



Certified Reference Material

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

Product Name

(R)-Limonene 2000 µg/mL in Acetonitrile

Product Code

DRE-A14634100AL-2000

Lot Number

2-H451046AL

CAS No.

5989-27-5

Format

Solution

Mol. Weight

136.2364

Expiry

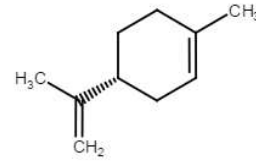
23 May 2026

Mol. Formula

C₁₀H₁₆

Storage

≤ -10 °C



CERTIFIED
Concentration
1982 µg/mL

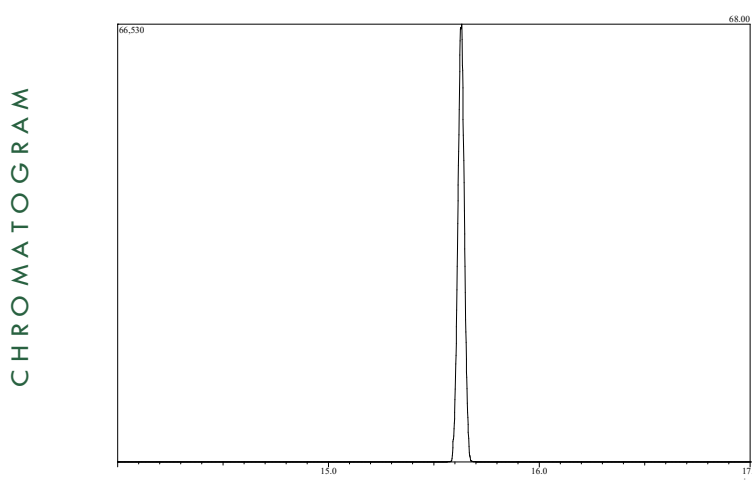
CERTIFIED
Expanded Uncertainty (U)
110 µg/mL

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 preparation, purity of neat materials, homogeneity, long-term stability testing, and transportation stability.

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 | | |
|------------------------|--------------|--|------------|
| HuiChen Stavros, Ph.D. | 1 Jun 2021 | | RM Release |



Instrument
GC/MS

Detection
MS

Column/Flow
Phenomenex ZB-624 60m x 0.25
mm, ID 1.4 um / 1 mL/min

Method Details
Rate Temp.(C) Hold time (min)

| | | |
|------|-------|-----|
| 10.0 | 35.0 | 1.0 |
| 20.0 | 70.0 | 0.0 |
| 10.0 | 120.0 | 0.0 |
| 20.0 | 200.0 | 0.0 |
| 10.0 | 240.0 | 5.0 |

Inj.-Vol
1 µL

Method of Preparation

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

Batch Information

Solvent: Acetonitrile, Lot no. 207144, 50 mL

Gravimetric Data

| Compound Name | Lot No. | Weight (mg) | Chemical Purity |
|---------------|-----------|-------------|-----------------|
| (r)-limonene | 1357.1.2P | 99.70 | 99.4 |

Intended Use

This CRM 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 (NIST). 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 CRM have been analysed to prove homogeneity compliant with ISO 17034.

Storage

The CRM should be stored in the original sealed container at the indicated temperature.

Instructions for use

The CRM should be used shortly after opening to avoid concentration changes due to evaporation. It is recommended to use 1 µL as the minimum sample size. If storage after opening is necessary, it should be transferred to an amber vial with minimum head space and a Teflon-lined silicon septum. If handled as recommended, use period after opening is a maximum of 278 days for an estimated 5% drift in concentration as a result of analyte and/or solvent transpiration. 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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The producer of this reference material is registered to ISO 9001:2015 under 56 100 19560019 by TUV USA and accredited to ISO 17025:2017 and ISO 17034:2016 by A2LA with the accreditation numbers 3031.01 and 3031.02.



ISO 17034 Accredited
Reference Material Producer
Cert. No. 3031.02