

## Certificate of Analysis

Date of Testing: 2024-09-19 12:13:31  
Date of Next Testing: 2027-09-19 12:13:31  
Product Name: **L-Glutamine**  
CAS Number: 56-85-9  
Specifications & Purity: meets USP testing specifications, suitable for cell culture, 99.0-101.0%, from non-animal source  
Lot #: I2410502  
SKU #: **L432948**  
Version: **2**  
Analysis #: **394756**

Parameter	Limit Values	Result
Purity(dry basis) (Titration)	99.0-101.0 (%)	99.30 %
Chloride Content	0-0.02 (%)	0.01 %
Ammonium (NH <sub>4</sub> )	0-0.1 (%)	0.01000 %
Sulfate(SO <sub>4</sub> )	0-0.02 (%)	0.01000 %
Iron(Fe)	0-10 (ppm)	5.00 ppm
Arsenic(As)	0-1 (ppm)	0.20000 ppm
loss on drying(105°C,3 h)	0-0.3 (%)	0.05 %
Residue on ignition(Ash)	0-0.1 (%)	0.04000 %
PH 2% Water	4.5-6.0	5.40
Specific Rotation [α] <sub>20</sub> /D(c=4 in H <sub>2</sub> O)	6.3-7.3 (°)	6.32 °
Endotoxin Level(30 mg/mL)	0-1 (EU/ml)	1.00000 EU/ml
Infrared spectrum	Conforms to structure	Conforms to Structure
NMR Spectrum 1H	Conforms to structure	Conforms to Structure
Ninhydrin-Positive Substances	Conforms	Conforms
Residual Solvents USP <467>	meets the requirements	meets the requirements



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ALADDIN SCIENTIFIC CORPORATION

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A handwritten signature in black ink that reads "John Su".

John Su  
QA & QC Manager