

## Certificate of Analysis

Date of Testing: 2023-04-11 00:42:37  
 Date of Next Testing: 2027-04-10 00:42:37  
 Product Name: **L-Cystine**  
 CAS Number: 56-89-3  
 Specifications & Purity: from non-animal source, meets EP testing specifications, suitable for cell culture  
 Lot #: D23061391  
 SKU #: **C118619**  
 Analysis: **176852**

Parameter	Limit Values	Result
Endotoxin Assay	0-50 (EU/g)	50.00 EU/g
Chloride	0-0.02 (%)	0.02 %
Iron(Fe)	0-10 (ppm)	3.06 ppm
Heavy metal (as Pb)	0-10 (ppm)	1.36 ppm
Sulfate Ash	0-0.1 (%)	0.03 %
Purity(HPLC)	98.5-100 (%)	99.34400 %
Sulfate(SO42-)	0-0.03 (%)	0.03 %
Ammonia (NH4)	0-200 (ppm)	12.32 ppm
Loss on drying	0-0.5 (%)	0.28 %
Specific Rotation $[\alpha]_{20/D(c=2 \text{ in } 1N \text{ HCl in dried basis})}$	-224--218 (°)	-219.64 °
Appearance (C118619)	White Powder or Crystals	White Powder or Crystals
Cytotoxicity	Pass	Pass
Ninhydrin-Positive Substances	Conforms	Conforms
Origin	non-animal source	non-animal source
Residual solvents	complies	complies
Infrared spectrum	Conforms to Structure	Conforms to Structure



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ALADDIN SCIENTIFIC CORPORATION

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

John Su  
QA & QC Manager