Acros Organics BV (Thermo Fisher Scientific)
Janssen Pharmaceuticalaan 3a
Geel,
2440, Belgium

CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek. Certificate Number. 2317548

Catalogue Number	38603
Lot Number	A0479408
Description	L(+)-Glutamine,specified according to the requirements of USP
CAS Number	56-85-9
Quality Test/Release Date	15/Jan/2026
Suggested retest date	15/Jan/2029
Country of Origin	CHINA
Declaration of Origin	plant
BSE/TSE	made by fermentation of vegetable raw material

Result Name	Units	Specifications	Test Value
Appearance (Color)		White to almost white	White
Appearance (Form)		Crystalline powder or flakes	Crystalline powder
Infrared spectrum		Conforms	Conforms
Titration with HClO4	%	98.5 to 101.5 (On dried basis)	99.3 (On dried basis)
Loss on drying	%	=<0.3 (1 g, 105°C, 3 h)	0.3 (1 g, 105°C, 3 h)
Residue after ignition	%	=<0.3	0.01
Specific optical rotation		+6.3° to +7.3° (20°C, 589 nm) (C=4, water)	+6.3° (20°C, 589 nm) (C=4, water)
Specific optical rotation		(Warm at 40°C to dissolve)	(Warm at 40°C to dissolve)
Chloride (Cl)	%	=<0.05	=<0.05
Sulfate (SO4)	%	=<0.03	=<0.03
Iron (Fe)	ppm	=<30	=<30
Related substances	%	=<0.5 (TLC)	=<0.5 (TLC)



Geert Torfs
Supervisor, QC

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third-party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.