



Certificate of Analysis

CERTIFIED REFERENCE MATERIAL Organic substance

Ref No: CM 52706

Lot No: 1034713

Certification Date: 18.09.2024

Barcode: 41580431

Description of the Reference Material (CRM): Tetraethyl lead

CAS No: 78-00-2

Empirical formula: $C_8H_{20}Pb$

MW: 323.4

Certified Purity/ Uncertainty: 99.03 % (g/g) +/- 0.37 % (g/g)

Water content: 1.104 mg/g (determined by Karl-Fischer titration)

Expiry date: 18.10.2026

Method of certification: CRM's calibration procedure (WQP 5.15.1/22)

The following methods of analysis are used to determine purity (acc. to ISO 33407:2024): Characterization using indirect methods

Purity=100% - Assay organic impurities - Water content (KF) - Assay inorganic impurities

Concept of Certification and traceability statement:

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02.

Metrological traceability is established through in-house validated method.

The measurement results are traceable to SI.

Intended use:

For Laboratory Use Only

This CRM is intended for:

Calibration of TLC, GC/FID, GC/TCD, GC/ECD, GC/MS, GC/MS/MS, LC/UV, LC/MS and LC/MS/MS

Validation of analytical methods

Preparation of "working reference samples"

Detection limit and linearity studies

This statement is not intended to restrict the use for other purposes.

Instructions for the correct use of this reference material:

This CRM can be used directly or can be diluted in an appropriate solvent. Only a clean glassware should be used.

Stability and storage:

This CRM is with a guaranteed purity +/- 2% deviation prior to the expiration date. Even if the product is stable at normal laboratory conditions, in order to increase its stability, we highly recommend it: Store in a refrigerator at temperatures between 2°C to 8°C .

Hazardous situation:

The normal laboratory safety precautions should be observed when working with this CRM. Further details for the handling of this chemical are available as safety data sheet.

Level of homogeneity

The material was tested for homogeneity by analyzing randomly selected samples according to an in-house procedure. The level of homogeneity proved satisfactory for a sample volume of min. 2 mg. The uncertainty incorporates the sample standard deviation combined with the uncertainty calculated from homogeneity and stability studies.

This certificate relates solely to the lot number given above.

All processes (including generating of this certificate) are completely controlled by the specialized Computer-Aided-Manufacturing (CAM) software.

This Certified Reference Material was produced under a quality management system that is:

- Registered to ISO 9001 Quality Management System (Lloyd's Register Quality Assurance Ltd Cert No 0039638)
- Accredited according to ISO/IEC 17025
- Accredited according to ISO 17034

This document is designed and the certified value and uncertainty are determined in accordance with ISO 33401, ISO 33405, and Eurachem / CITAC Guides

Signed by: , Manufacturing Manager



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Analytical Data:

GC Conditions:

Column	Agilent CP9105 J&W VF-624ms 60m, 0.32mm, 1.80µm	Oven	Temperature	Hold
Flow rate	1.6 ml/min	Initial	70°C	0
Injector	220 °C	20°C/min	140°C	0
Injection volume	1µl split	10°C/min	220°C	5
Carrier gas	He, constant flow			

MS Conditions:

Transfer line	230°C	Ionization mode	EI
MS Source	230°C	Mode	Scan
MS Quad	150°C		

Area Percent Report

Data Path : C:\DATA\2024\09.2024\
Data File : 5155_41580431-s2.D
Acq On : 17 Sep 2024 12:24
Operator : MD
Sample : 5155_41580431-s2
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

Method : C:\METHODS\Quant\1040351.M
Title :

Signal : TIC: 5155_41580431-s2.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	7.272	794	810	822	M4	33813	774437	0.10%	0.102%
2	9.542	1415	1426	1432	M9	9405	200842	0.03%	0.026%
3	9.651	1438	1455	1472	M4	48538	1258036	0.17%	0.166%
4	9.923	1519	1529	1540	M5	15303	342462	0.05%	0.045%
5	10.054	1553	1564	1577	M6	16633	410941	0.05%	0.054%
6	11.344	1904	1914	1924	M6	7062	139679	0.02%	0.018%
7	11.484	1927	1952	1995	M3	22689788	751378593	100.00%	99.130%
8	12.092	2107	2117	2126	M3	10310	236566	0.03%	0.031%
9	13.891	2583	2604	2621	M4	90558	2799161	0.37%	0.369%
10	14.008	2624	2636	2653	M4	14848	435503	0.06%	0.057%

Sum of corrected areas: 757976220

1040351.M Tue Sep 17 13:39:57 2024

