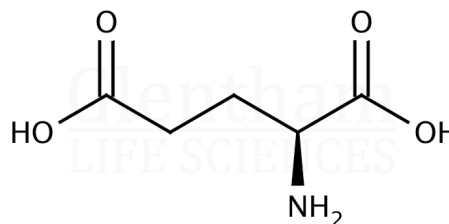


Certificate of Analysis

Product Name L-Glutamic acid
Glenthams Code GM3277
CAS Number 56-86-0
EINECS 200-293-7
MDL-Nummer 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	Entspricht
Solubility (10% in 2M HCl)	Clear, colourless solution	Clear, colourless solution
Transmittance	≥ 98.0%	Entspricht
Specific Optical Rotation ($[\alpha]_{20/D}$)	+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	Entspricht
Any Individual Impurity (TLC)	≤ 0.5%	Entspricht
Total Impurities (TLC)	≤ 2.0%	Entspricht
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	Entspricht

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

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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