

## Certificate of Analysis

Date of Testing: 2023-05-20 14:26:07  
 Date of Next Testing: 2027-05-19 14:26:07  
 Product Name: **L-Cystine**  
 CAS Number: 56-89-3  
 Specifications & Purity: Ultra pure , 99.5%  
 Lot #: E2315237  
 SKU #: **C108227**  
**Analysis: 198471**  
 Storage Temperature: Protected from light, Desiccated

Parameter	Limit Values	Result
Zinc(Zn)	0-5 (ppm)	0.00 ppm
Potassium(K)	0-50 (ppm)	0.00 ppm
Calcium(Ca)	0-50 (ppm)	0.04 ppm
Cadmium(Cd)	0-5 (ppm)	0.00 ppm
Sodium(Na)	0-150 (ppm)	0.14 ppm
Purity(HPLC)	99.5-100 (%)	99.99200 %
(Pb)Lead	0-5 (ppm)	0.12 ppm
Chloride (Cl-)	0-500 (ppm)	0.01 ppm
Iron(Fe)	0-10 (ppm)	0.01 ppm
Magnesium(Mg)	0-5 (ppm)	0.00 ppm
Chromium(Cr)	0-5 (ppm)	0.00 ppm
Nickel(Ni)	0-5 (ppm)	0.00 ppm
Loss on drying	0-0.1 (%)	0.10 %
Manganese(Mn)	0-5	0.00
Cobalt(Co)	0-5 (ppm)	0.00 ppm
Sulfate(SO42-)	0-100 (ppm)	0.00 ppm
Copper(Cu)	0-6 (ppm)	0.00 ppm
Sulfate Ash	0-0.1 (%)	0.00 %
Specific Rotation [a] <sub>D</sub> 20/D(c=2 in 1 M HCl)	-224--214 (°)	-214.47 °
Infrared spectrum	Conforms to Structure	Conforms to Structure
Insoluble matter	pass	Pass
Appearance(C108227)	Colorless or White Powder to Crystals	Colorless or White Powder to Crystals



ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

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

John Su  
QA & QC Manager