

# Certificate of Analysis

## Ethylene glycol

### PurCert Standard for GC

(Secondary Reference Standard)

<b>Product Number</b>	PSR28281	<b>CAS No.</b>	107-21-1
<b>Brand</b>	PureSynth	<b>Lot No.</b>	E28281P0324
<b>Molecular Formula</b>	C <sub>2</sub> H <sub>6</sub> O <sub>2</sub>	<b>Date of Mfg.</b>	March,2024
<b>Molecular Weight</b>	62.07 g/mol	<b>Date of Exp.</b>	February,2027

Test	Specification	Result
Description	Colorless liquid	Colorless liquid
Assay (GC-FID)	≥ 99.5 %	99.79 %
Water (By KF)	NMT 0.300 %	0.207 %
Density		1.113 g/cm <sup>3</sup>
Identification by <sup>1</sup> 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, Lot No: R093Q0.**

**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:

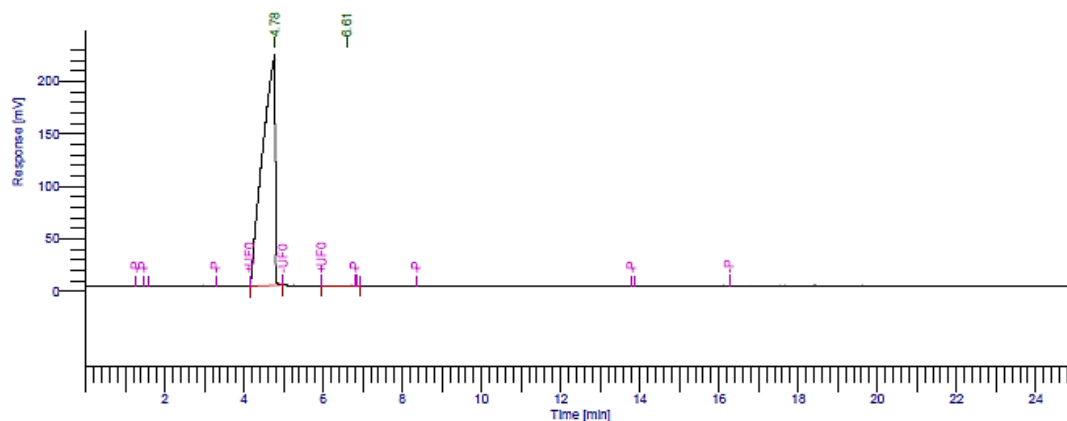
**Column:** Agilent Technologies DB-FFAP 30mx 0.530mm, 1.0micron

**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	: 29-04-2024 10:26:55
Operator	: manager	Sample Name	: Ethylene Glycol
Sample Number	: 001	Study	:
AutoSampler	: BUILT-IN	Rack/Vial	: 0/8
Instrument Name	: Clarus 690	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 25.00 min
Sampling Rate	: 12.5000 pts/s	Area Reject	: 0.000000
Sample Volume	: 1.000000 ul	Dilution Factor	: 1.00
Sample Amount	: 1.0000	Cycle	: 1
Data Acquisition Time	: 27-04-2024 14:09:13		



## GC Reports

Peak #	Component Name	Time [min]	Area [uV*sec]	Height [uV]	Area [%]
1		4.780	4729321.20	219533.31	99.79
2		6.605	9737.21	313.37	0.21
			4739058.41	219846.68	100.00

Missing Component Report  
Component Expected Retention (Calibration File)

All components were found

**Purity by GC-FID: 99.79 %**

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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:

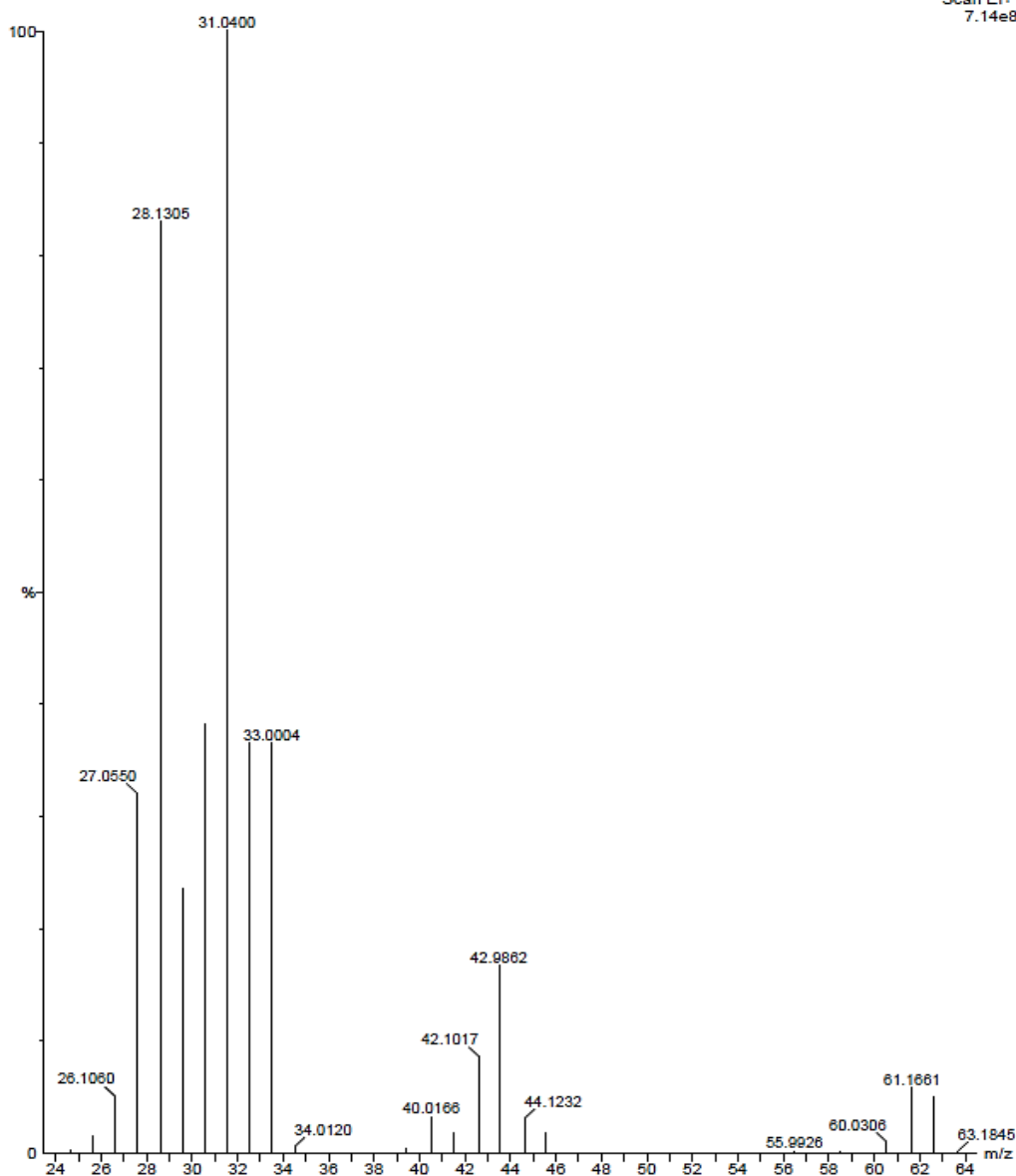
Product Name: Ethylene glycol

Product Code: PSR28281

Ethylene glycol-E28281P0324

, 27-Apr-2024 + 01:24:02

Scan E1+  
7.14e8



Identification by GC-MS: Conforms to molecular mass

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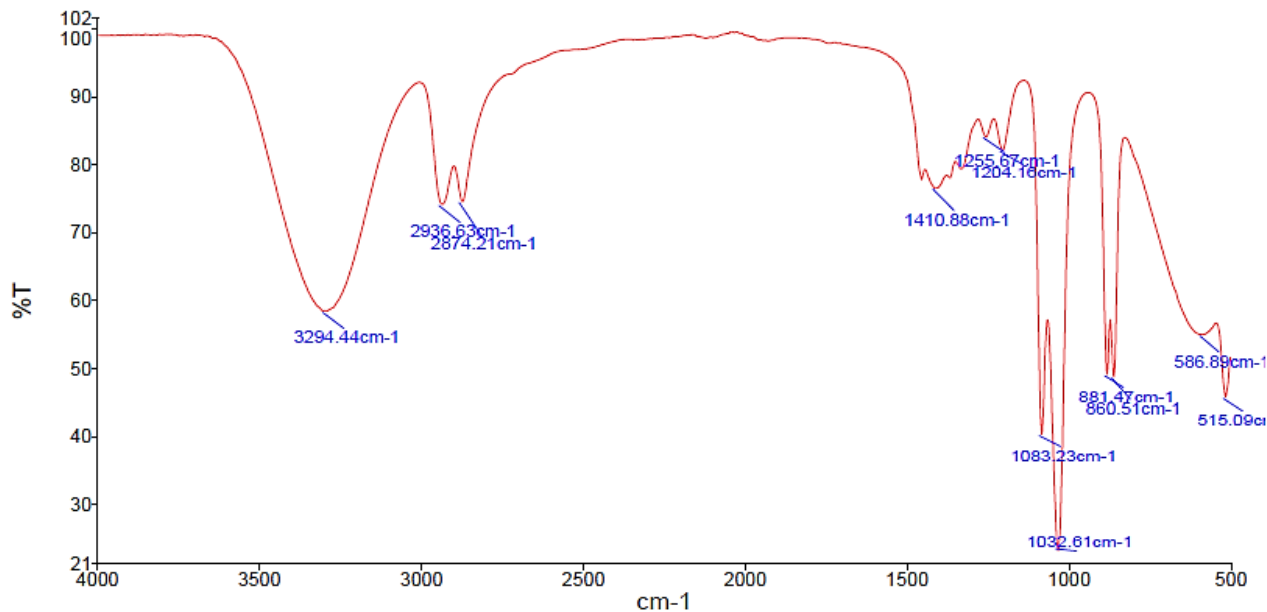
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**Infrared spectrum:**

**Product Name: Ethylene glycol**

**Product Code: PSR28281**

Analyst  
Date



AR24000228-ETHYLENE GLYCOL-E28281P0324\_1 Sample 007 By Analyst Date Saturday, April 27 2024

Source Spectra Results		
Spectrum Name	Number Of Peaks	
AR24000228-ETHYLENE GLYCOL-E28281P0324_1	12	
List of Peak Area/Height		
Peak Number	X (cm-1)	Y (%T)
1	3294.44	58.46
2	2936.63	74.21
3	2874.21	74.65
4	1410.88	76.59
5	1255.67	84.19
6	1204.16	82.17
7	1083.23	40.35
8	1032.61	23.18
9	881.47	49.17
10	860.51	48.84
11	586.89	55.00
12	515.09	45.81

**Identification by IR: Conforms to structure**

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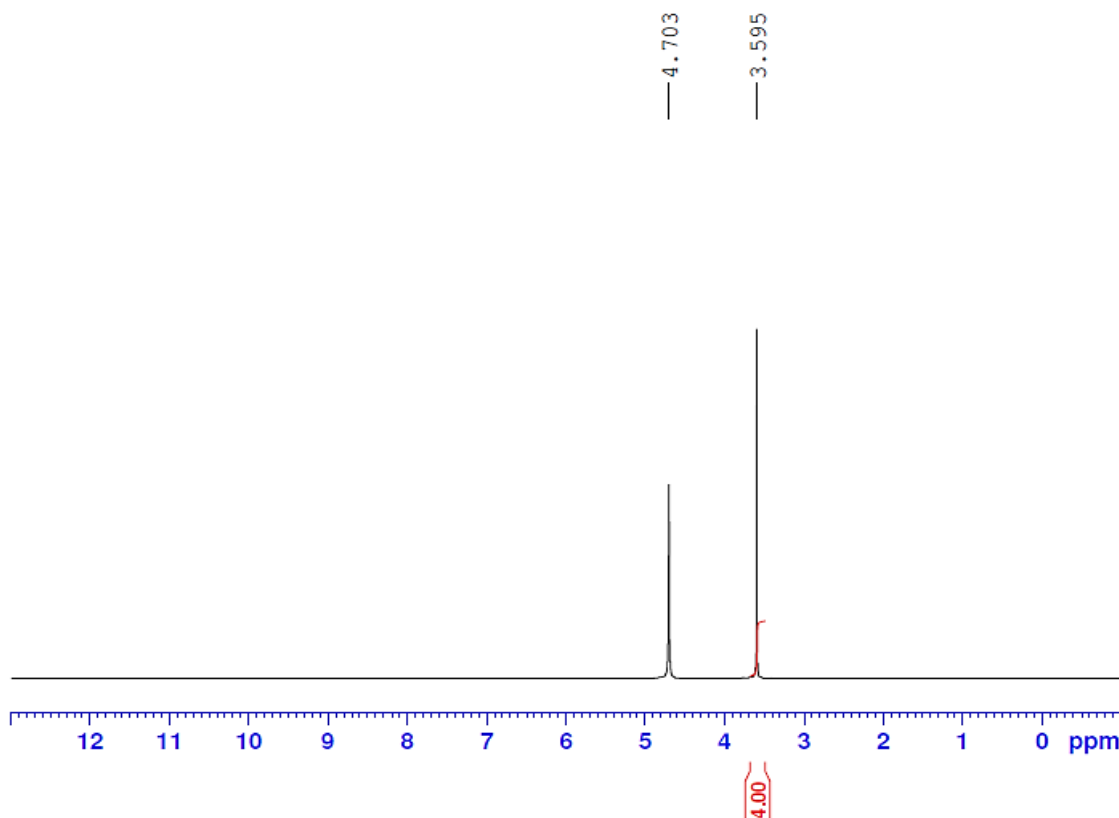
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**<sup>1</sup>H NMR Spectrum:**

**Product Name:** Ethylene glycol

**Product Code:** PSR28281

Ethylene Glycol  
Batch No: E28281P0324  
1H-NMR in D2O



Identification by <sup>1</sup>H NMR: Conforms to structure

**Maximum limits of impurities**

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**WATER DETERMINATION**

Method: Karl Fisher titration

Water Content (PSR28281) = **0.207 %**

Approved By  
Head - Technical

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