SIGMA-ALDRICH

11-2

CERTIFICATE OF ANALYSIS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
Telefon: +49 5137 8238-150

Seelze, 30.06.2014/532342/14/12680

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 13.Jun.2014
Expiry Date: 13.Jun.2019

Article/Product: 45925 Batch : SZBE164XV

1-Chloro-4-nitrobenzene OEKANAL®

Reference Material (RM)

1. General Information

Formula: C6H4ClNO2
CAS-No.: [100-00-5]
Usage :

Molar mass: 157.55 g/Mole
Recomm. storage temp.: roomtemp.

The estimated uncertainty of a single measurement of the assay can be expected to be 0.5 % relative (confidence level = 95%, n= 6) whereby the assay measurements are calculated by 100% minus found impurities.

2. Batch Analysis

Identity (NMR)	complying	
Assay (GC)	99.8	area %
Melting range	83.1-84.0	°C
Water (Karl Fischer)	<0.1	%
Date of Analysis	27.Jun.2014	

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 aliqout 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

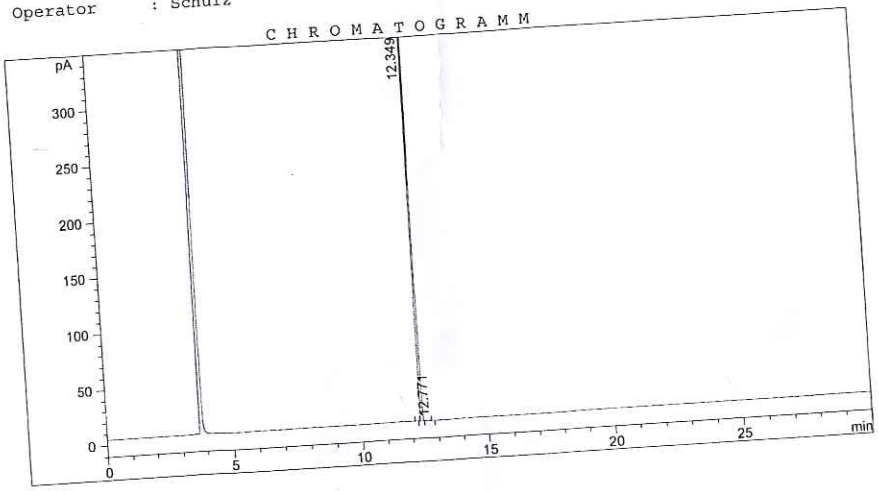
This document was produced electronically and is valid without a signature

Analytical Department

GLC-Method

Article	: 1-Chloro-4-nitrobenzene
Article-No	: 45925
Batch	: SZBE164XV
Column	: SP-1701, 30m, 0,32mm i.D., 1.0µm Film
Inj.-Temp.	: 280°C
Det.-Temp.	: 280°C - FID
Oven-Temp.	: 100°C to 250°C (10°C/min) hold 15min
Split	: 1:100
Flow	: 1ml He/min
Inj.v.	: 1µl solution in Dichloromethane (~5%)
Evaluation	: uncorrected
Operator	: Schulz

C H R O M A T O G R A M M



Area Percent Report

#	Meas. Ret.	Height	Area	Area %
1	12.15	0.6	1.5	0.10
2	12.35	495.1	1433.4	99.79
3	12.77	0.5	1.5	0.11

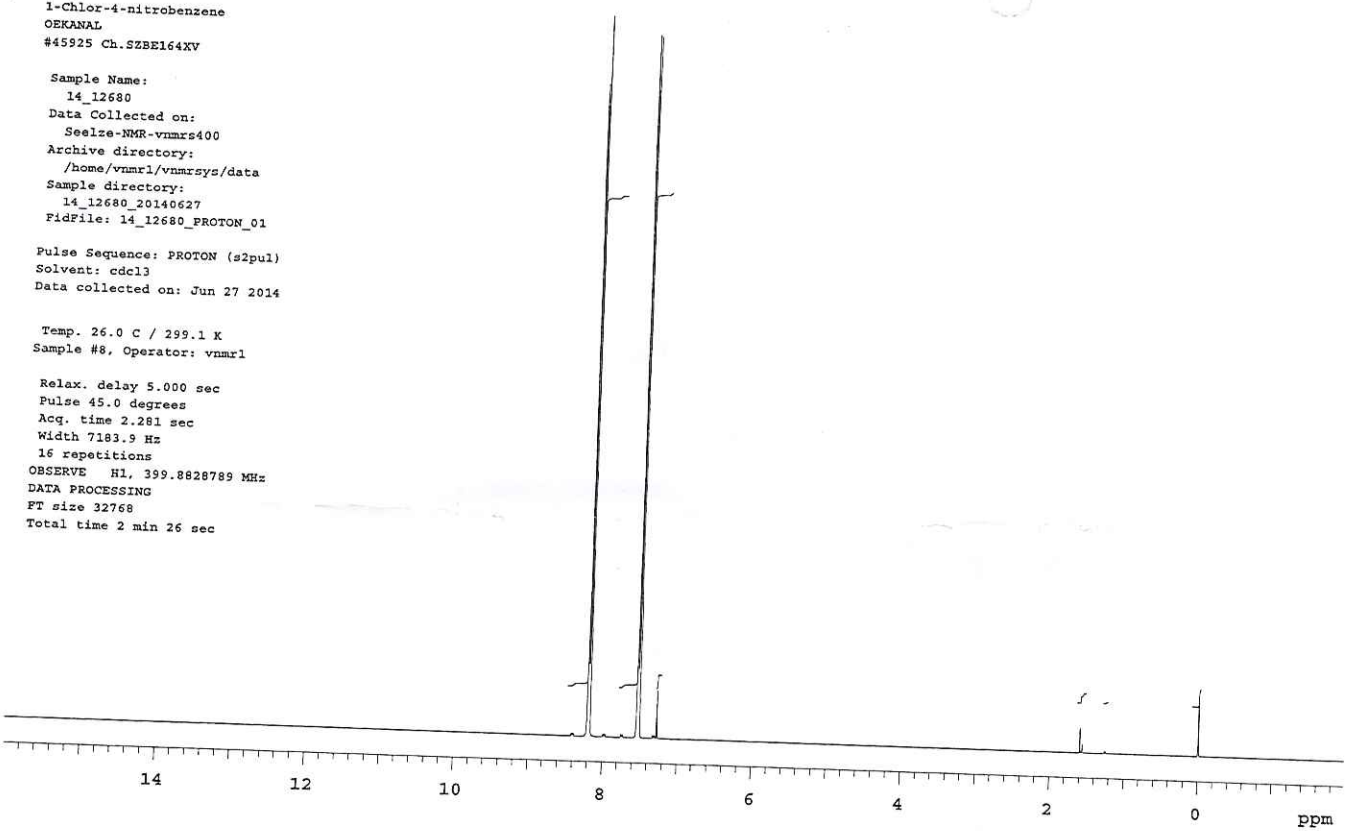
1-Chlor-4-nitrobenzene
OEKANAL
#45925 Ch.SZBE164XV

Sample Name:
14_12680
Data Collected on:
Seelze-NMR-vnmrs400
Archive directory:
/home/vnmrl/vnmrsys/data
Sample directory:
14_12680_20140627
FidFile: 14_12680_PROTON_01

Pulse Sequence: PROTON (s2pul)
Solvent: cdcl3
Data collected on: Jun 27 2014

Temp. 26.0 C / 299.1 K
Sample #8, Operator: vnmrl

Relax. delay 5.000 sec
Pulse 45.0 degrees
Acq. time 2.281 sec
Width 7183.9 Hz
16 repetitions
OBSERVE H1, 399.8828789 MHz
DATA PROCESSING
FT size 32768
Total time 2 min 26 sec



11-2

SIGMA-ALDR

CERTIFICATE OF ANALYS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
Telefon: +49 5137 8238-150

Seelze, 30.06.2014/532342/14/1

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 13.Jun.2014
Expiry Date: 13.Jun.2019

Article/Product: 45925 Batch : SZBE164XV

1-Chloro-4-nitrobenzene OEKANAL®

Reference Material (RM)

1. General Information

Formula: C6H4ClNO2 Molar mass: 157.55
CAS-No.: [100-00-5] Recomm. storage te
Usage :

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

2. Batch Analysis

Identity (NMR)	complying	
Assay (GC)	99.8	are
Melting range	83.1-84.0	°C
Water (Karl Fischer)	<0.1	%
Date of Analysis	27.Jun.2014	

3. Advice and Remarks

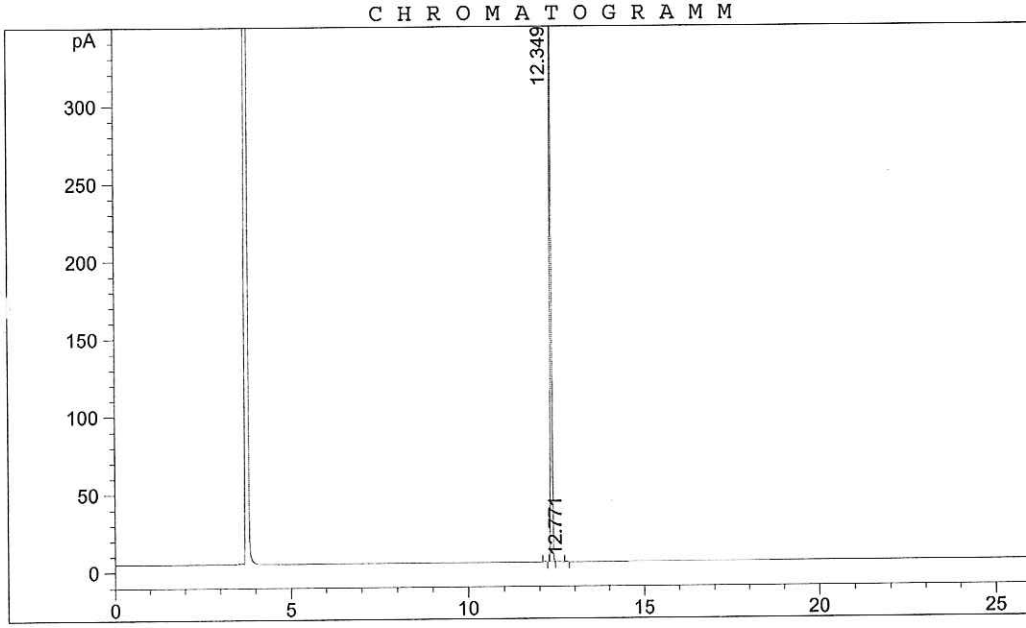
- The expiry date is based on the current knowledge and holds only for proper storage c originally closed flasks/ packages.

GLC-Method

Analytical Department

Article : 1-Chloro-4-nitrobenzene
Article-No : 45925
Batch : SZBE164XV
Column : SP-1701, 30m, 0,32mm i.D., 1.0µm Film
Inj.-Temp. : 280°C
Det.-Temp. : 280°C - FID
Oven-Temp. : 100°C to 250°C (10°C/min) hold 15min
Split : 1:100
Flow : 1ml He/min
Inj.v. : 1µl solution in Dichloromethane (~5%)
Evaluation : uncorrected
Operator : Schulz

C H R O M A T O G R A M M



Area Percent Report

#	Meas. Ret.	Height	Area	Area %
1	12.15	0.6	1.5	0.10
2	12.35	495.1	1433.4	99.79
3	12.77	0.5	1.5	0.11