

CERTIFIED REFERENCE MATERIAL Organic substance

Ref No: SB318.1000

Lot No: 781216

Certification Date: 27.10.2021

Barcode: 41363959

Description of the Reference Material (CRM): Tetrachloromethane

CAS No: 56-23-5

Empirical formula: CCl₄

MW: 153.823

Certified Purity/ Uncertainty: 99.6 +/- 0.1 %

Water content: 0.931 mg/g (determined by Karl-Fischer titration)

Storage Conditions: Store in a refrigerator at temperatures between 2°C to 8°C

Expiry date: 27.11.2023

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

The following methods of analysis are used to determine purity: GC/MS

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	50°C	0
Injector	200 °C	5°C/min	100°C	2
Injection volume	1 µl split	20°C/min	160°C	1
Carrier gas	He, constant flow			

MS Conditions:

Transfer line	180°C	Ionization mode	EI
MS Source	230°C	Mode	Scan
MS Quad	150°C		

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



CPAchem Ltd. is accredited to
ISO 17034 (Cert No AR-1835) and ISO/IEC 17025 (Cert No AT-1836)



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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. Stability is guaranteed, provided that the material is kept in its original packaging, tightly closed stored, as written in the section: Storage Conditions.

Product should be used shortly after opening to avoid concentration changes due to evaporation. Warranty does not apply to ampoules stored after opening.

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 – Testing (ANAB Cert No AT-1836)
- Accredited according to ISO 17034 - Reference Material Producer (ANAB Cert No AR-1835)

This document is designed and the certified value and uncertainty are determined in accordance with ISO Guide 31, ISO Guide 35, and Eurachem / CITAC Guides

Names of certifying officers:

Laboratory:  Margarita Dimitrova

Manager:  Krassimira Taralova

End

Area Percent Report

Data Path : C:\DATA\2020\03.2020\
Data File : Tetrachloeomethane-41363959-s3.D
Acq On : 1 Apr 2020 12:21
Operator : MD
Sample : Tetrachloeomethane-41363959-s3
Misc :
ALS Vial : 23 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

Method : C:\METHODS\Quant\689535.M
Title :

Signal : TIC: Tetrachloeomethane-41363959-s3.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	8.972	1175	1263	1325	M	999126	41036357	100.00%	99.561%
2	10.422	1625	1645	1666	M3	5148	180879	0.44%	0.439%

Sum of corrected areas: 41217236

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