value [g/kg]
 Mass-Average Molar Mass (M_w) 2.85×10^5 g/mol \pm 0.23×10^5 g/mol

NIST-1476a **Branched Polyethylene Resin** 12 g

The certified values delivered by this Standard Reference Material (SRM) are intended for use in calibration and performance evaluation of instruments used in polymer technology and science for the determination of the Melt Flow Rate using ASTM D1238-13.

This material is certified for Melt Flow Rate using ASTM D1238-13 condition 190/2.16 Under this condition the melt flow rate is **1.23 g/10 min** with a standard deviation of **0.036 g/10 min** and with 29 degrees of freedom.

The certified measurement uncertainty is found to be **0.110 g/10 min** and is expressed as a combined expanded uncertainty with a coverage factor $k = 2$, calculated in accordance with ISO Guides .

Type A and Type B contributions to the expanded uncertainty include the standard deviation of the Melt Flow measurement, instrument-to-instrument variation as discussed in ASTM D1238-13, operator dependence of the measurement, and temperature gradients in the apparatus.

These values are traceable to the International System of Units (SI) unit for mass.

NIST-1478 **Polystyrene (Narrow Molecular Weight Distribution)** 2 g

It is intended for the calibration of instruments used in polymer technology and science for the determination of molecular weight and molecular weight distribution.

Plastics & Elastomer & Filter media

Code	Product	Unit
	Property	Certified value
		Standard deviation of the mean
		Degrees of freedom
	Number-average molecular weight, M_n g/mol	35,800
		0.4
		19
	Weight-average molecular weight, M_w g/mol	37,400
		0.7
		7
	Limiting viscosity number, mL/g at 25 °C in toluene	23.06
		0.07
		33

Plastics & Elastomer & Filter media

NIST-1479 Polystyrene (Narrow Molecular Weight Distribution) 2 g

It is intended primarily for the calibration and evaluation of instruments used in polymer technology and science for the determination of molecular weight of polystyrene.

Certified value

Weight-Average molecular weight $M_w = 1,050,000 \text{ g}\cdot\text{mol}^{-1}$

NIST-98b Plastic Clay 60 g

It is intended for use in the determination of constination of constituent elements in clay or material of similar matrix.

Certified value

Elements	Contentm Wt %	Elements	Contentm Wt %
Aluminum	14.30 ± 0.20	Manganese	0.0116 ± 0.0005
Calcium	0.0759 ± 0.0035	Potassium	2.81 ± 0.07
Chromium	0.0119 ± 0.0005	Silicon	26.65 ± 0.16
Iron	1.18 ± 0.01	Sodium	0.1496 ± 0.0066
Lithium	0.0215 ± 0.0003	Strontium	0.0189 ± 0.0008
Magnesium	0.358 ± 0.012	Titanium	0.809 ± 0.012

NIST-1484a Polyethylene, Linear 0.3 g

It is intended for the calibration and evaluation of instruments used in polymer technology and science for the determination of molecular weight and molecular weight distribution, and for use as a characterize d sample for measurements of other physical properties of linear polyethylene.

Property	Value	Sample standard deviation of value, %	Number of degrees of freedom	Expected limit of systematic error, %
Number-average molecular weight, M_n , g/mol ^a	100,500	3.7	34	4 ^b
Weight-average molecular weight, M_w , g/mol ^c	119,600	1.8	5	11 ^d

Plastics & Elastomer & Filter media

Code	Product	Unit
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Limiting viscosity number, ml/g:				
at 130°C in 1,2,4-trichlorobenzene	197.9	0.30	22	1
at 130°C in 1-chloronaphthalene	169.4	0.35	22	1

NIST-1496 Unpigmented Polyethylene Gas Pipe Resin 0.9 kg

It is intended for use in calibration and performance evaluation of instruments used in polymer technology and science for the determination of the Melt Flow Rate using ASTM Method D1238-82 and for determination of intrinsic viscosity.

Certified Value

Property	value
Melt flow rate, g/10 min	0.26
Intrinsic Viscosity, ml/g	210

NIST-2859 Polystyrene (Broad Molecular Mass Distribution) 25 g

It is intended primarily for use in validation of chemical and instrumental methods of analysis of polyvinyl chloride (PVC) and materials of similar matrix for restricted, additive and tramp element contents.

Certified Value

Property	Mass Fraction (%)	Property	Mass Fraction (%)
Cadmium (Cd)	0.00734	Lead (Pb)	0.07982
Calcium (Ca)	3.603	Mercury (Hg)	0.07695
Chromium (Cr)	0.0716	Sulfur (S)	0.1087
Iron (Fe)	0.00635	Tin (Sn)	0.1362

JSAC-0641-0642 Polystyrene (Narrow Molecular Weight Distribution) 2 g

本標準物質は、プラスチック成型品等の臭素系難燃剤として用いられるポリ臭化ジフェニルエーテル(PBDEs)の臭素数 4~10 の各同族体及び全臭素(全 Br) の含有率を認証したポリエステル樹脂である。表 1 にその含有率の認証値を示す。

ポリ臭化ジフェニルエーテル成分の化学分析にあたり、本標準物質も併行して分析し、得られた分析値を認証値と比較してその妥当性を判断するときなどに有用である。

本標準物質は、ポリ臭化ジフェニルエーテル成分を添加して調製したポリエステル樹脂を粉砕して 0.15 mm 以下の粉末状にしたものであり、PBDEs 成分の含有率が異なる 2 本を 1 セットとして、各 25 g を褐色ガラス瓶に入れ、それを紙製の箱に収納してある。

本 표준 물질은 플라스틱 성형등의 브롬계 난연제로서 사용되는 폴리브롬화디페닐에테르(PBDEs)의 브롬수 4~10의 각 동족체 및 전체 브롬(전 Br)의 함유율을 인증한 폴리에스테르 수지로 있다. 표 1은 함량의 인증 값을 보여줍니다. 폴리브롬화디페닐에테르 성분의 화학 분석에 있어서, 본 표준물질도 병행하여 분석하고, 얻어진 분석값을 인증값과 비교하여 그 타당성을 판단할 때 등에 유용하다. 본 표준물질은, 폴리브롬화디페닐에테르 성분을 첨가하여 조제한 폴리에스테르 수지를 분쇄하여 0.15mm 이하의 분말상으로 한 것으로, PBDEs 성분의 함유율이 다른 2개를 1세트로 하여 각각 25 g를 갈색 유리 병에 넣고 종이 상자에 보관합니다.

