

Certificate of Analysis

Date of Testing: 2023-06-02 16:53:18
 Date of Next Testing: 2026-06-01 16:53:18
 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 #: E23291269
 SKU #: **L432948**
 Analysis: **204580**

| Parameter | Limit Values | Result |
|---|------------------------|------------------------|
| Purity(dry basis) (Titration) | 99.0-101.0 (%) | 100.47 % |
| Chloride Content | 0-0.02 (%) | 0.01 % |
| Ammonium (NH ₄) | 0-0.1 (%) | 0.00000 % |
| Sulfate(SO ₄) | 0-0.02 (%) | 0.00230 % |
| Iron(Fe) | 0-10 (ppm) | 0.00 ppm |
| Arsenic(As) | 0-1 (ppm) | 0.00000 ppm |
| loss on drying(105°C,3 h) | 0-0.3 (%) | 0.29 % |
| PH 2% Water | 4.5-6.0 | 4.75 |
| Specific Rotation [α] ₂₀ /D(c=5 in H ₂ O) | 6.3-7.3 (°) | 6.33° |
| Endotoxin Level(30 mg/mL) | 0-1 (EU/ml) | 0.01200 EU/ml |
| Residue on ignition(Ash) | 0-0.1 (%) | 0.09800 % |
| NMR Spectrum 1H | Conforms to structure | Conforms to Structure |
| Ninhydrin-Positive Substances | Conforms | Conforms |
| Residual Solvents USP <467> | meets the requirements | meets the requirements |
| Infrared spectrum | Conforms to structure | Conforms to Structure |



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A handwritten signature in black ink that reads "John Su". The signature is written in a cursive, flowing style.

John Su
QA & QC Manager