


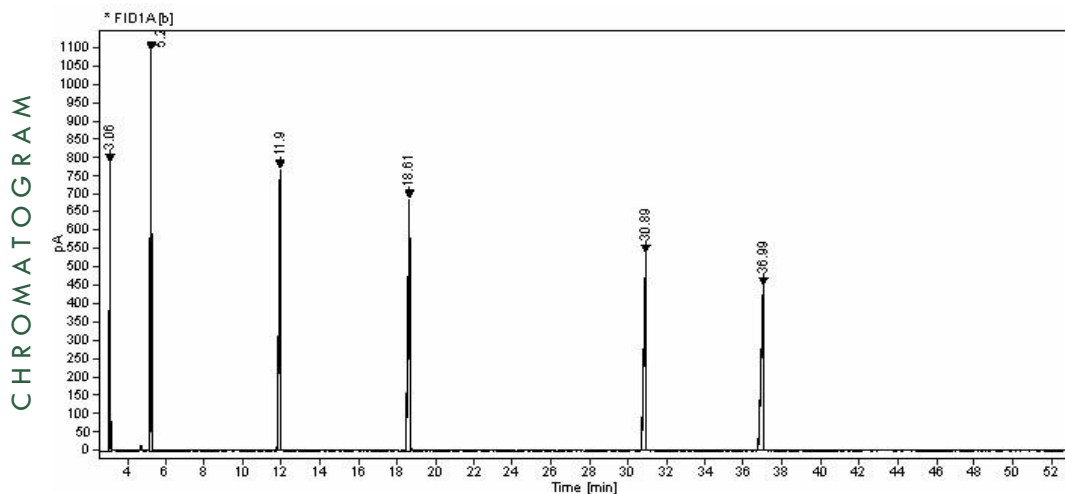
Reference Material

This certificate is designed in accordance with ISO 17034 and ISO Guide 31. This reference material (RM) was designed, produced and verified in accordance with ISO/IEC 17025, ISO 17034 and a registered quality management system ISO 9001.

Product Name Internal Standards Mix 33 2000 µg/mL in Toluene	Product Code DRE-YA08273300TO	Lot Number G1058891TO	Format Multicomponent Solution	Expiry Date 20 Feb 2022	Storage Temp 20°C ± 4°C
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Compound Name	CERTIFIED			CAS	Lot Number	Chemical Purity (%)	Isotopic Purity (%)	Combined Purity (%)	Amount (mg)	RT (min)
	Concentration (µg/mL)	Expanded Uncertainty U (µg/mL)								
1,4-Dichlorobenzene D4	1999.97	100.00		3855-82-1	R1052234	99.8	99.5	99.2	161.288	3.06
Naphthalene D8	1999.98	100.00		1146-65-2	G989511	98.3	99.3	97.5	164.101	5.20
Acenaphthene D10	2000.06	100.01		15067-26-2	G145601	99.6	98.3	97.9	163.437	11.90
Phenanthrene D10	2000.01	100.01		1517-22-2	G1001184	99.1	98.8	97.8	163.600	18.61
Chrysene D12	1999.97	120.00		1719-03-5	1031195	99.3	98.4	97.6	163.932	30.89
Perylene D12	1999.97	100.00		1520-96-3	1009255	99.9	99.5	99.4	160.963	36.99

The producer certifies that this reference material meets the specification stated in this certificate until the expiry date, provided it is stored unopened at the recommended temperature herein. Product warranties for this reference material are set out in the terms and conditions of purchase.	CERTIFIED BY	CERTIFIED ON		RM Release
	D. Schmid	20 Feb 2020		



Instrument
GC/FID

Detection
FID

Column
Optima-5MS, 0.25 μ m,
0.25 mm

Method Details
Temp: 120°C / 5 min \rightarrow 320°C /
8 min, Gradient: 5°C/min

Inj.-Vol.
1.0 μ L

Flow
1 mL/min

Method of Preparation

The certified value is based on gravimetric and volumetric preparation of this RM. This RM has been confirmed by the appropriate analytical techniques.

Batch Information

Solvent: Toluene, Lot No. 18099111, 80.00 mL.

Intended Use

This RM is intended for use in a laboratory as a calibration and quality control standard or in method development for analytical techniques.

Safety

Proper precautions should be observed while handling. See Safety Data Sheet.

Uncertainty

The certified value(s) and uncertainty(ies) are determined in accordance with ISO 17034 with a 95% confidence level ($k=2$). Uncertainty is based on the Total Combined Uncertainty, including uncertainties of preparation, purity of neat materials, homogeneity and stability testing. Stability values are based on real evidence opposed to simulation.

Traceability

The balances used for gravimetric measurements are calibrated with weights traceable to the national standards (DKD). The calibration of the balances is verified daily internally and annually by an external accredited calibration service. Only Class A glassware is used for volumetric measurements.

Homogeneity

Random replicate samples of the final packaged RM have been analysed to prove homogeneity consistent with ISO 17034.

Storage

The RM should be stored in the original sealed bottle at the indicated temperature.

Instructions for Use

The RM should be used shortly after opening to avoid concentration changes due to evaporation. It is recommended to use 1 mL as the minimum sample size and if less material is used, to increase the certified uncertainty by a factor of two for half sample and four for a quarter of sample. If the RM was in a sealed ampoule and storage after opening is necessary, it should be transferred to an amber vial with minimum head space and a Teflon-lined silicon septum. Visit the support section of our website lgcstandards.com for a series of Dr. Ehrenstorfer Tech Tip videos and frequently asked questions.