

Certificate of Analysis

Tetrahydrofuran

PurTech Standard for GC

(Secondary Reference Standard)

Product Number	PSI045	CAS No.	109-99-9
Brand	PureSynth	Lot No.	T045P0324
Molecular Formula	C ₄ H ₈ O	Date of Mfg.	March,2024
Molecular Weight	72.11 g/mol	Date of Exp.	February,2027

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Assay (GC-FID)	≥ 99.7 %	99.96 %
Water (By KF)	NMT 0.10 %	0.092 %
Density	0.88-0.90 g/cm ³	0.89 g/cm ³
Identification by ¹ H NMR	Conforms to structure	Conforms
Identification by GC-MS	Conforms to molecular mass	Conforms
Identification by IR	Conforms to structure	Conforms

***Traceable to USP Reference Standard 1601770 Lot no: R097E0**

Storage Condition: Store at room temperature and keep the container tightly closed.

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

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Assay by GC-FID

METHOD: GC- FID conditions:

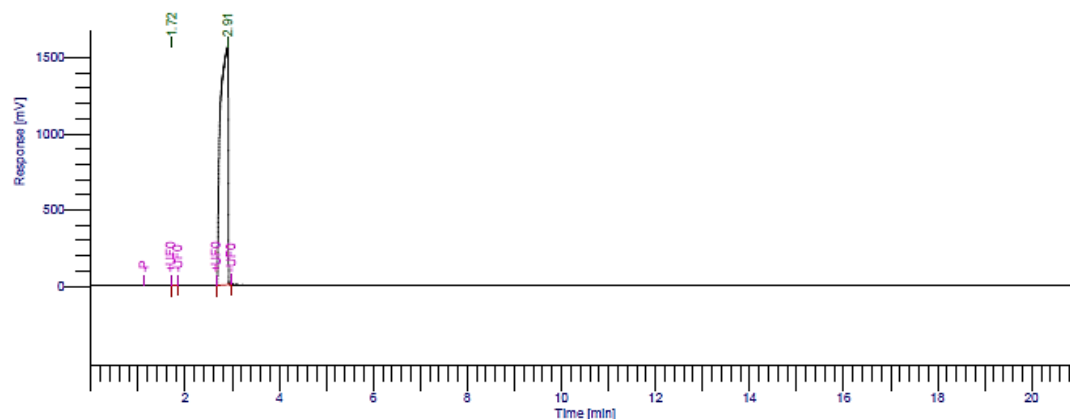
Column: Agilent Technologies DB-FFAP 30mx 0.530mm, 1.0micron

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	: 08-05-2024 09:55:44
Operator	: manager	Sample Name	: TETRAHYDROFURAN-T045P0324
Sample Number	: 001	Study	:
AutoSampler	: BUILT-IN	Rack/Vial	: 0/46
Instrument Name	: Clarus 690	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 21.00 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	: 07-05-2024 12:54:40	Cycle	: 1



GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		1.719	7572.54	2146.43	0.04
2		2.907	17514779.61	1.56e+06	99.96
		17522352.15	1.56e+06	100.00	

Warning -- Signal level out-of-range in peak

Missing Component Report

Component Expected Retention (Calibration File)

All components were found

Purity by GC-FID: 99.96 %

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IDENTIFICATION TESTS

GC-MS Spectrum:

METHOD: GC-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:

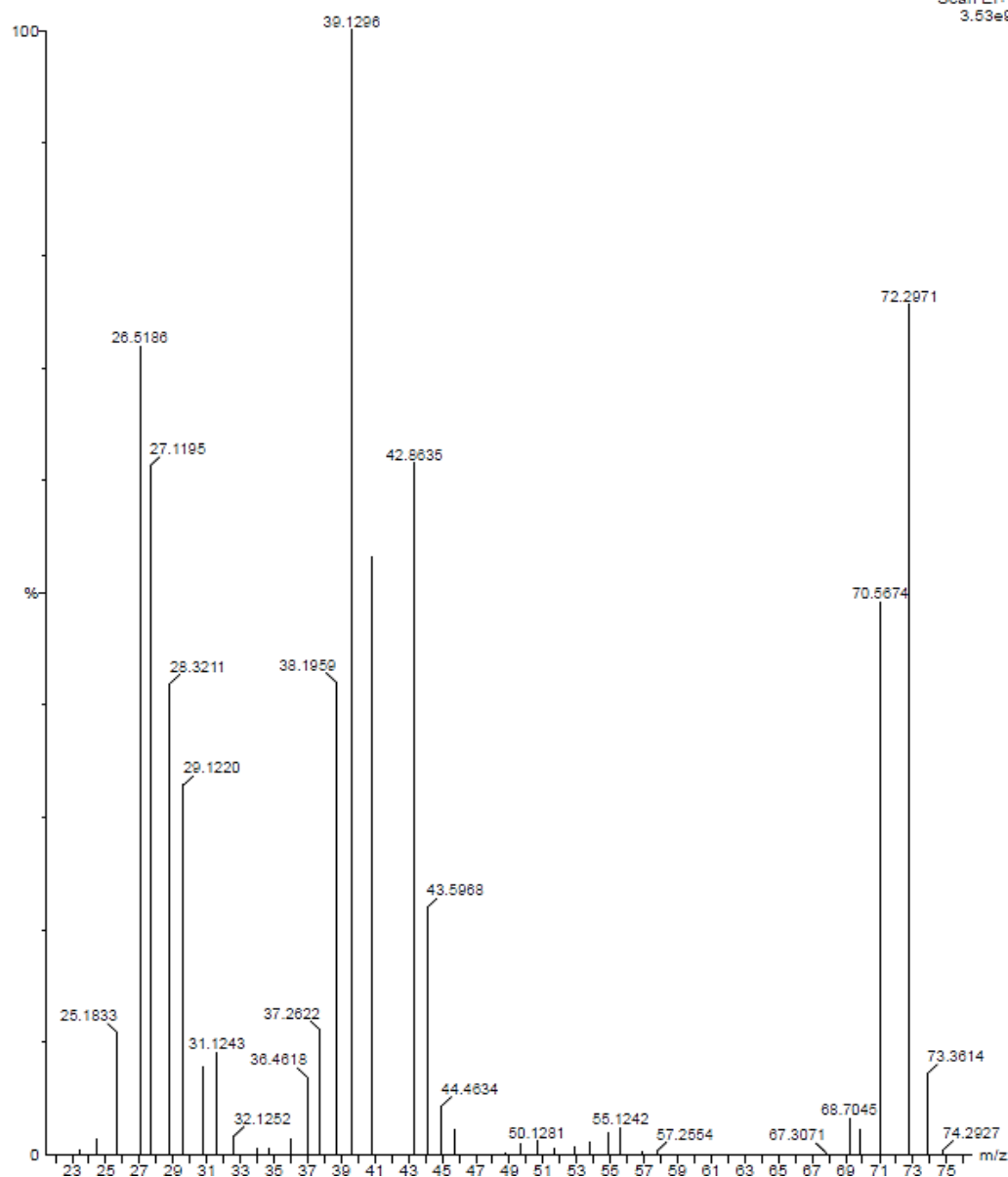
Product Name: Tetrahydrofuran

Product Code: PSI045

TETRAHYDROFURAN-T045P0324

, 07-May-2024 + 12:25:02

Scan EI+
3.53e9



Identification by GC-MS: Conforms to molecular mass

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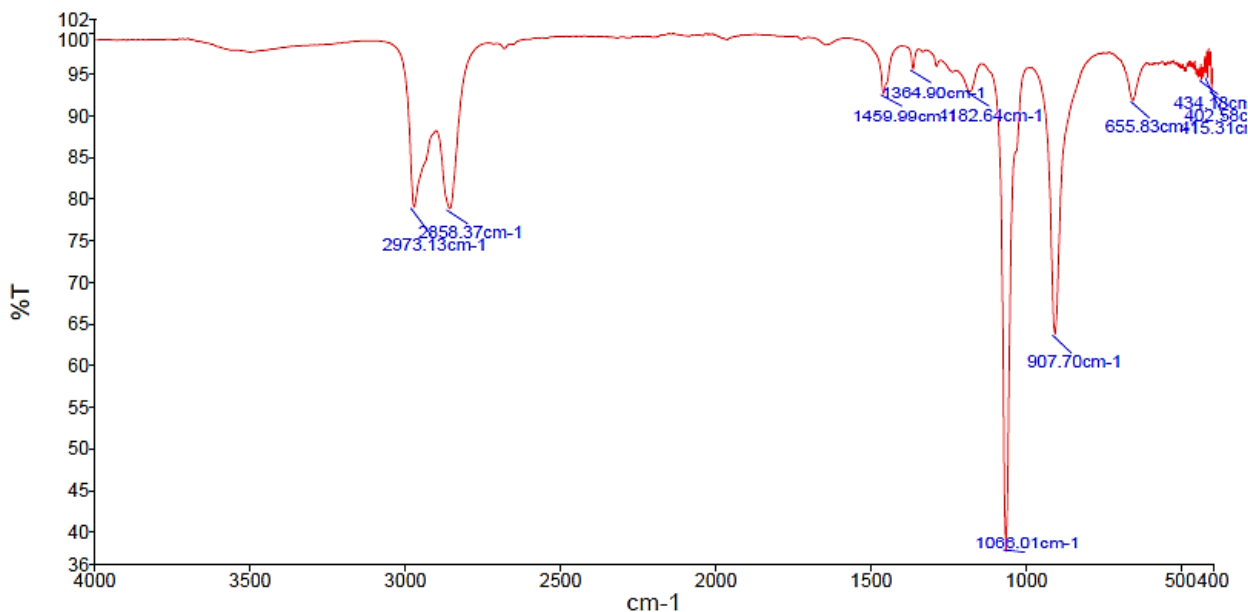
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Infrared spectrum:

Product Name: Tetrahydrofuran

Product Code: PSI045

Analyst
Date



AR2400050-TETRAHYDROFURAN-T045P0324_1 Sample 005 By Analyst Date Tuesday, May 07 2024

Source Spectra Results		
Spectrum Name		Number Of Peaks
AR2400050-TETRAHYDROFURAN-T045P0324_1		11
List of Peak Area/Height		
Peak Number	X (cm-1)	Y (%T)
1	2973.13	79.08
2	2858.37	78.89
3	1459.99	92.72
4	1364.90	95.69
5	1182.64	92.99
6	1066.01	37.62
7	907.70	63.81
8	655.83	91.93
9	434.18	94.42
10	415.31	94.72
11	402.58	93.11

Identification by IR: Conforms to structure

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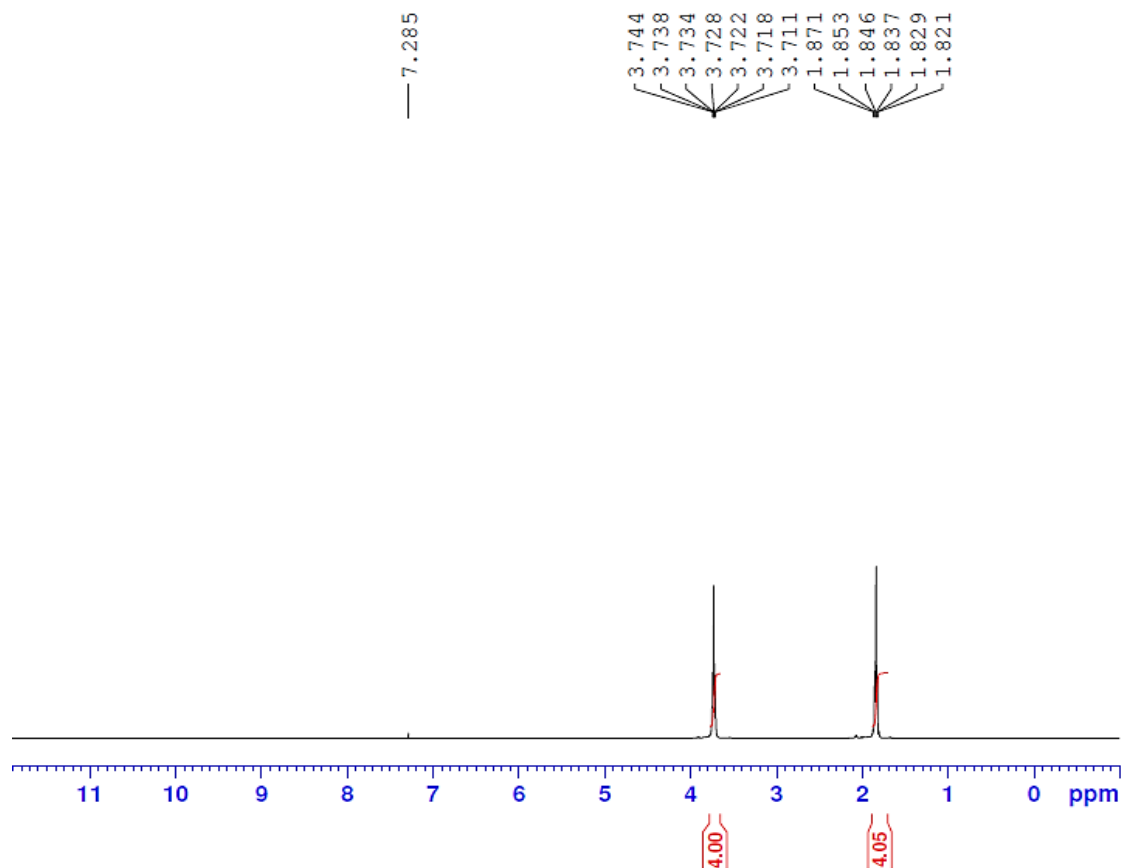
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¹H NMR Spectrum:

Product Name: Tetrahydrofuran

Product Code: PSI045

Tetrahydrofuran
B.no-T045P0324
1H-NMR in CDCl₃



Identification by ¹H NMR: Conforms to structure

Maximum limits of impurities

WATER DETERMINATION

Method: Karl Fisher titration

Water Content (PSI045) = **0.092 %**

Approved By
Head - Technical

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