

Certificate of Analysis

Date of Testing: 2025-06-27 13:44:09

Date of Next Testing: 2029-06-26 13:44:09

Product Name: **L(+)-Glutamic acid**

CAS Number: 56-86-0

Specifications & Purity: Ultra pure, ≥99.5%(NT)

Lot #: F2519760

SKU #: **G103979**

Version: **1**

Analysis #: **518237**

Storage Temperature: Argon charged

Parameter	Limit Values	Result
Ammonia (NH ₄)	0-0.02 (%)	0.00 %
Chloride (Cl ⁻)	0-0.02 (%)	0.00 %
Ignition Residue (as sulfate)	0-0.05 (%)	0.02 %
Sulfate(SO ₄ ²⁻)	0-200 (ppm)	10.00 ppm
Loss on drying	0-0.5 (%)	0.06 %
foreign amino acids	0-0.5 (%)	0.10 %
Nickel(Ni)	0-5 (ppm)	1.80 ppm
Calcium(Ca)	0-200 (ppm)	135.00 ppm
Cadmium(Cd)	0-5 (ppm)	3.20 ppm
Zinc(Zn)	0-5 (ppm)	2.90 ppm
Iron(Fe)	0-5 (ppm)	1.90 ppm
Potassium(K)	0-50 (ppm)	29.00 ppm
Bismuth(Bi)	0-5 (ppm)	3.10 ppm
Magnesium(Mg)	0-5 (ppm)	2.60 ppm
Lithium(Li)	0-5 (ppm)	2.00 ppm
Barium(Ba)	0-5 (ppm)	3.00 ppm
Sodium(Na)	0-200 (ppm)	130.00 ppm
Aluminum(Al)	0-5 (ppm)	3.50 ppm
Cobalt(Co)	0-5 (ppm)	2.00 ppm
(Pb)Lead	0-5 (ppm)	2.00 ppm
Molybdenum(Mo)	0-5 (ppm)	1.00 ppm
Chromium(Cr)	0-5 (ppm)	2.00 ppm
Strontium(Sr)	0-5 (ppm)	3.00 ppm
Copper(Cu)	0-5 (ppm)	2.00 ppm
Specific Rotation [α] ₂₀ /D(c=5 in 5 M HCl)	30.5-32.5 (°)	30.60 °

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Parameter	Limit Values	Result
Manganese(Mn)	0-5	3.50
Purity(Nonaqueous Titration)(As drybase)	99-101 (%)	99.40 %
UV Absorbance 260nm	0-0.15	0.12
UV Absorbance 280nm	0-0.15	0.08
Appearance (G103979)	white powder to crystal	White powder to crystal
Infrared spectrum	Conforms to Structure	Conforms to Structure
λ , 1 M in 1 M HCl	Pass	Pass
Insoluble matter	pass	Pass
Solubility 1M HCl , soluble 1 M at 20°C, clear, colorless	pass	Pass

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

John Su
QA & QC Manager