PureSynth
Research Chemicals

Certificate of Analysis

Isopropyl ether

PurCert Standard for GC

Product Number	PSR28360	**CAS No.**	108-20-3
Pack Size	100ML	**Lot No.**	T2TVB03H
Molecular Formula	$C_6H_{14}O$	**Date of Mfg.**	March,2021
Molecular Weight	102.17 g/mol	**Date of Exp.**	February,2024

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Clarity	Clear	Clear
APHA	≤ 25	< 25
Assay (GC-FID)	≥ 99.5 %	99.96 %
Non-volatile matter	0.01 % max	0.001 %
Water (by KF)	<0.1 %	0.09 %
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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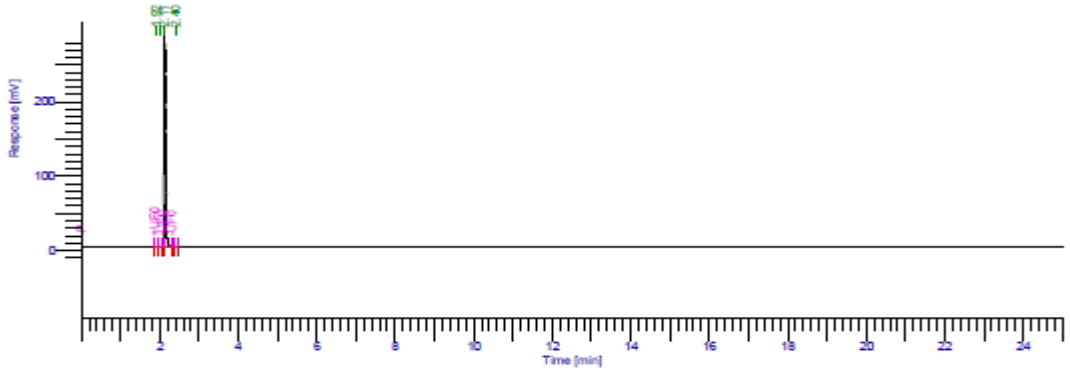
Assay by GC-FID

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 upto 250°C hold for 2 min., Run time 20 min.

Software Version	: 6.3.4.0700	Date	: 05-05-2021 1.32.06 PM
Operator	: manager	Sample Name	: AR21000267-Diisopropylether-T2TVB03H
Sample Number	: 1		
AutoSampler	: BUILT-IN		
Instrument Name	: Clarus 680	Study	: GC Purity
Instrument Serial #	: None	Rack/Vial	: 0/27
Delay Time	: 0.00 min	Channel	: A
Sampling Rate	: 12.5000 pts/s	A/D mV Range	: 1000
Sample Volume	: 1.000000 ul	End Time	: 25.00 min
Sample Amount	: 1.0000		
Data Acquisition Time	: 05-05-2021 1.05.59 PM	Area Reject	: 0.000000
		Dilution Factor	: 1.00
		Cycle	: 1

Raw Data File : D:\GC\Data\2021\MAY_2021\ar21000267-diisopropylether-t2vb03h.raw
Inst Method : d:\gc\method\db-624-gc purity from
D:\GC\Data\2021\MAY_2021\ar21000267-diisopropylether-t2vb03h.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\MAY_2021\05_05_2021_02.seq



GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		1.917	196.87	92.96	0.02
2		2.011	74.28	38.29	0.01
3		2.115	1032928.88	398376.56	99.96
4		2.401	148.90	59.11	0.01
			1033348.92	398566.92	100.00

Missing Component Report

Component	Expected Retention (Calibration File)

All components were found

Purity by GC-FID: 99.96 %

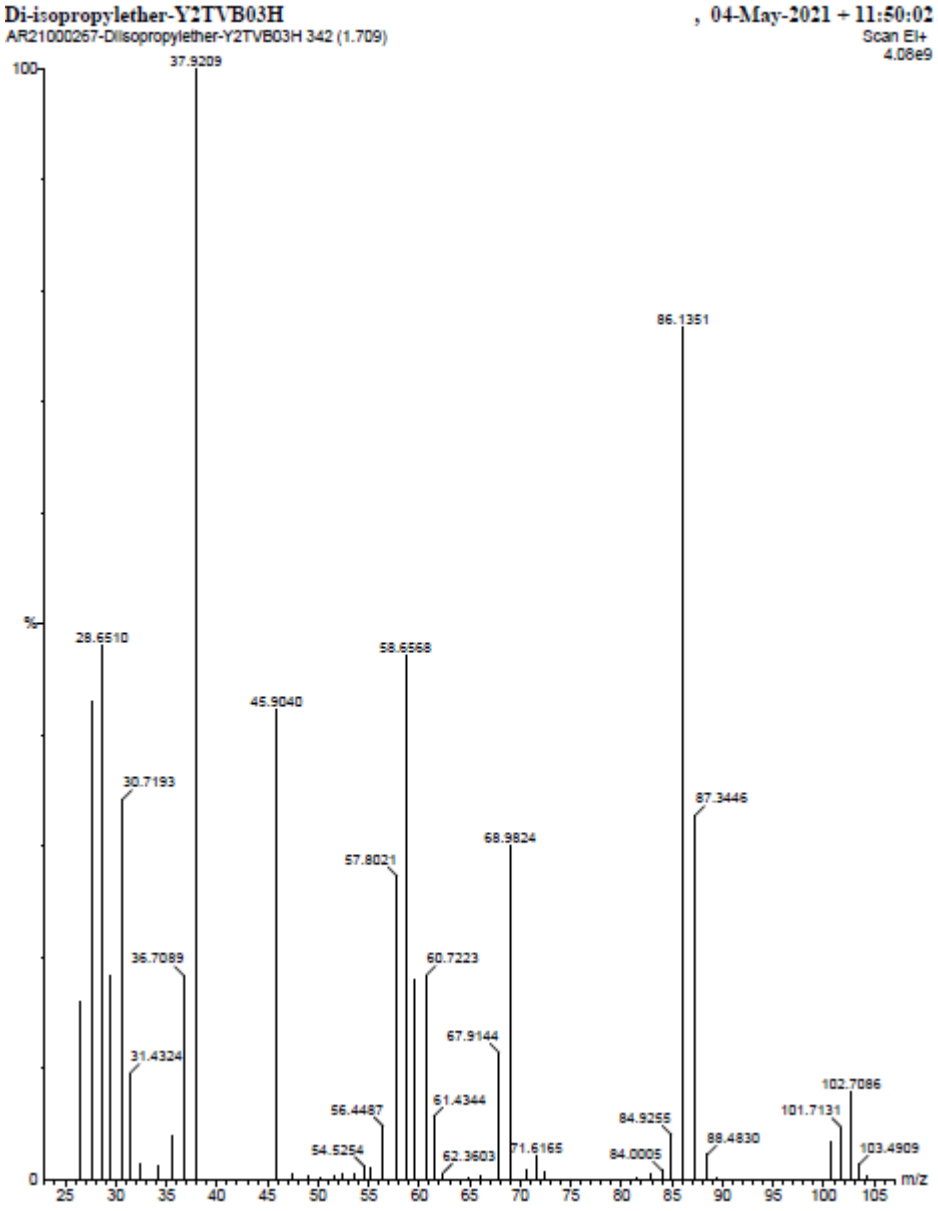
IDENTIFICATION TESTS

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: Isopropyl ether
Product Code: PSR28360



Identification by GC-MS: Conform to molecular

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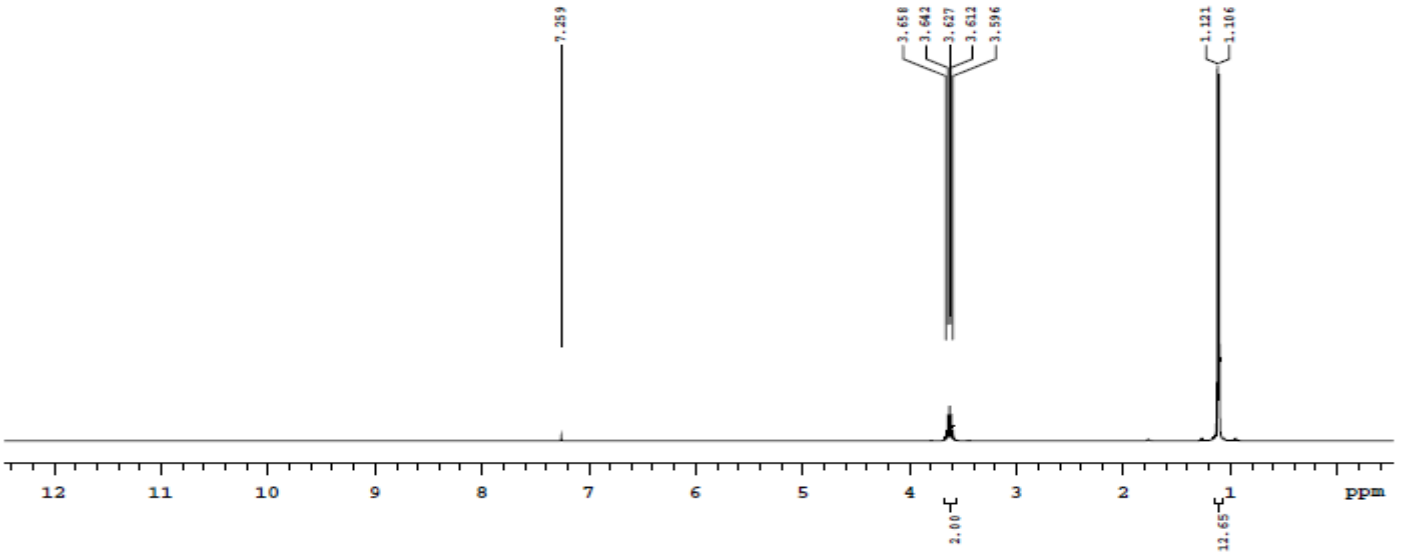
^{1}H NMR Spectrum:

Product Name: Isopropyl ether

Product Code: PSR28360

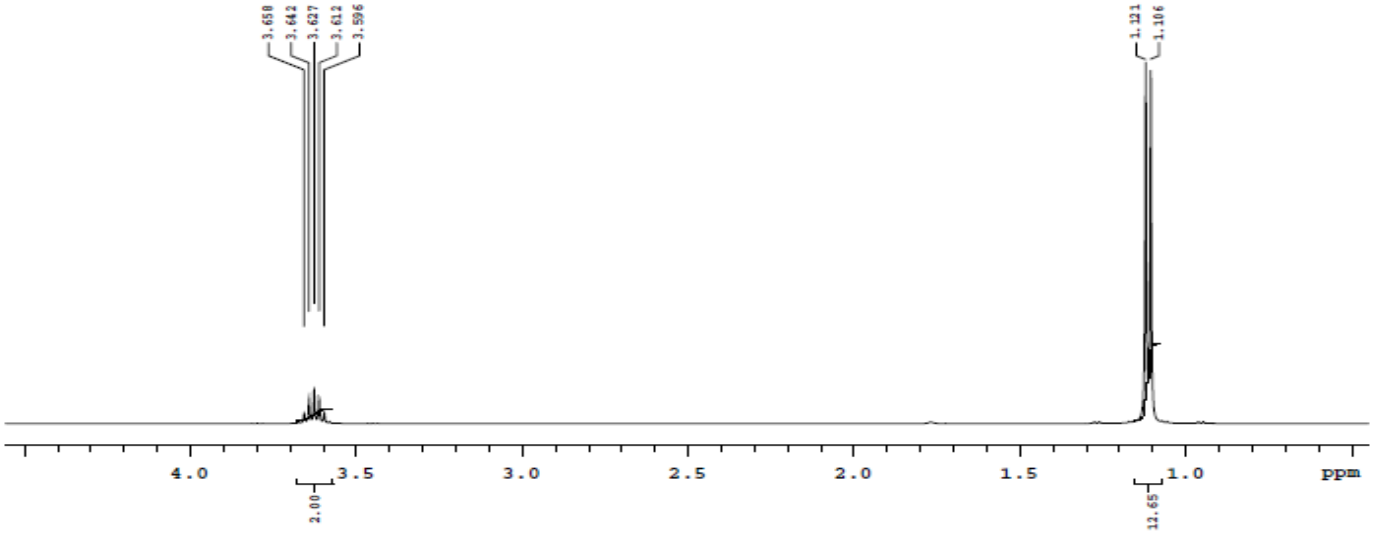


PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 3.722 sec Width 8802.8 Hz 16 repetitions	OBSERVE H1, 399.8212911	DATA PROCESSING Line broadening 1.0 Hz FT size 65536 Total time 1 minute		Diisopropylether T2TVB03H Solvent: cdcl3 Ambient temperature Operator: vnmr1 VNMRS-400 "Agilent-NMR"

^{1}H NMR Spectrum: Expansion

Product Name: Isopropyl ether

Product Code: PSR28360



PULSE SEQUENCE Relax. delay 1.000 sec Pulse 45.0 degrees Acq. time 3.722 sec Width 8802.8 Hz 16 repetitions	OBSERVE H1, 399.8212911	DATA PROCESSING Line broadening 1.0 Hz FT size 65536 Total time 1 minute		Diisopropylether T2TVB03H Solvent: cdcl3 Ambient temperature Operator: vnmr1 VNMRS-400 "Agilent-NMR"

^{1}H NMR Spectrum: Conform to structure

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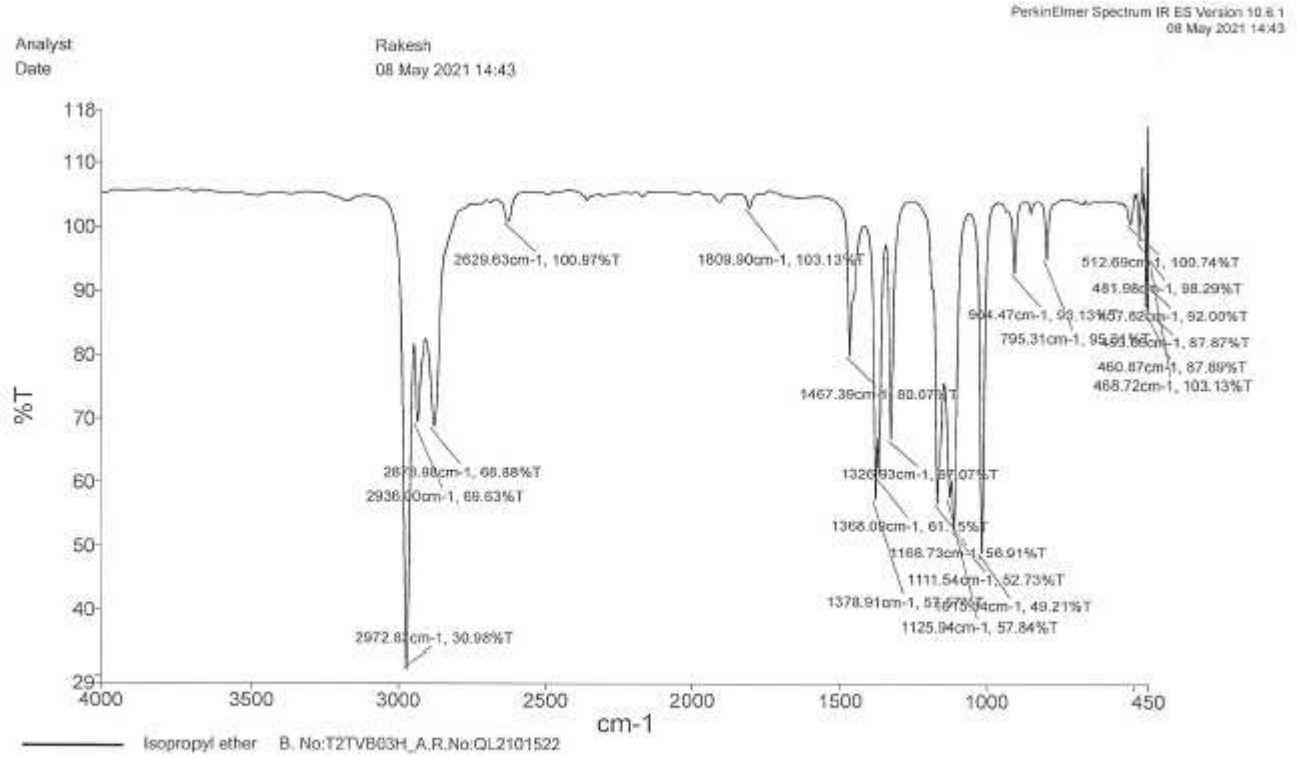
Infrared spectrum:

Product Name: Isopropyl ether

Product Code: PSR28360



Source Spectra Results	
Spectrum Name	Number Of Peaks
Isopropyl ether	21

List of Peak Area/Height		
Peak Number	X (cm-1)	Y (%T)
1	2972.82	30.98
2	2936.00	69.63
3	2878.98	68.88
4	2629.63	100.97
5	1809.90	103.13
6	1467.39	80.07
7	1378.91	57.57
8	1368.09	61.15
9	1326.93	67.07
10	1168.73	56.91
11	1125.94	57.84
12	1111.54	52.73
13	1015.34	49.21
14	904.47	93.13
15	795.31	95.31
16	512.69	100.74
17	481.98	98.29
18	468.72	103.13
19	460.87	87.89
20	457.82	92.00
21	453.05	87.87

Identification by IR : Conform to structure

Maximum limits of impurities

WATER DETERMINATION

Method: Karl Fisher titration
Water Content (PSR28360) = **0.09 %**

NON-VOLATILE MATTER

Method: Evaporation Sample size: ~50 ml
Residue (PSR28360) = **0.001%**

Approved By

Head - Technical