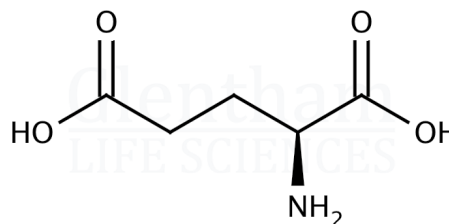


Certificate of Analysis

Product Name L-Glutamic acid
Glenthams Code GM3277
CAS Number 56-86-0
EINECS 200-293-7
Numéro MDL MFCD00002634
PubChem SID 310274214
Batch Number 325AVH

Molecular Weight 147.13
Molecular Formula $C_5H_9NO_4$
Storage Temp. +20°C



Property	Specification	Batch 325AVH
Physical Description	White to almost white crystalline powder	White crystalline powder
Identification (IR)	To conform to standard	Conforms
Solubility (10% in 2M HCl)	Clear, colourless solution	Clear, colourless solution
Transmittance	≥ 98.0%	Conforms
Specific Optical Rotation ([α] _D ²⁰)	+31.5 - +32.4 ° (c=10, 2M HCl)	+32.2°
pH	3.0 - 3.5	3.4
Heavy Metals (as Pb)	≤ 10ppm	< 10ppm
Arsenic (As)	≤ 1ppm	< 1ppm
Iron (Fe)	≤ 10ppm	< 10ppm
Ammonium (NH ₄)	≤ 0.02%	< 0.02%
Sulphate (SO ₄)	≤ 0.02%	< 0.02%
Chloride (Cl)	≤ 0.02%	< 0.02%
Other Amino Acids	None detected	Conforms
Any Individual Impurity (TLC)	≤ 0.5%	Conforms
Total Impurities (TLC)	≤ 2.0%	Conforms
Residue on Ignition	≤ 0.1%	< 0.1%
Loss on Drying	≤ 0.1% (105°C, 3h)	< 0.1%
Assay (Titration)	99.0 - 101.0 % (dried basis)	99.9%
Pharmacopoeia Specification(s)	USP, AII	Conforms

Specification Version v1.2
Manufacture Date 2023-07-12
Re-Test Date 2032-09-29

Glenthams Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check www.glenthams.com or contact us using the details above for the current version of this document.

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