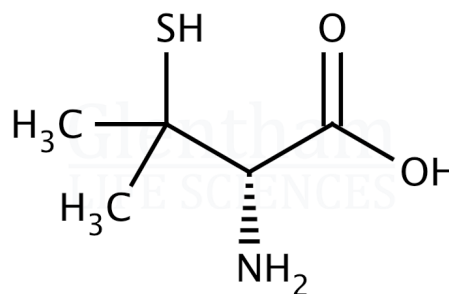


Certificate of Analysis

Product Name	D-Penicillamine, USP grade
Glentham Code	GA5612
CAS Number	52-67-5
EINECS	200-148-8
MDL Number	MFCD00064302
PubChem SID	310278558
Batch Number	132QKH
Molecular Weight	149.21
Molecular Formula	C ₅ H ₁₁ NO ₂ S
Storage Temp.	+4°C



Property	Specification	Batch 132QKH
Physical Description	White to off-white powder or solid	White powder
Assay	97.0 - 102.0 %	100.3%
Specific Optical Rotation	-60.5 - -64.5 °	-62.1°
pH	4.5 - 5.5	5.0
Loss on Drying	≤ 0.5%	0.0%
Residue on Ignition	≤ 0.1%	0.0%
Heavy Metals	≤ 20ppm	≤ 50ppm
Mercury (Hg)	≤ 20ppm	≤ 50ppm
Limit of Penicillin Activity	≤ 200IU/mg	Conforms
Organic Impurities	Penicillamine disulfide: ≤1.0%	0.10%
Residual Solvents	n-Butanol: ≤ 5000ppm, Methanol: ≤ 3000ppm	Conforms
Pharmacopoeia Specification(s)	USP	Conforms

Specification Version	v1.0
Manufacture Date	2018-06-27
Re-Test Date	2027-06-16

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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