

Certificate of Analysis

Methyl methanesulfonate

PurCert Standard for GC

Product Number	PSR28348	CAS No.	66-27-3
Brand	PureSynth	Lot No.	TP05SP
Molecular Formula	C ₂ H ₆ O ₃ S	Date of Mfg.	July.2021
Molecular Weight	110.13g/mol	Date of Exp.	June.2025

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Clarity	Clear	Clear
Assay (GC-FID)	≥ 97.0 %	97.41 %
Water (by KF)	≤0.2%	0.1748 %
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 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:

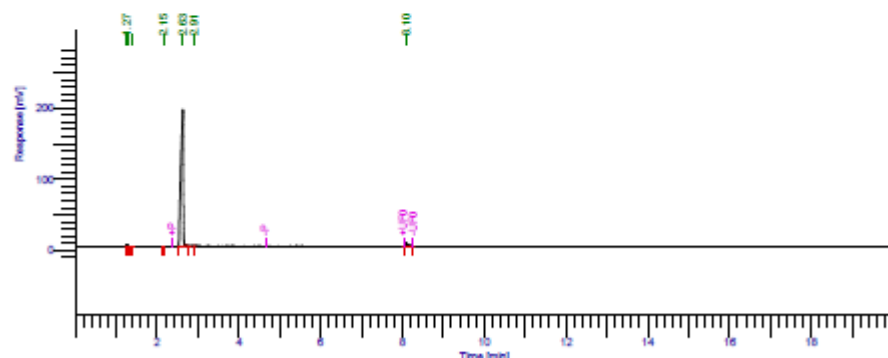
Column: Agilent Technologies DB-FFAP 30mx 0.530mm, 1.0micron

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	: 17-08-2021 8.30.16 AM
Operator	: manager	Sample Name	: AR21000502-methylmethanesulfonat-
Sample Number	: 1		tp05sp
AutoSampler	: BUILT-IN	Study	: GC Purity
Instrument Name	: Clarus 680	Rack/Vial	: 0/31
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	: 17-08-2021 8.01.38 AM	Area Reject	: 0.000000
		Dilution Factor	: 1.00
		Cycle	: 1



GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		1.267	3378.87	2133.67	0.42
2		1.298	1165.38	1059.31	0.15
3		1.386	195.63	187.73	0.02
4		2.154	87.12	58.44	0.01
5		2.632	777743.89	192089.33	97.41
6		2.914	38.44	26.46	0.00
7		8.096	15834.42	3909.74	1.98
			798443.75	199464.68	100.00

Missing Component Report

Component Expected Retention (Calibration File)

All components were found

Purity by GC-FID: 97.41 %

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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

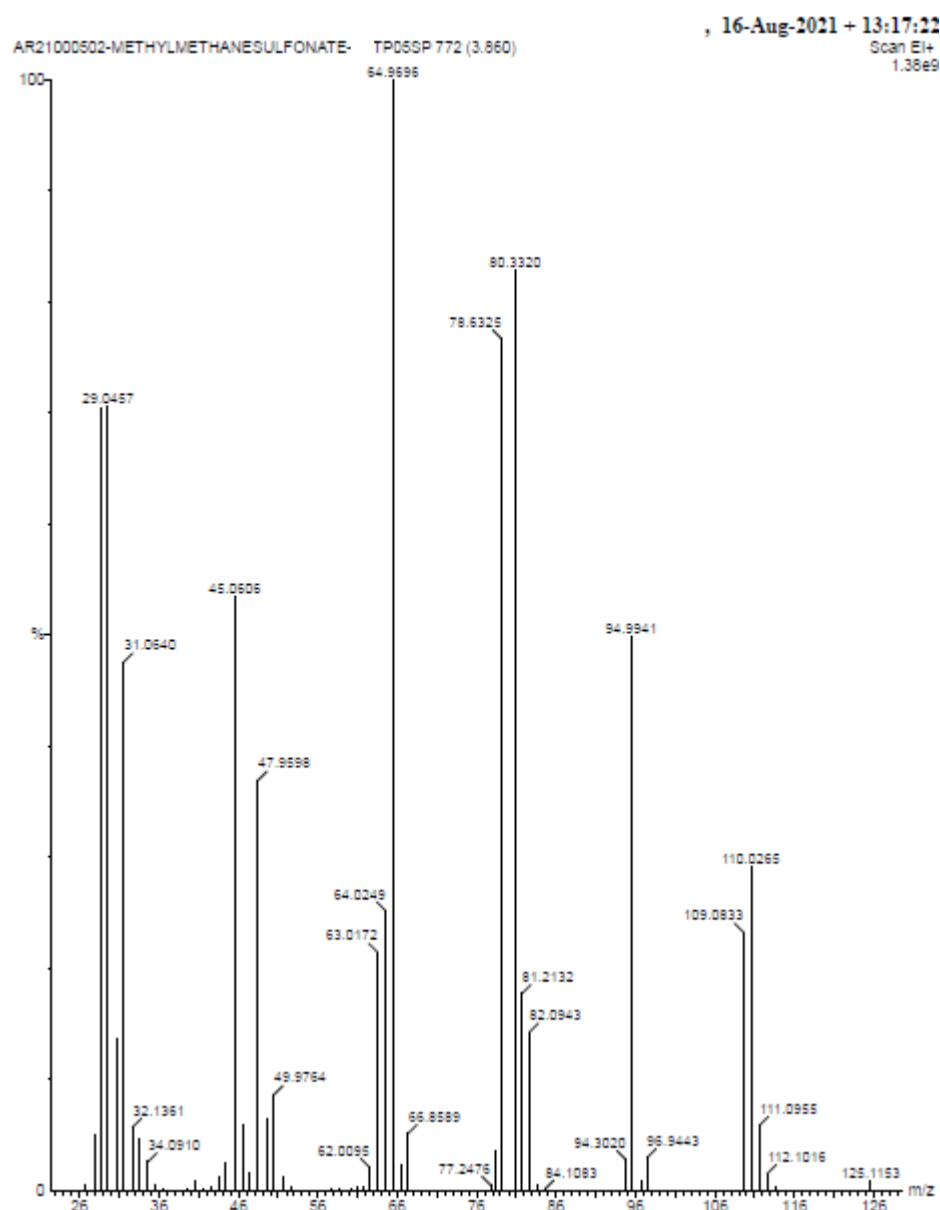
Inlet Temp.: 180°C, **Diluent:** Methanol

Source energy: 70eV

Mass by GC-MS:

Product Name: Methyl methanesulfonate

Product Code: PSR28348



Identification by GC-MS: Conform to molecular

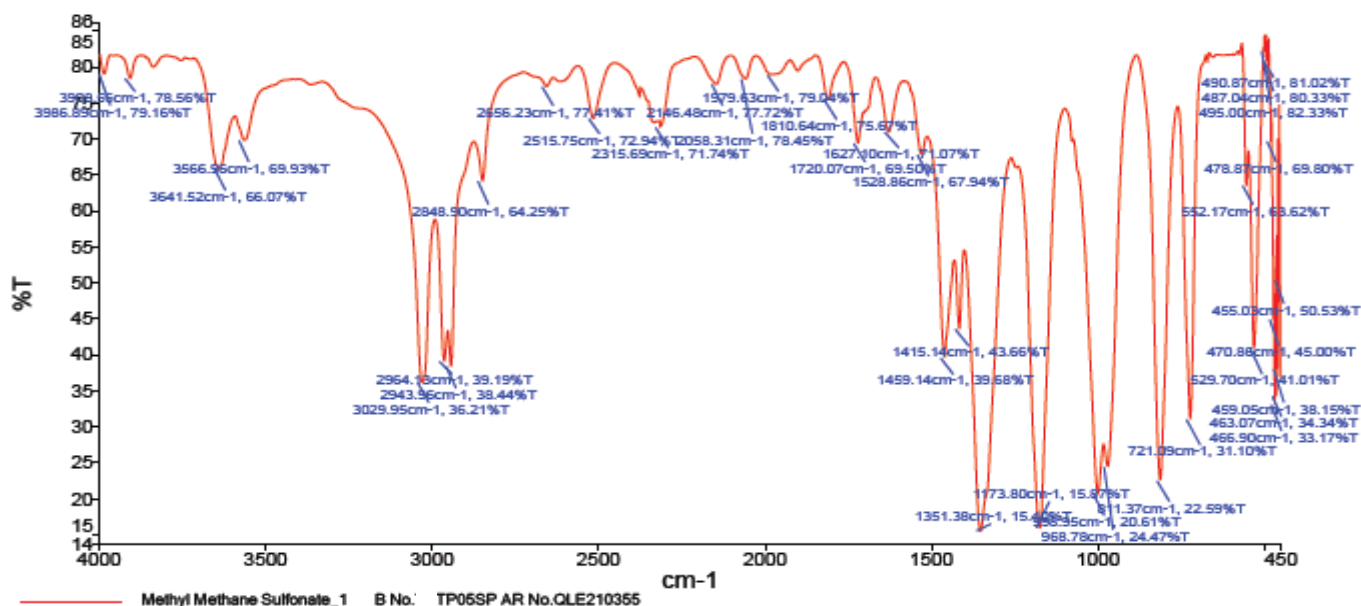
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Infrared spectrum:

Product Name: Methyl methanesulfonate

Product Code: PSR28348



Source Spectra Results		
Spectrum Name	Number Of Peaks	
Methyl Methane Sulfonate_1	38	
List of Peak Areas/Height:		
Peak Number	X (cm-1)	Y (%T)
1	3986.89	79.16
2	3908.56	78.56
3	3641.52	66.07
4	3566.96	69.93
5	3029.95	36.21
6	2964.13	39.19
7	2943.96	38.44
8	2848.90	64.25
9	2656.23	77.41
10	2515.75	72.94
11	2315.69	71.74
12	2146.48	77.72
13	2058.31	78.45
14	1979.63	79.04
15	1810.64	75.67
16	1720.07	69.50
17	1627.10	71.07
18	1528.86	67.94
19	1459.14	39.68
20	1415.14	43.66
21	1351.38	15.40
22	1173.80	15.87
23	998.95	20.61
24	968.78	24.47
25	811.37	22.59
26	721.09	31.10
27	552.17	63.62
28	529.70	41.01
29	495.00	82.33
30	490.87	81.02
31	487.04	80.33
32	478.87	69.80
33	470.86	45.00
34	466.90	33.17
35	463.07	34.34
36	459.05	38.15
37	455.03	50.53
38	451.00	36.96

Identification by IR: Conform to structure

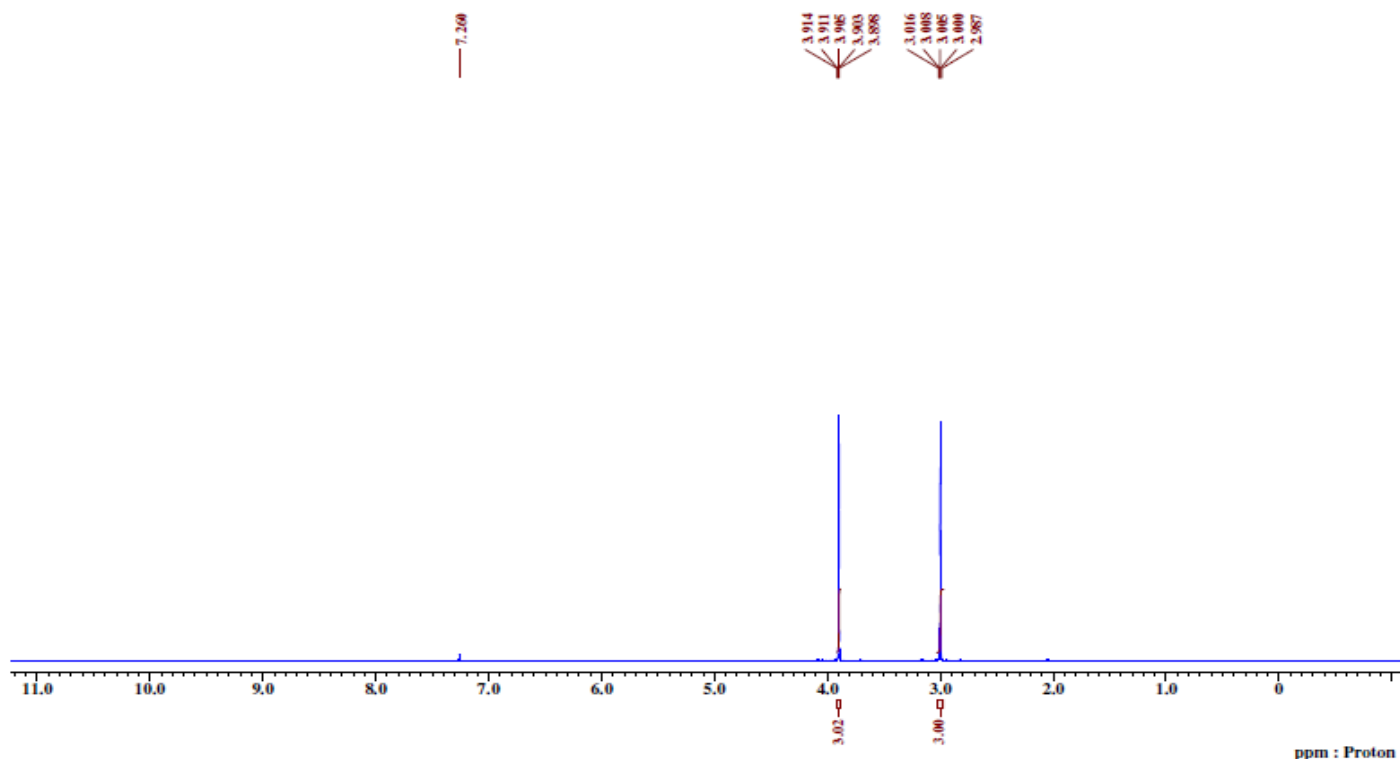
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¹H NMR Spectrum:

Product Name: Methyl methanesulfonate

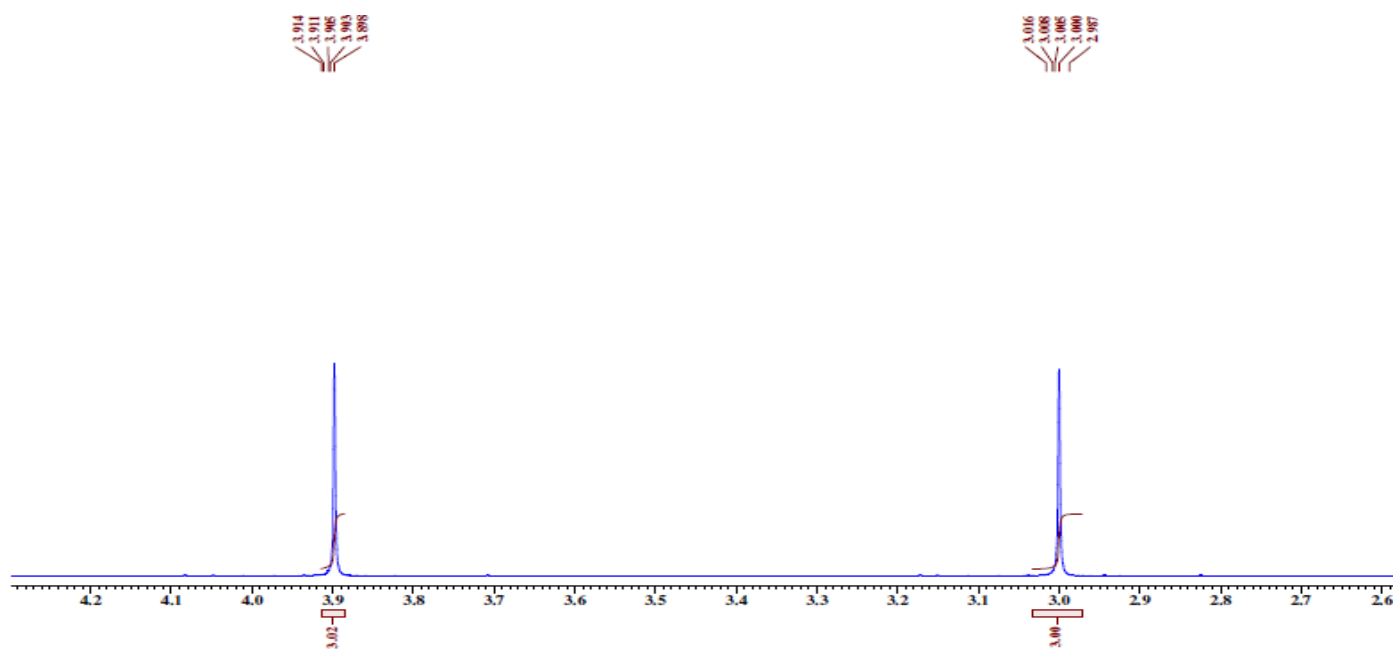
Product Code: PSR28348



Sample_Id = METHYL METHANE SULFONATE- TP05SP
Author = delta
Operated by = Vishnu
Creation_Time = 23-AUG-2021 14:10:17
Revision_Time = 24-AUG-2021 10:34:56
Experiment Details

Instrument = JEOL[Delta v5.3.2]
Spectrometer = JNM-ECS400S/L1
Experiment = proton_auto.jpg
X_Domain = Proton
Dia_Title = Proton
Solvent = CHLOROFORM-D

¹H NMR Spectrum: Expansion



Sample_Id = METHYL METHANE SULFONATE- TP05SP
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Identification by ¹H NMR: Conform to structure

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Maximum limits of impurities

WATER DETERMINATION

Method: Karl Fisher titration

Water Content (PSR28348) = **0.1748%**

Approved By
Head - Technical

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