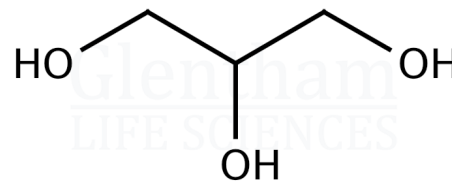


Certificate of Analysis

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 or contact us using the details above for the current version of this document.

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