

ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

Certificate of Analysis

Date of Testing:	2024-08-20 14:35:42
Date of Next Testing:	2028-08-19 14:35:42
Product Name:	L-Serine
CAS Number:	56-45-1
Specifications & Purity:	Ultra Pure, ≥99.5% (NT)
Lot #:	H2405403
SKU #	S137888
Version	0
Analysis #:	392040

Parameter	Limit Values	Result
Sodium(Na)	0-50 (ppm)	0.00 ppm
Chromium(Cr)	0-5 (ppm)	0.00 ppm
loss on drying, 20 °C (HV)	0-0.1 (%)	0.03 %
Cadmium(Cd)	0-5 (ppm)	0.00 ppm
Barium(Ba)	0-5 (ppm)	0.00 ppm
Chloride (Cl-)	0-50 (ppm)	0.00 ppm
Specific Rotation [α] ₂₀ /D(c=5 in 5 M HCl)	12.5-13 (°)	12.83°
Strontium(Sr)	0-5 (ppm)	0.00 ppm
Lithium(Li)	0-5 (ppm)	0.00 ppm
Sulfate(SO ₄ ²⁻)	0-50 (ppm)	0.00 ppm
Lead(Pb)	0-5 (ppm)	0.00 ppm
foreign amino acids	0-0.3 (%)	0.20 %
Molybdenum(Mo)	0-5 (ppm)	0.00 ppm
Copper(Cu)	0-5 (ppm)	0.00 ppm
UV Absorbance 260nm	0-0.05	0.04
Potassium(K)	0-50 (ppm)	0.68 ppm
(As)Arsenic	0-0.1 (ppm)	0.00 ppm
Ignition Residue (as sulfate)	0-0.1 (%)	0.00 %
Bismuth(Bi)	0-5 (ppm)	0.00 ppm
Cobalt(Co)	0-5 (ppm)	0.00 ppm
Iron(Fe)	0-5 (ppm)	0.00 ppm
Nickel(Ni)	0-5 (ppm)	0.00 ppm
Calcium(Ca)	0-50 (ppm)	0.00 ppm
Manganese(Mn)	0-5 (ppm)	0.00 ppm
Zinc(Zn)	0-5 (ppm)	0.00 ppm
Ammonia (NH ₄)	0-100 (ppm)	0.00 ppm

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Parameter	Limit Values	Result
Aluminum(Al)	0-5 (ppm)	0.00 ppm
UV Absorbance 280nm	0-0.05	0.03
Magnesium(Mg)	0-5 (ppm)	0.00 ppm
Purity((NT)	99.5-100.5 (%)	100.48 %
Appearance (S137888)	white powder or crystal powder	white powder or crystal powder
Insoluble matter	pass	Pass
Solubility in 1 M HCl,0.5 M at 20 °C	pass	Pass
λ,0.5 M in 1 M HCl	Pass	Pass

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

John Su
QA & QC Manager