PureSynth
Research Chemicals

Certificate of Analysis

Triethyl Citrate

PurTech Standard for GC

(Secondary Reference Standard)

Product Number	PSI142	**CAS No.**	77-93-0
Brand	PureSynth	**Lot No.**	T142T0324
Molecular Formula	$C_{12}H_{20}O_7$	**Date of Mfg.**	March,2024
Molecular Weight	276.28 g/mol	**Date of Exp.**	February,2027

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Assay (GC-FID)	≥ 99.5 %	99.92 %
Water (By KF)	NMT 0.1000 %	0.0830 %
Identification by ^{1}H NMR	Conforms to structure	Conforms
Identification by Mass	Conforms to molecular	Conforms
Identification by IR	Conforms to structure	Conforms

***Traceable to USP Reference Standard 1683606, Lot no: R07271**

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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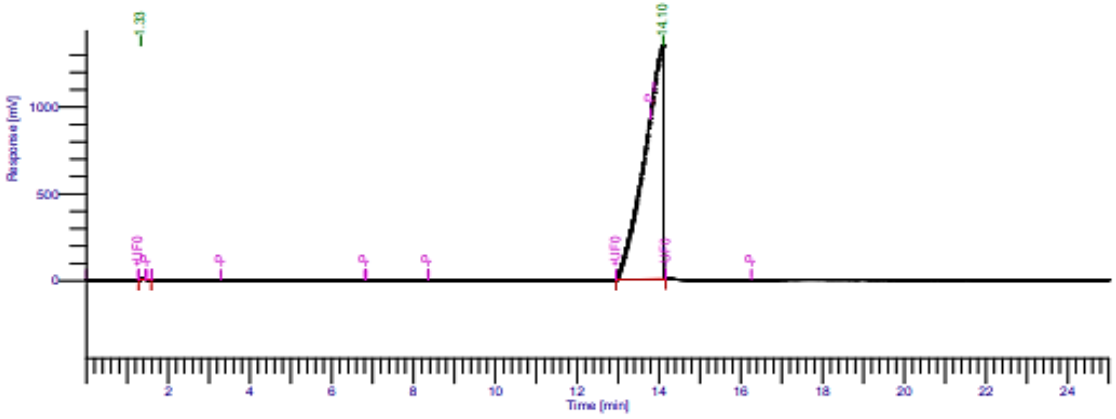
Research Chemicals

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	: 24-04-2024 13:48:36
Operator	: manager	Sample Name	: TRIETHYL CITRATE-T142T0324
Sample Number	: 001	Study	:
AutoSampler	: BUILT-IN	Rack/Vial	: 0/32
Instrument Name	: Clarus 690	Channel	: A
Instrument Serial #	: 690S23050206	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		
Sample Amount	: 1.0000	Area Reject	: 0.000000
Data Acquisition Time	: 23-04-2024 16:49:48	Dilution Factor	: 1.00
		Cycle	: 1



GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		1.329	33033.24	4951.92	0.08
2		14.103	42811186.47	1.39e+06	99.92
			42844219.71	1.39e+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: 99.92 %

IDENTIFICATION TESTS

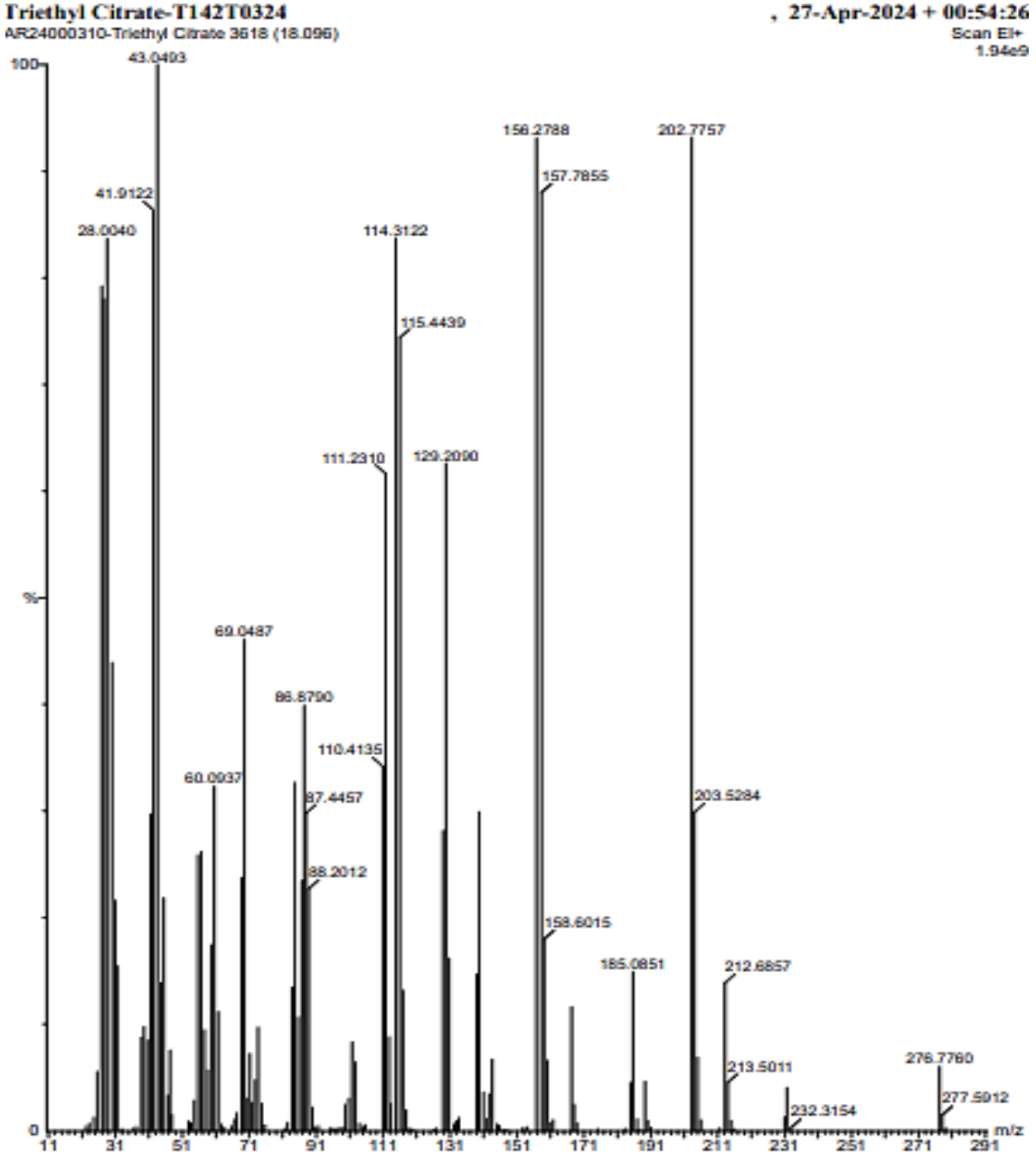
GC-MS Spectrum:

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: Triethyl Citrate
Product Code: PSI142



Identification by GC-MS: Conforms to molecular mass

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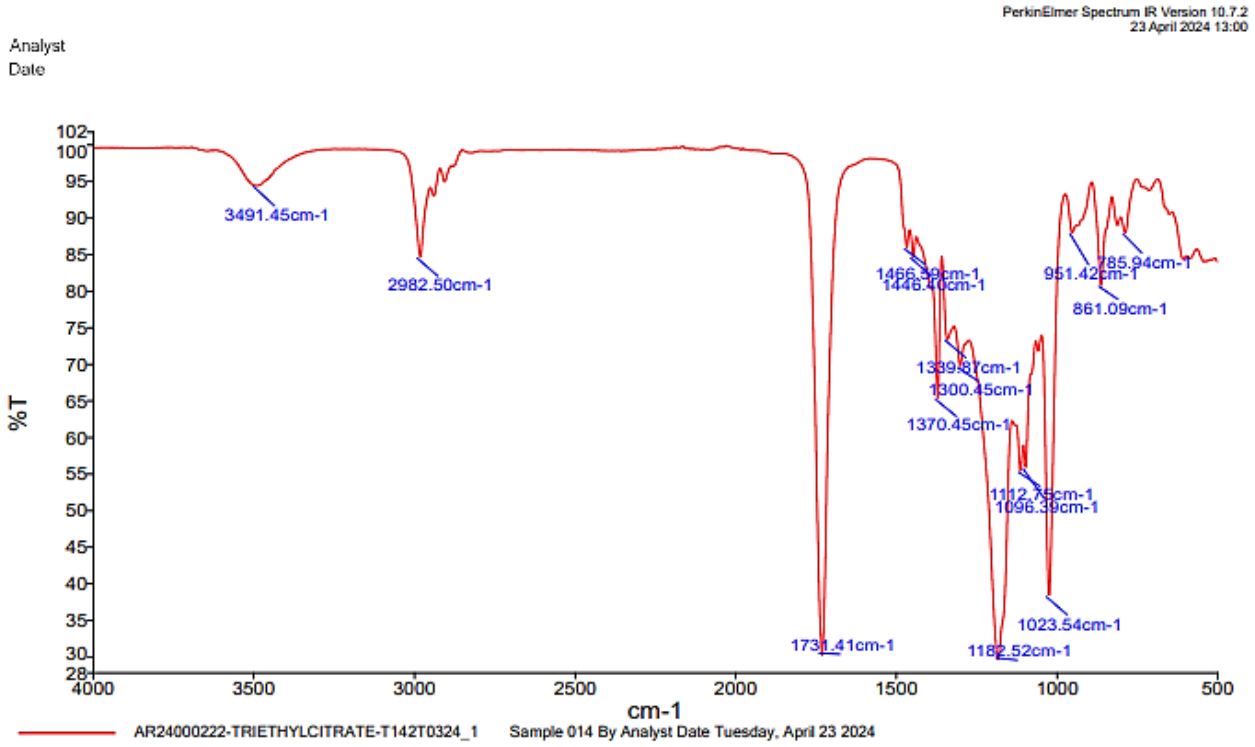
Research Chemicals

Infrared spectrum:

Product Name: Triethyl Citrate

Product Code: PSI142



Source Spectra Results	
Spectrum Name	Number Of Peaks
AR24000222-TRIETHYLCITRATE-T142T0324_1	15

List of Peak Area/Height		
Peak Number	X (cm-1)	Y (%T)
1	3491.45	94.48
2	2982.50	84.73
3	1731.41	30.20
4	1466.59	85.99
5	1446.40	84.76
6	1370.45	65.44
7	1339.87	73.50
8	1300.45	69.77
9	1182.52	29.60
10	1112.75	55.44
11	1096.39	55.92
12	1023.54	38.42
13	951.42	88.06
14	861.09	80.86
15	785.94	88.06

Identification by IR: Conforms to structure

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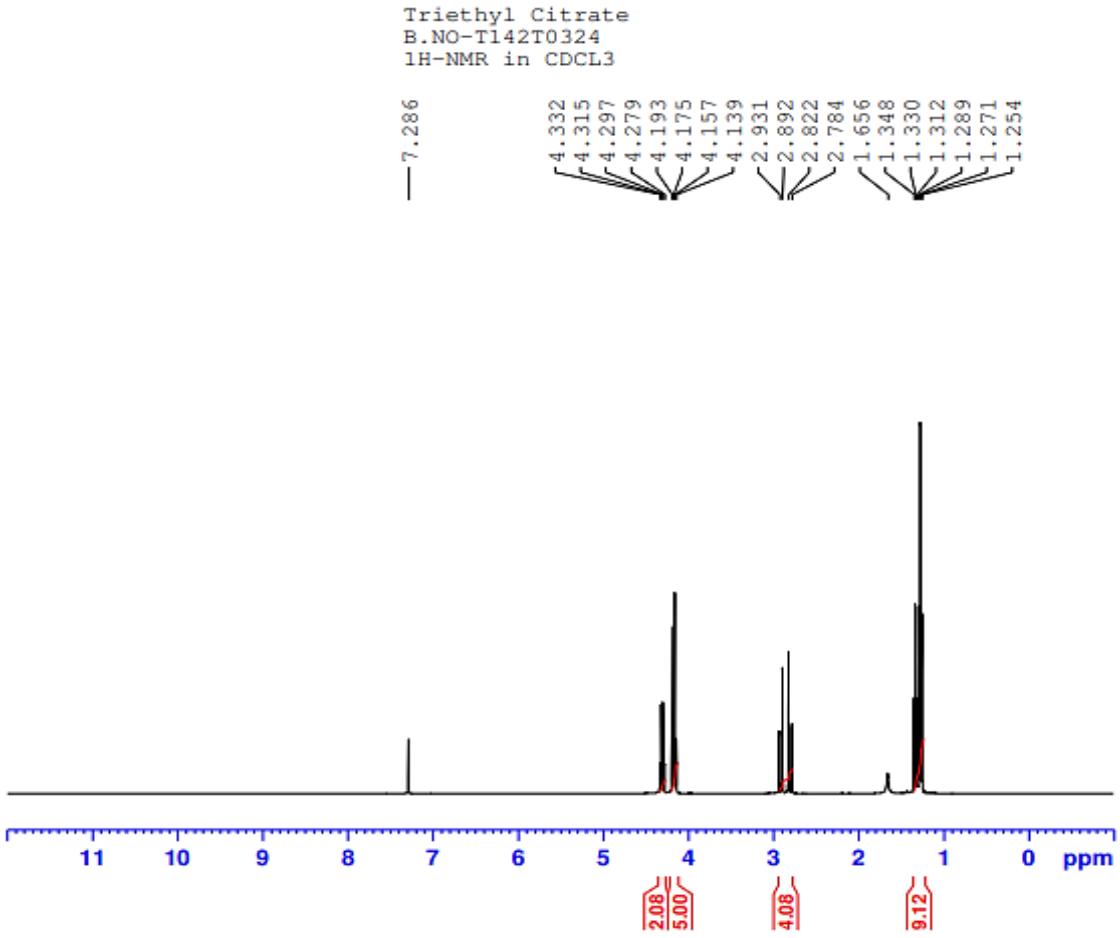
[1]H NMR Spectrum:

Product Name: Triethyl Citrate

Product Code: PSI142



Identification by [1]H NMR: Conforms to structure

Maximum limits of impurities

WATER DETERMINATION

Method: Karl Fisher titration

Water Content (PSI142) = **0.0830 %**

Approved By

Head - Technical