

# Certificate of Analysis

Dr. Ehrenstorfer



## Product Identification

14634100 (R)-(+)-Limonene

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

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

Formula C<sub>10</sub>H<sub>16</sub>

Mol.Weight 136.24

CAS No. 5989-27-5

## Reference Materials for Residue Analysis

Expiry Date 10.05.2015

Lot Number 10510

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) NA

## Physical Data

Phase liquid

Color colourless

Mel. Range

Vapour pressure NA at °C

Solubility in water NA g/l at °C

Boiling Range (lit.)

## Analytical Data

Detection: GC/MSD

Column: DB-5, 60 m, ID 0.25 mm

Inj.-Vol.: 1,00 µl

Flow: 1,0 ml/min

Ret.-Time: 8,94 min.

## Method Details:

Injector: 280° C

Start Temperature: 60° C for 5 min

End Temperature: 280° C for 1 min

Gradient: 15° C/min

Identity: RT, MS

Comment Purity was confirmed by external standard method.

Water Content 0,1 % Determined by Karl-Fischer Titration

Det. Purity 99,7 % Tolerance/Uncertainty +/- 0,5 %

The uncertainty/tolerance of this standard is calculated in accordance with the EURACHEM/EMCTAC 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  $U(y) \cdot K$ , 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 17.01.2012

by L. Müller *L. Müller*



REF. NO.: 2074-01

The Laboratory Labor Dr. Ehrenstorfer-Schäfers is accredited by DGA as indicated by the Accreditation Certificate DGA-PL-4536.00 based on DIN EN ISO/IEC 17025:2005 for the weighing of amounts of substances for the preparation of standard solutions.

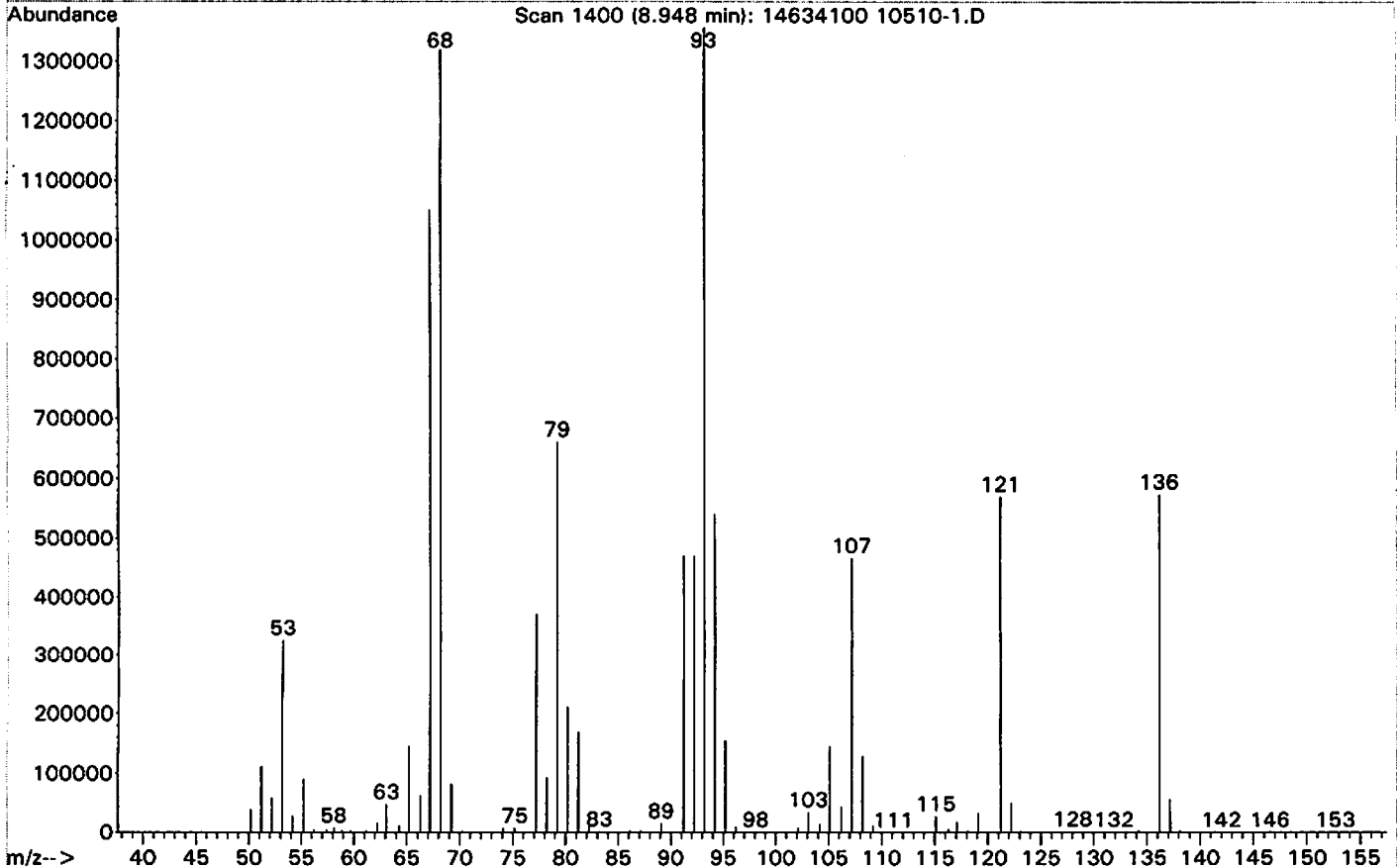
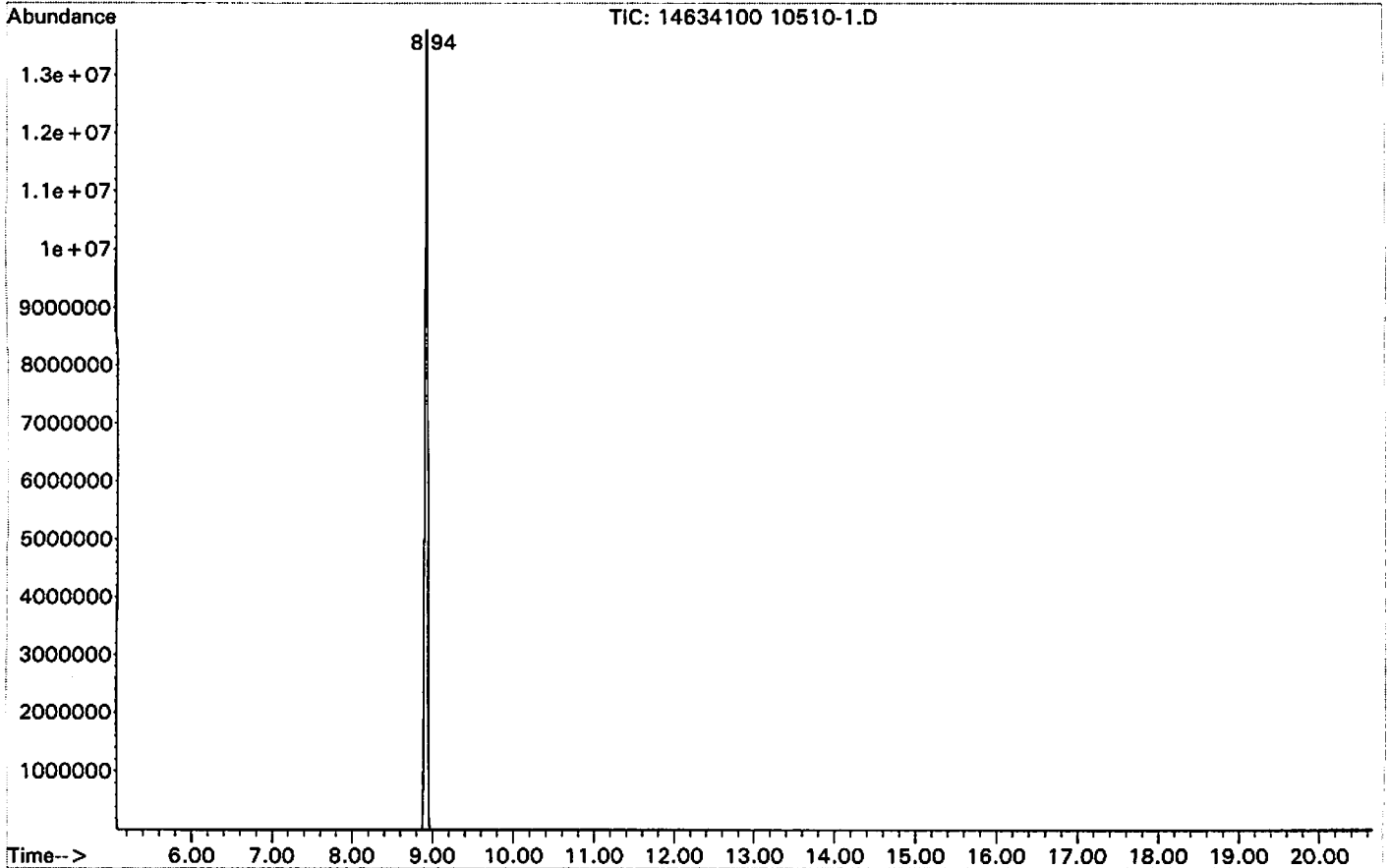
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Phone +49 821 906080 Fax +49 821 9060888 info@analytical-standards.com  
The warranty for this product is limited to the purchasing price of this product.



DGA-PL-4536.00

File :D:\2011\14634100 10510-1.D  
Operator : JV  
Acquired : 26 May 2011 20:58 using AcqMethod PESK.M  
Instrument : Instrument #1  
Sample Name: (R)-(+)-Limonene, pesk  
Misc Info :  
Vial Number: 6

*Wanwan*  
*Q.S.M*



*V. M. A.*