

REFERENCE MATERIAL CERTIFICATE

Reference Material

This certificate is designed in accordance with ISO Guide 31. This reference material (RM) was designed, produced and verified in accordance with a registered quality management system ISO 9001. All measurements were performed according to ISO/IEC 17025 by a DAkkS accredited laboratory (D-PL-19883-01-00).

Product Name
1,2-Butanediol

Product Code
DRE-C10861290

CAS No.
584-03-2

Mol. Weight
90.12

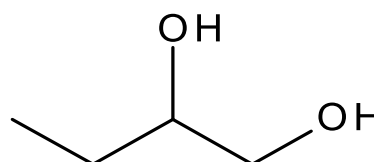
Mol. Formula
C₄H₁₀O₂

Lot Number
1014311

Format
Neat

Expiry Date
13 May 2025

Storage Temp
20°C ± 4°C



CERTIFIED

Purity
98.2% (g/g)

CERTIFIED

Expanded Uncertainty (U)
1.0% (g/g)

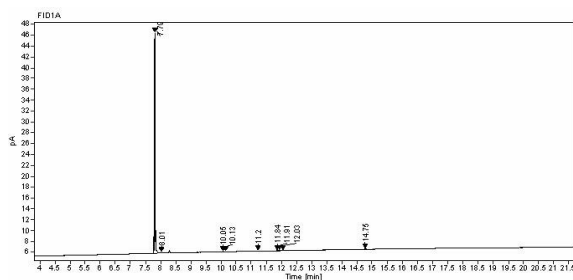
Uncertainty

The certified value(s) and uncertainty(ies) are determined in accordance with EURACHEM/CITAC Guide for "Quantifying Uncertainty in Analytical Measurement, 3rd edition", with an 95% confidence level (k=2). Uncertainty is based on the Total Combined Uncertainty, including uncertainties of characterisation 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	13 May 2019		RM Release

CHROMATOGRAM



Signal:	FID1A				
Nr.	RT [min]	Area [pA*s]	Height [pA]	Area%	Width [min]
1	7.79	72.67089	40.6	98.78	0.03
2	8.01	0.18829	0.08	0.26	0.03
3	10.05	0.06889	0.05	0.09	0.019
4	10.13	0.03563	0.03	0.05	0.016
5	11.2	0.16293	0.07	0.22	0.033
6	11.84	0.07203	0.05	0.1	0.022
7	11.91	0.10962	0.08	0.15	0.019
8	12.03	0.07934	0.05	0.11	0.024
9	14.75	0.17952	0.05	0.24	0.046

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.

1.0 µL

Flow

1 mL/min

Method of Characterisation

Purity = 100% - Assay impurities – Water content (KF) – Residual Solvents (NMR)

Method of Identification

EA, NMR, RT, IR, MS

Batch Information

Water Content: 0.4% (g/g) by Karl-Fischer-Titration (U(exp) = 0.1% (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).

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.

LGC Labor GmbH
 Bgm.-Schlosser-Straße 6A
 86199 Augsburg, Germany
 T | +49 821 906080
 F | +49 821 9060888
 E | dr.ehrenstorfer@lgcgroup.com