

Certificate of Analysis

Undecane

PurCert Standard for GC

Product Number	PSR28398	CAS No.	1120-21-4
Pack Size	100ML	Lot No.	TB03T
Molecular Formula	C ₁₁ H ₂₄	Date of Mfg.	March,2021
Molecular Weight	156.31 g/mol	Date of Exp.	February,2025

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Clarity	Clear	Clear
Assay (GC-FID)	≥ 99.0 %	99.39 %
Water (by KF)	≤ 0.01 %	0.01 %
Identification by ¹ H NMR	Conform to structure	Conforms
Identification by GC-MS	Conform to molecular	Conforms
Identification by IR	Conform to structure	Conforms

***Traceable to internal reference standard.**

Storage Condition: Store in a Room temperature and Keep container in a well-ventilated place, keep away from source of ignition.

Remark: The batch complies with the prescribed quality of the above specification.

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Assay by GC-FID

METHOD: G.C- FID conditions:

Column: Agilent Technologies DB-FFAP 30mx 0.530mm, 1.0micron

Instrument: PerkinElmer, GC 2014,

Detector: FID, **Carrier gas:** Nitrogen

Temp programming: Initial 50°C hold for 1min, 5° C Ramp/ min., 100 °C hold for 1 min., 25°C Ramp up to 250°C hold for 2 min., Run time 20 min.

Software Version : 6.3.4.0700	Date : 28-04-2021 1.43.23 PM
Operator : Manager	Sample Name : Undecane- TB03T
Sample Number : 1	Study : GC Purity
AutoSampler : BUILT-IN	Rack/Vial : 0/9
Instrument Name : Clarus 680	Channel : A
Instrument Serial # : None	A/D mV Range : 1000
Delay Time : 0.00 min	End Time : 25.00 min
Sampling Rate : 12.5000 pts/s	
Sample Volume : 1.000000 ul	Area Reject : 0.000000
Sample Amount : 1.0000	Dilution Factor : 1.00
Data Acquisition Time : 28-04-2021 12.08.14 PM	Cycle : 1

Raw Data File : D:\GC\Data\2021\APR_2021\ar21000255-undecane-lqtb03t.raw

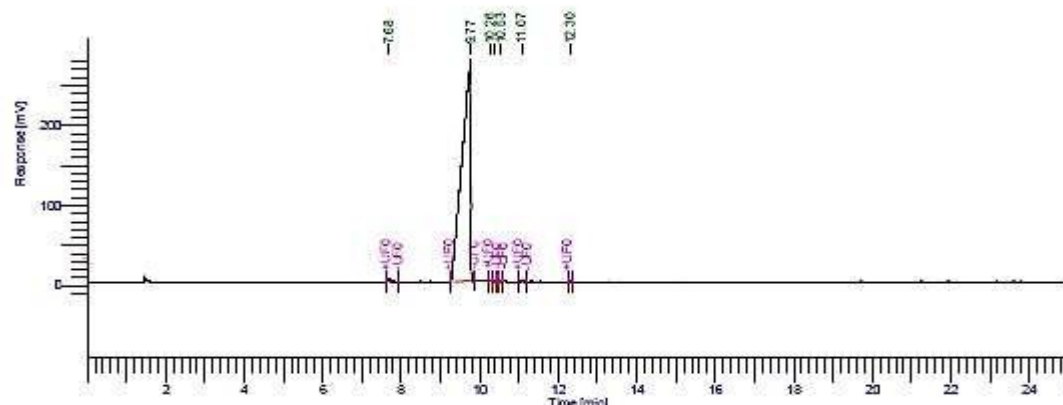
Inst Method : d:\gc\method\db-624-gc purity from
D:\GC\Data\2021\APR_2021\ar21000255-undecane-lqtb03t.raw

Proc Method : D:\GC\Method\GC-Purity_processing.mth from

Calib Method : D:\GC\Method\GC-Purity_processing.mth from

Report Format File : D:\GC\Method\GC report layout1.rpt

Sequence File : D:\GC\Sequence\2021\APRIL_2021\28_04_2021_02.seq



GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		7.677	13099.24	3217.83	0.30
2		9.769	4270106.57	277973.11	99.39
3		10.261	503.29	194.55	0.01
4		10.360	1744.53	528.89	0.04
5		10.529	1263.85	417.37	0.03
6		11.065	6013.15	1906.67	0.14
7		12.300	3546.49	1436.67	0.08
			4296277.11	285675.09	100.00

Missing Component Report

Component Expected Retention (Calibration File)

All components were found

Purity by GC-FID: 99.39 %

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IDENTIFICATION TESTS

GC-MS Spectrum:

METHOD: G.C-MS conditions:

Column: Agilent Technologies, Elite -5MS, 30 m X 0.25 mm, 1.0micron

Instrument: Perkin Elmer, **Carrier gas:** Helium

Source Temp.: 230°C, Transfer line: 250°C

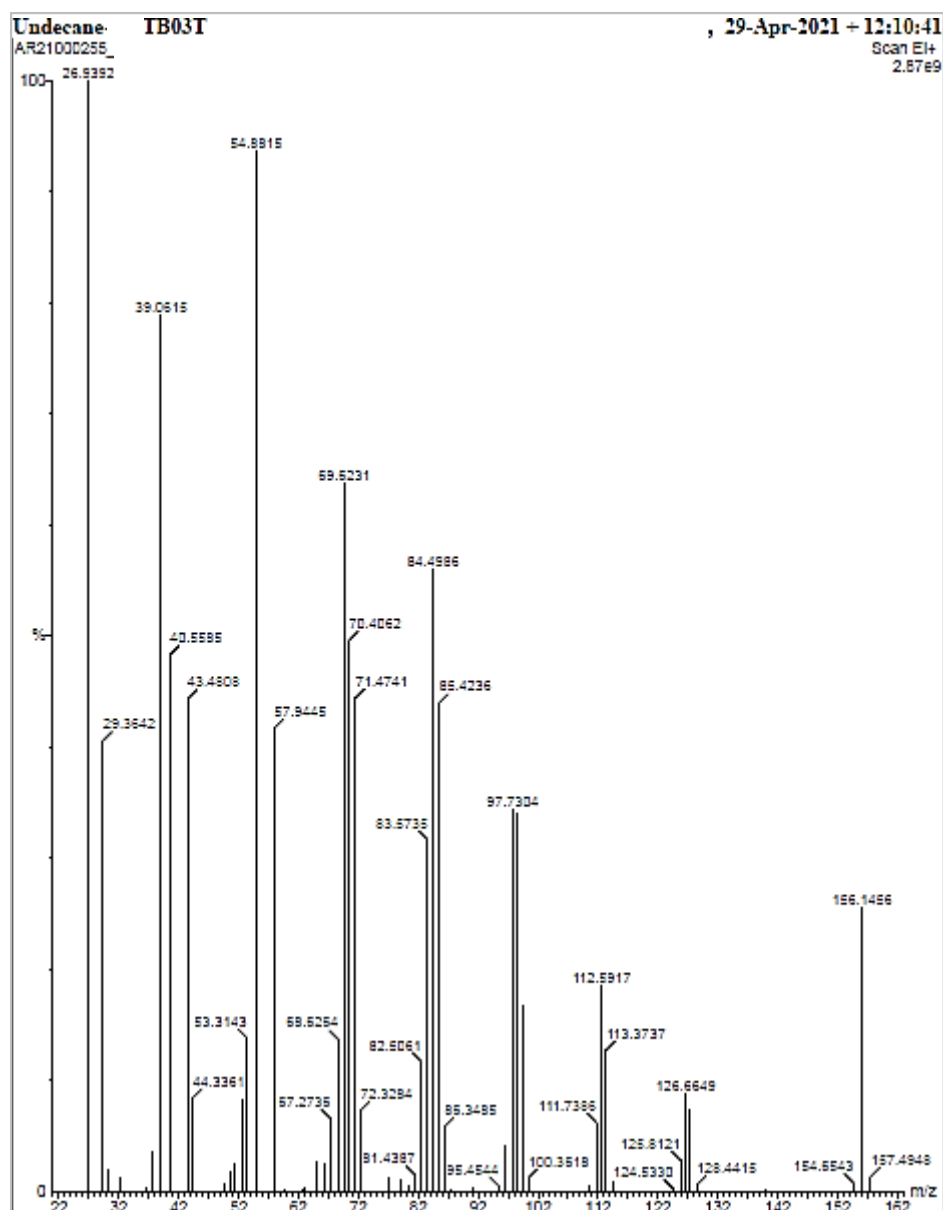
Inlet Temp.: 180°C, **Diluent:** Methanol

Source energy: 70eV

Mass by GC-MS:

Product Name: Undecane

Product Code: PSR28398



Identification by GC-MS: Conform to molecular

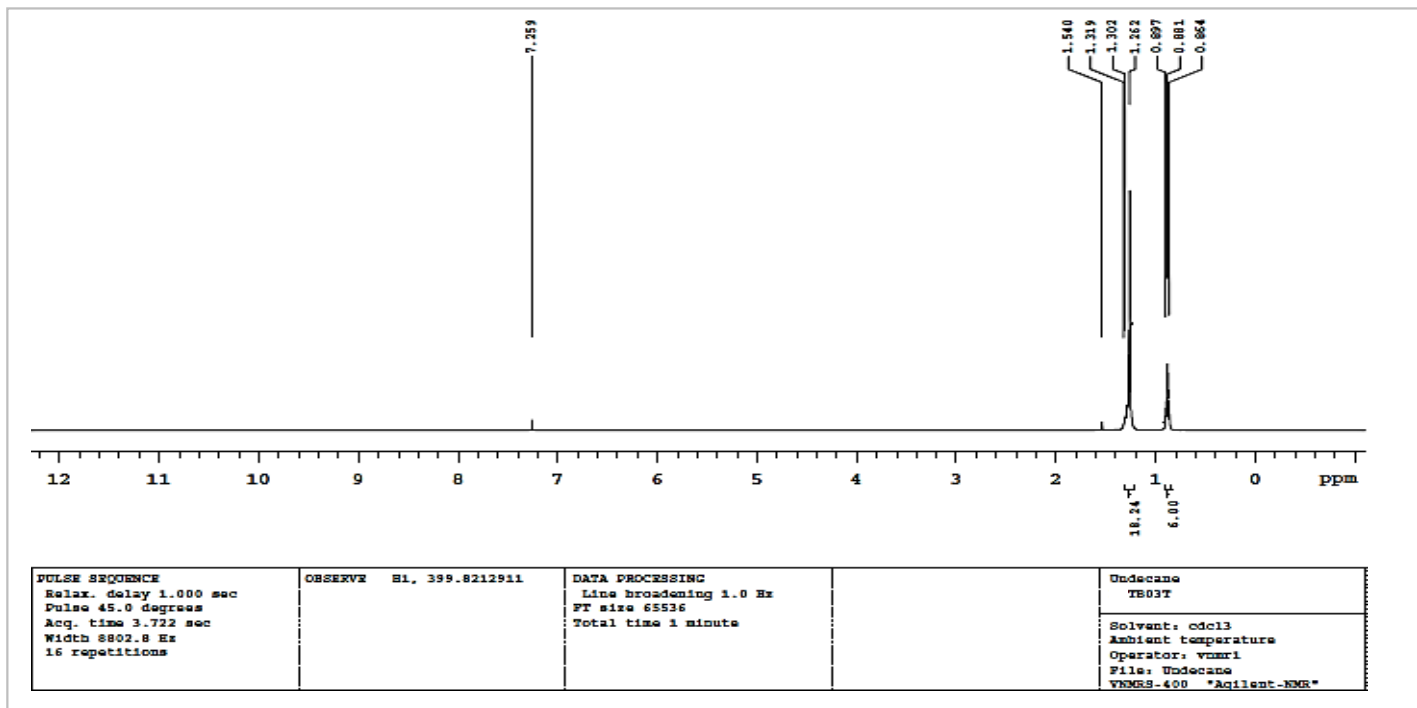
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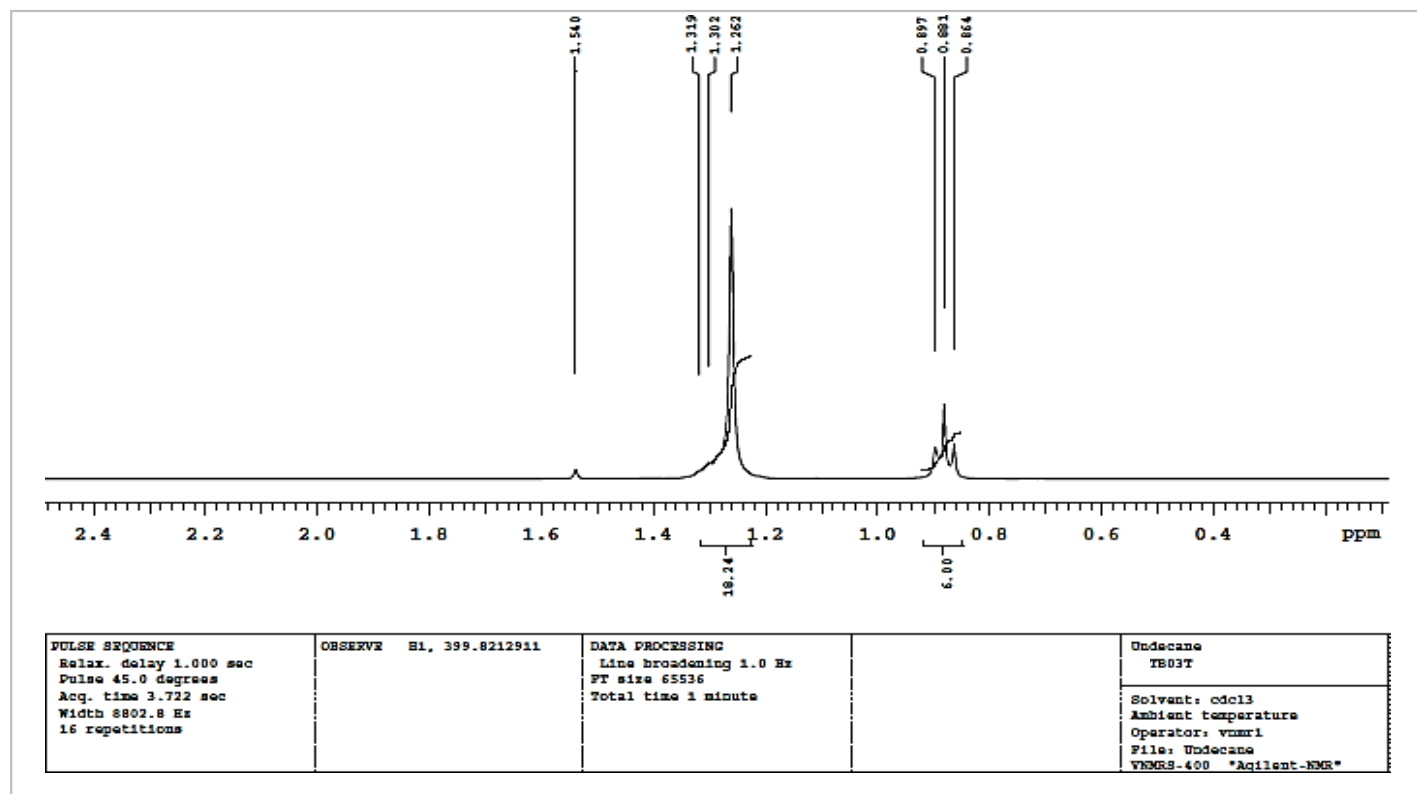
¹H NMR Spectrum:

Product Name: Undecane

Product Code: PSR28398



¹H NMR Spectrum: Expansion



Identification by 1H NMR: Conform to structure

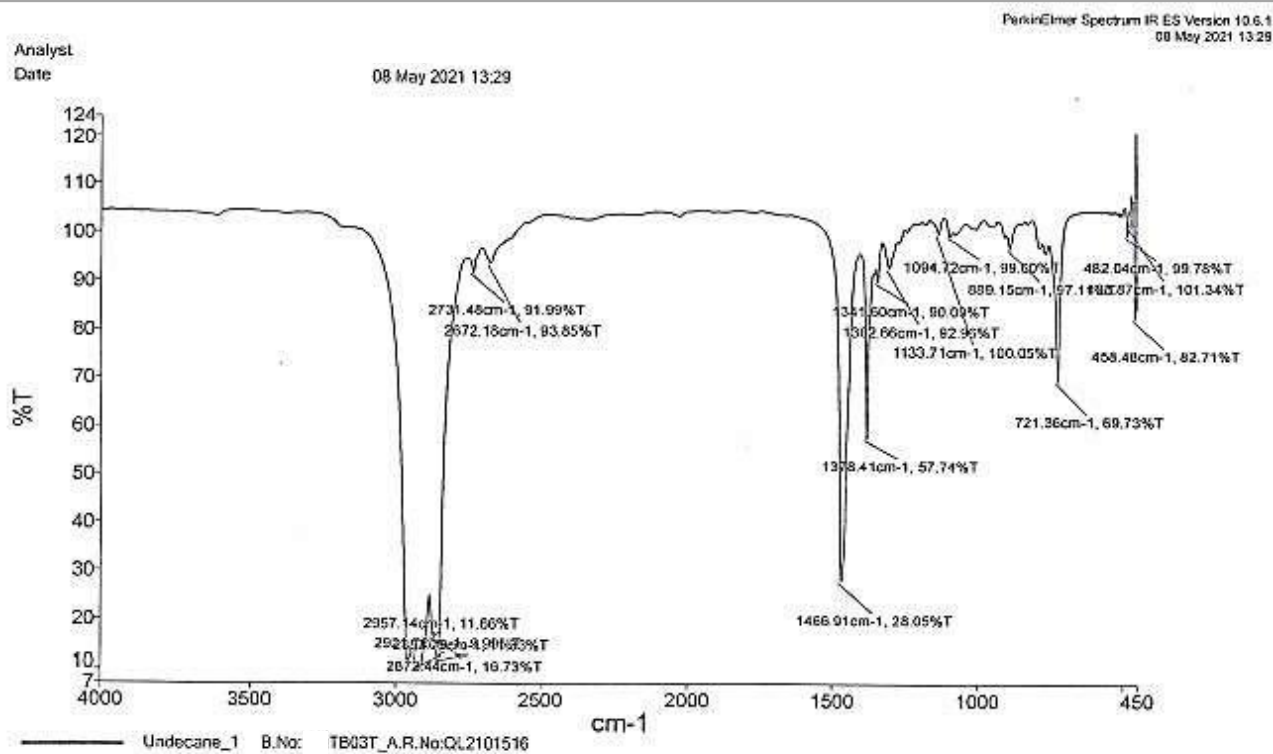
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Infrared spectrum:

Product Name: Undecane

Product Code: PSR28398



Source Spectra Results	
Spectrum Name	Number Of Peaks
Undecane_1	17

List of Peak Area/Height		
Peak Number	X (cm-1)	Y (%T)
1	2957.14	11.66
2	2921.76	9.99
3	2872.44	16.73
4	2853.75	11.33
5	2731.48	91.99
6	2672.18	93.85
7	1466.91	28.05
8	1378.41	57.74
9	1341.60	90.09
10	1302.66	92.96
11	1133.71	100.05
12	1094.72	99.60
13	889.15	97.11
14	721.36	69.73
15	482.04	99.78
16	458.87	101.34
17	458.48	82.71

Identification by 1H NMR: Conform to structure

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Maximum limits of impurities

WATER DETERMINATION

Method: Karl Fisher titration

Water Content (PSR28398) = **0.01 %**

Approved By
Head - Technical

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