

CERTIFICATE OF ANALYSIS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
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Seelze, 06.06.2013/485577/13/11236

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 22.May.2013

Expiry Date: 22.May.2018

Article/Product: 45614

Batch : SZBD142XV

Permethrin (mixt.of cis and trans isomers) PESTANAL®

Reference Material (RM)**1. General Information**

Formula: C₂₁H₂₀Cl₂O₃
CAS-No.: [52645-53-1]
Usage : Insecticide

Molar mass: 391.29 g/Mole
Recomm. storage temp.: roomtemp.

The estimated uncertainty of a single measurement of the assay can be expected to be 1 % relative (confidence level = 95%, n= 6) whereby the assay measurements are calculated by 100% minus found impurities.

2. Batch Analysis

Identity (NMR)	complying
ass.of cis/trans-isom. (HPLC)	98.1 %
Assay of cis-isomer (HPLC)	38.7 area %
Assay of trans-isom. (HPLC)	59.4 area %
Water (Karl Fischer)	<0.1 %
Date of Analysis	05.Jun.2013

3. Advice and Remarks

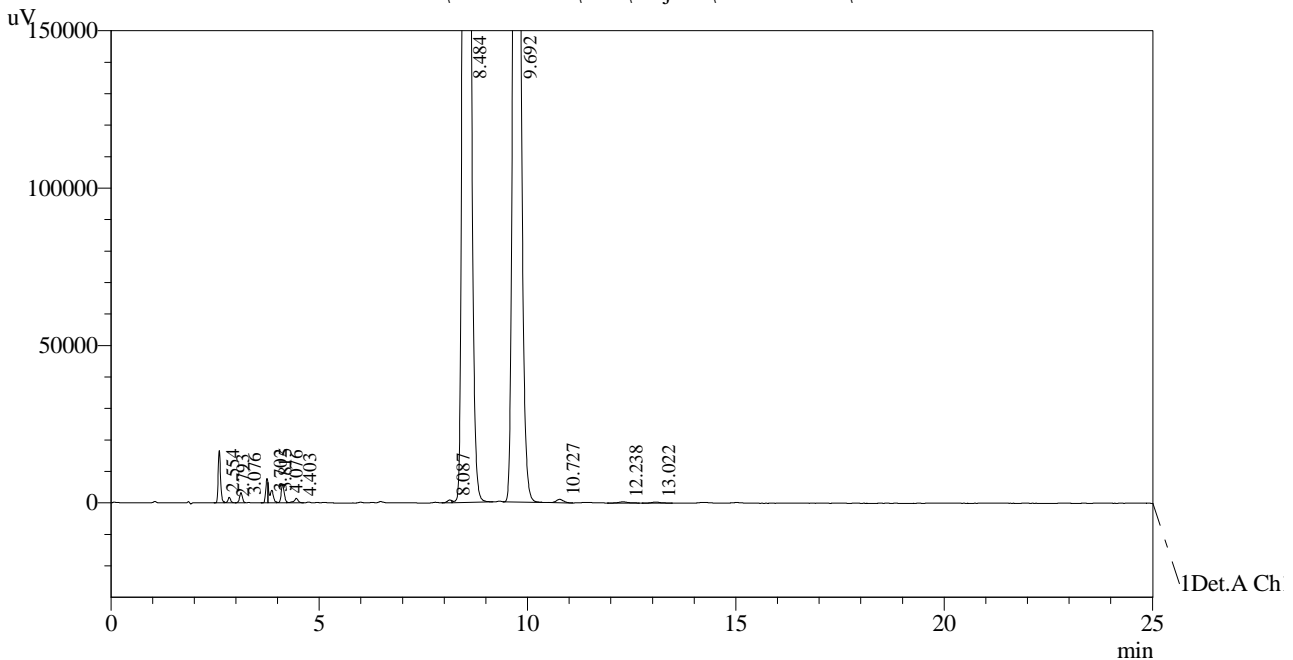
- The expiry date is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliquot portions of the substance, the person handling the substance must assure, that the integrity of the substance is maintained and proper records of all its handlings are kept. Special care has to be taken to avoid any contamination or adulteration of the substance.
- We herewith confirm that the delivery is effected according to the technical delivery conditions agreed.
- Particular properties of the products or the suitability for a particular area of application are not assured.
- We guarantee a proper quality within our General Conditions of Sales.

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

HPLC-Method

Article : Permethrin, mixt. of cis and trans isomers
 Article-No : 45614
 Batch : SZBD142XV
 Column : L=250mm, ID=4,6mm; Supelcosil LC-18 5µm
 Eluent : 80 % Acetonitrile
 20 % Water
 Flow : 1,4ml/min
 Detector : UV-225nm
 Injection-Volume : 20µl
 Sample-Preparation : 0,3mg/ml Eluent
 Linearity : checked
 Evaluation : Normalisation (uncorrected)
 Operator : Weinig

Chromatogram
 Permethrin C:\LabSolutions\Data\Project1\1311236.AIA\SIGNAL01.cdf



1 Det.A Ch1 /

PeakTable

Peak#	Ret. Time	Area	Area %	Name
1	2.554	66	0.570	
2	2.793	8	0.067	
3	3.076	15	0.132	
4	3.702	36	0.310	
5	3.815	20	0.176	
6	4.076	29	0.256	
7	4.403	9	0.077	
8	8.087	8	0.066	
9	8.484	6823	59.383	- trans
10	9.692	4452	38.745	- Cis
11	10.727	13	0.111	
12	12.238	7	0.060	
13	13.022	5	0.047	
Total		11489	100.000	