PureSynth
Research Chemicals

Certificate of Analysis

Formic acid

PurCert Standard for GC

(Secondary Reference Standard)

Product Number	PSR36863	**CAS No.**	64-18-6
Brand	PureSynth	**Lot No.**	TEJ0
Molecular Formula	CH_2O_2	**Date of Mfg.**	Feb.2022
Molecular Weight	46.03 g/mol	**Date of Exp.**	Jan.2026

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Clarity	Clear	Conforms
Assay (GC-FID)	≥ 99.0 %	99.39 %
Water (By KF)	NMT 1.0 %	0.979 %
Density	1.20-1.24 g/cm^3	1.22 g/cm^3
Non-volatile matter	NMT 0.005 %	< 0.005 %
Identification by GC-MS	Conforms to molecular	Conforms
Identification by IR	Conforms to structure	Conforms
Identification by ^{1}H NMR	Conforms to structure	Conforms

***Traceable to USP Reference standard 1283200, Lot No: R082L0**

Storage Condition: Store at ambient temperature and keep container tightly closed in a dry and well-Ventilated place.

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

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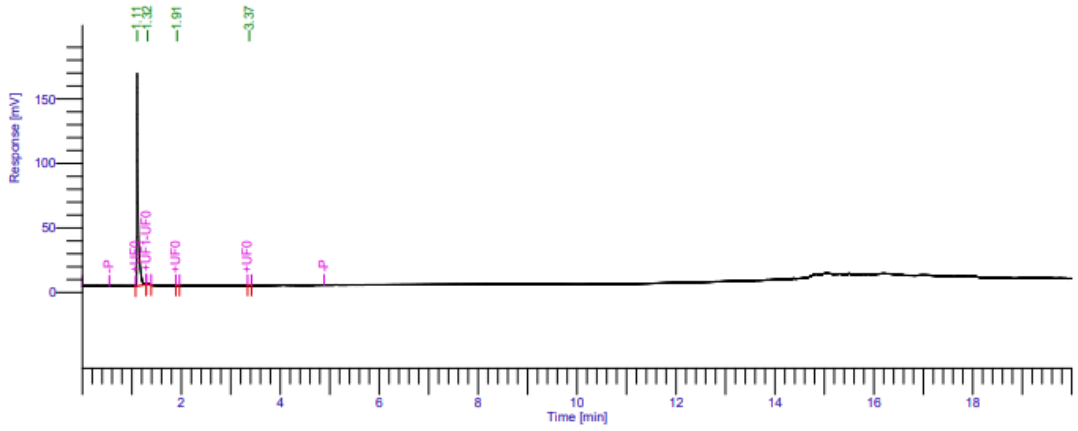
Assay by GC-FID

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	: 23/02/2022 2.30.06 PM
Operator	: manager	Sample Name	: AR22000124-FORMIC ACID- TEJ0
Sample Number	: 1		
AutoSampler	: BUILT-IN	Study	: GC Purity
Instrument Name	: Clarus 680	Rack/Vial	: 0/7
Instrument Serial #	: None	Channel	: A
Delay Time	: 0.00 min	A/D mV Range	: 1000
Sampling Rate	: 12.5000 pts/s	End Time	: 20.00 min
Sample Volume	: 1.000000 ul		
Sample Amount	: 1.0000		
Data Acquisition Time	: 23/02/2022 2.02.08 PM	Area Reject	: 0.000000
		Dilution Factor	: 1.00
		Cycle	: 1



GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		1.107	258680.30	164705.40	99.39
2		1.317	1328.03	446.55	0.51
3		1.912	156.42	69.72	0.06
4		3.373	91.19	37.02	0.04
			260255.94	165258.70	100.00

Purity by GC-FID: 99.39 %

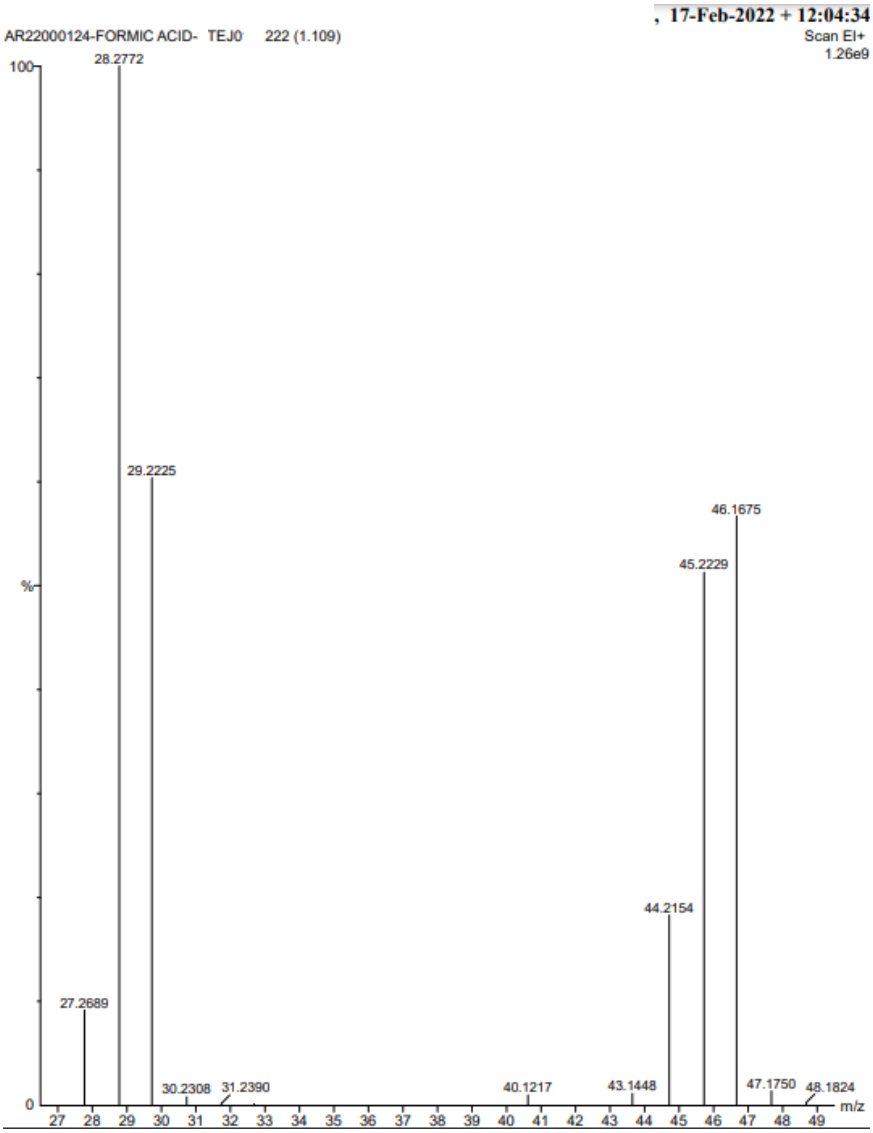
IDENTIFICATION TESTS

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: Formic acid
Product Code: PSR36863



Identification by GC-MS: Conforms to molecular

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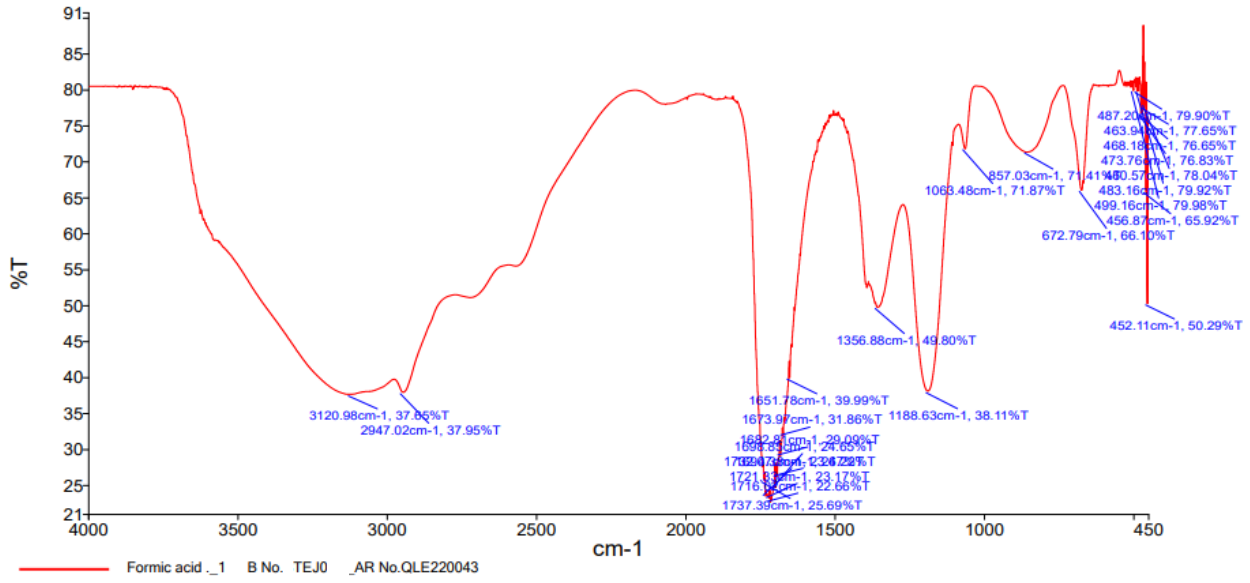
Infrared spectrum:

Product Name: Formic acid
Product Code: PSR36863



Source Spectra Results	
Spectrum Name	Number Of Peaks
Formic acid ._1	25

List of Peak Area/Height		
Peak Number	X (cm-1)	Y (%T)
1	3120.98	37.65
2	2947.02	37.95
3	1737.39	25.69
4	1732.07	23.47
5	1721.33	23.17
6	1716.02	22.66
7	1698.85	24.65
8	1694.38	26.22
9	1682.81	29.09
10	1673.97	31.86
11	1651.78	39.99
12	1356.88	49.80
13	1188.63	38.11
14	1063.48	71.87
15	857.03	71.41
16	672.79	66.10
17	499.16	79.98
18	487.20	79.90
19	483.16	79.92
20	473.76	76.83
21	468.18	76.65
22	463.94	77.65
23	460.57	78.04
24	456.87	65.92
25	452.11	50.29

Identification by IR: Conforms to structure

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^{1}H NMR Spectrum:

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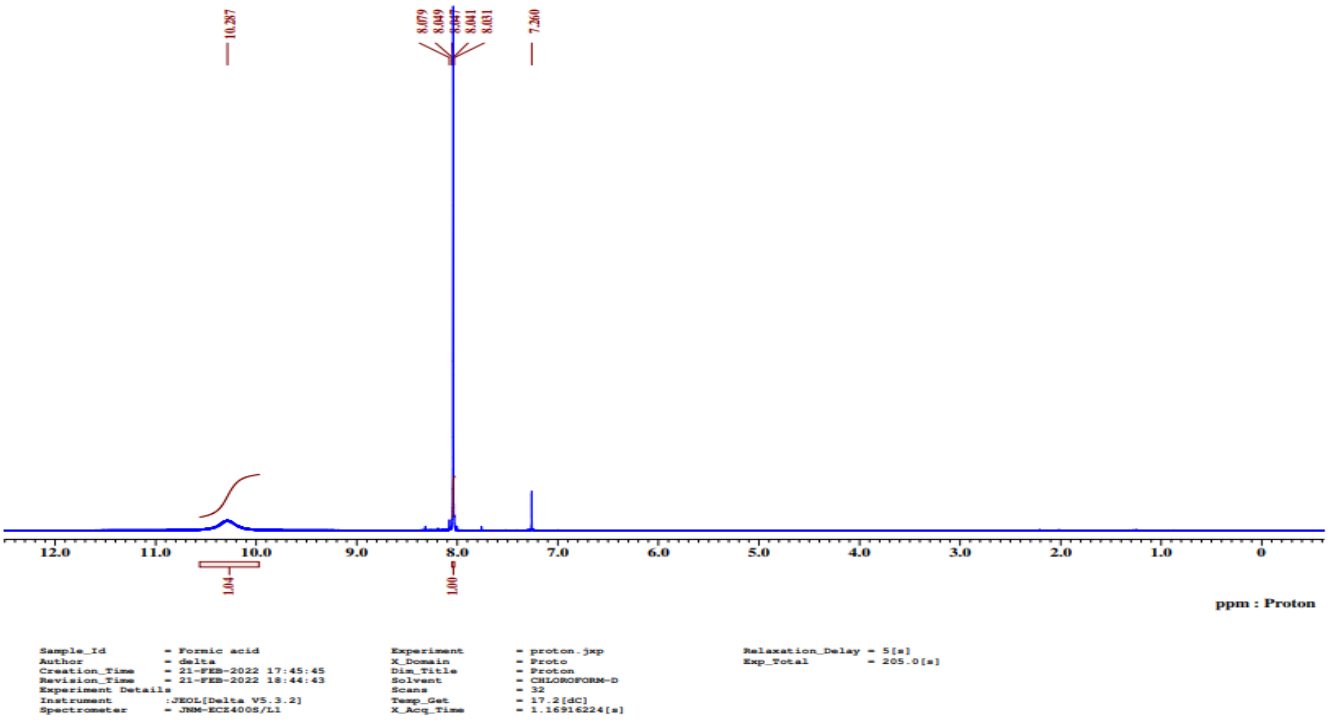
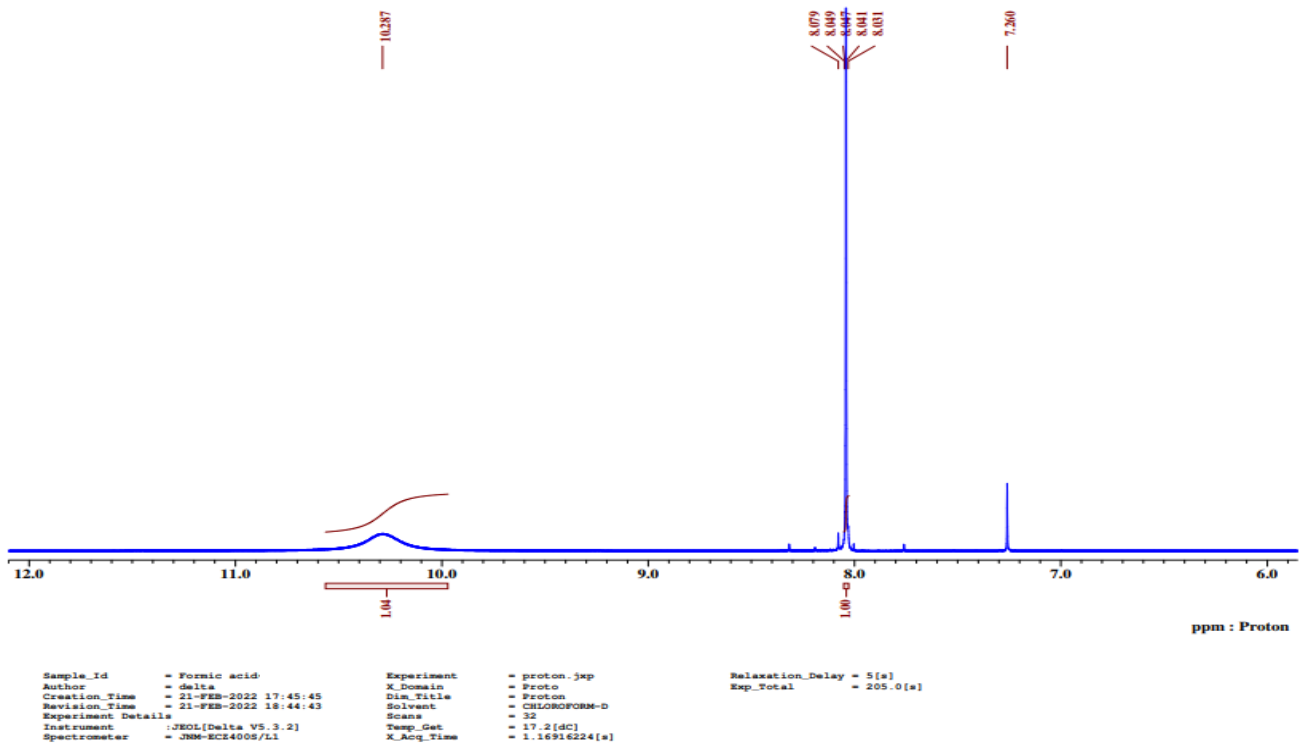
Product Code: PSR36863



^{1}H NMR Spectrum: Expansion



Identification by ^{1}H NMR: Conforms to structure

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Maximum limits of impurities

WATER DETERMINATION

Method: Karl Fisher titration
Water content (PSR36863) = **0.979%**

Approved By

Head - Technical