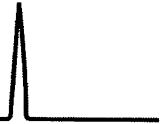


Certificate of Analysis

Dr. Ehrenstorfer



Product Identification

14634100 (R)-(+)-Limonene

CA (R)-(+)-4-Isopropenyl-1-methyl-1-cyclohexene

IUPAC (R)-(+)-Limonene/(R)-(+)-4-Isopropenyl-1-methylcyclohexene/(+)-p-Mentha-1,8-diene

Formula C₁₀H₁₆

Mol.Weight 136.24

CAS No. 5989-27-5

Reference Materials for Residue Analysis

Expiry Date 30.08.2022

Lot Number 114944

Store at 20 °C ±4 °C

Please note: The expiry date is valid under recommended storage conditions only.

Toxicological Data



R Code 10-20/21/22-36/37/38

S Code 16-26-36

LD50 (Rats female/male in mg/kg) N/A

Physical Data

Phase liquid

Color colourless

Melt.Range

Vapour pressure N/A at °C

Solubility in water N/A g/l at °C

Boiling Range (lit.)

Analytical Data

Detection: GC/FID

Column: DB-5, 30 m, ID 0.25 mm

Inj.-Vol.: 1.00 µl

Flow: 1.0 ml/min

Ret.-Time: 10.72 min.

Method Details:

Injector: 200° C

Start Temperature: 40° C for 5 min

End Temperature: 200° C for 16 min

Gradient: 15° C/min

Identity: RT, MS

Comment Chemical purity: 98.4% (R-Isomer 99.4%, S-Isomer 0.6%)

Purity was confirmed by external standard method.

Water Content 0.0 % Determined by Karl-Fischer Titration

Det. Purity 97.8 % Tolerance/Uncertainty +/- 1.0 %

The uncertainty/tolerance of this standard is calculated in accordance with the EURACHEM/CITAC Guide - Quantifying Uncertainty in Analytical Measurement - Second Edition. The uncertainty given is the expanded combined uncertainty and represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The expanded uncertainty is U which is $U_c(y) \cdot K$, where K is the coverage factor at the 95% confidence level (K=2). The expanded uncertainty is based on the combination of uncertainties associated with each individual operation involved in the preparation of this product.

Certified on 30.08.2016

by M. Beck

The Laboratory LGC Labor GmbH is accredited by DAkkS as indicated by the Accreditation Number D-RM-19883-01 & D-PL-19883-01 has shown competence based on ISO Guide 34:2009 with relevant parts of DIN EN ISO/IEC 17025:2005 for production of certified reference materials in form of organic pure substances and in form of single and multi-component solutions organic pure substances.

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The warranty for this product is limited to the purchasing price of this product.

