

## Certificate of Analysis

Date of Testing: 2023-05-20 14:15:07  
 Date of Next Testing: 2027-05-19 14:15:07  
 Product Name: **L-Cystine**  
 CAS Number: 56-89-3  
 Specifications & Purity: Ultra pure , 99.5%  
 Lot #: E2315230  
 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

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

John Su  
QA & QC Manager