LGC | DR EHRENSTORFER™

REFERENCE MATERIAL CERTIFICATE ISO 17034

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
1,4-Dichlorobutane

Product Code
DRE-C12420500

CAS No.
110-56-5

Mol. Weight
127.01

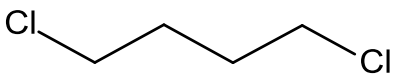
Mol. Formula
$C_4H_8Cl_2$

Lot Number
G1017558

Format
Neat

Expiry Date
20 May 2025

Storage Temp
20°C ± 4°C



CERTIFIED	CERTIFIED
Purity 99.40% (g/g)	Expanded Uncertainty (U) 0.71% (g/g)

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

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		
D. Schmid	20 May 2019	D. Schmid	RM Release

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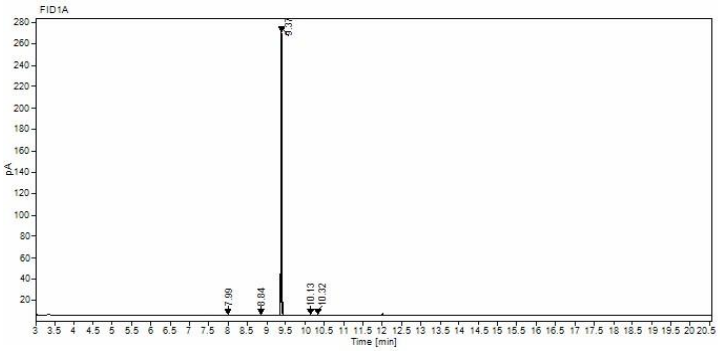
CHROMATOGRAM



Signal:	FID1A				
Nr.	RT [min]	Area [pA*s]	Height [pA]	Area%	Width [min]
1	7.99	0.3666	0.16	0.09	0.029
2	8.84	0.09072	0.06	0.02	0.018
3	9.37	415.342	264	99.83	0.024
4	10.13	0.14293	0.12	0.03	0.016
5	10.32	0.09826	0.07	0.02	0.023

Instrument
GC/FID

Detection
FID

Column
Optima-5MS, 0.25 µm, 0.25 mm

Method Details
Initial Temp: 40°C / 5 min, End Temp: 200°C / 6 min, Gradient: 15°C/min

Inj.-Vol.
0.5 µL

Flow
1 mL/min

Method of Characterisation
Purity was determined by elemental analysis

Method of Identification
EA, NMR, RT, IR, MS

Batch Information
Water Content: <0.10% (g/g) by Karl-Fischer-Titration (U(exp) = 0.04% (g/g)).

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.

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. Chromatographic methods are traceable to the International System of Units (SI).

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

Storage
The RM should be stored in the original sealed container at the indicated temperature

Instructions for use
It is recommended to use 1 mg 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 storage after opening is necessary, the RM should be tightly closed and kept from light and moisture. If the RM was in a sealed ampoule, it should be transferred to a vial with minimum head space. Visit the support section of our website lgcstandards.com for a series of Dr. Ehrenstorfer Tech Tip videos and frequently asked questions.

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LGC Labor GmbH is accreditated by DAkkS accreditation numbers D-RM-19883-01-00 & D-PL-19883-01-00 on ISO 17034:2017 & ISO/IEC 17025:2018

DAkkS Deutsche Akkreditierungsstelle D-RM-19883-01-00