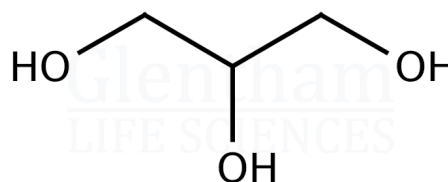


## Certificate of Analysis

Product Name	Glycerol, 99.5%, Ph. Eur., USP, Ultrapure
Glentham Code	GC5551
CAS Number	56-81-5
EINECS	200-289-5
MDL Number	MFCD00004722
Batch Number	421BFS
Molecular Weight	92.09
Molecular Formula	$C_3H_8O_3$
Storage Temp.	+20°C



Property	Specification	Batch 421BFS
Physical Description	Clear, colourless liquid	Conforms
Identification	According to Ph. Eur., USP	Conforms
Solubility (20% in water)	Clear, colourless solution	Conforms
Acidity or Alkalinity	≤ 0.2ml (of 0.1M NaOH required)	0.07ml
Refractive Index	1.470 - 1.475	1.474
Aldehydes	≤ 10ppm	Conforms
Esters	≥ 8.0ml (of 0.1M HCl required)	8.2ml
Diethylene Glycol	≤ 0.1%	Conforms
Any Individual Impurity	≤ 0.1% (with a retention time ≤ glycerol, Ph. Eur.)	Conforms
Total Impurities	≤ 0.5% (with a retention time ≥ glycerol, Ph. Eur.)	Conforms
Any Individual Impurity	≤ 0.1% (USP)	Conforms
Sugars	To pass Ph. Eur. test	Conforms
Chlorides	≤ 10ppm	1.35ppm
Sulphates	≤ 20ppm	≤ 5ppm
Halogenated Compounds	≤ 35ppm	Conforms
Chlorinated Compounds	≤ 30ppm	Conforms
Fatty Acids and Esters	≤ 1.0ml (of 0.5M NaOH required)	0.7ml
Colour	To pass USP test	Conforms
Specific Gravity	≥ 1.249	1.261
Heavy Metals (as Pb)	≤ 5ppm	Conforms
Sulphated Ash	≤ 0.01%	0.001%
Arsenic (As)	≤ 3ppm	Conforms
Lead (Pb)	≤ 2ppm	Conforms
Cadmium (Cd)	≤ 1ppm	Conforms
Mercury (Hg)	≤ 1ppm	Conforms
Water	≤ 1.0%	0.32%
Assay	99.5 - 101.0 % (Ph. Eur. test)	99.8%

## Certificate of Analysis

Assay	99.5 - 101.0 % (USP test)	99.8%
Pharmacopoeia Specification(s)	Ph. Eur., USP	Conforms
Specification Version	v1.1	
Manufacture Date	2022-11-07	
Re-Test Date	2030-11-01	

Glentham Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check [www.glentham.com](http://www.glentham.com) or contact us using the details above for the current version of this document.

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