

## Certificate of Analysis

Date of Testing: 2022-07-01 14:50:59  
 Date of Next Testing: 2026-06-30 14:50:59  
 Product Name: **L-Cysteine hydrochloride monohydrate**  
 CAS Number: 7048-04-6  
 Specifications & Purity: from non-animal source, cell culture tested, meets EP, USP  
 Lot #: F2228147  
 SKU #: **C118575**  
**Analysis:** **092637**  
 Storage Temperature: Protected from light, Argon charged

| Parameter  | Limit Values                                   | Result   |
|--|--|--|
| Ignition Residue   | 0-0.1 (%)                                      | 0.03%  |
| Purity(titration with AgNO <sub>3</sub> )(dry basis)       | 98.5-101 (%)                                   | 99.60%   |
| Sulfate(SO <sub>4</sub> <sup>2-</sup> )                    | 0-0.02 (%)                                     | 0.01%  |
| Loss on drying   | 8.5-12 (%)                                     | 9.74%  |
| Iron(Fe)   | 0-10 (ppm)                                     | 8.50 ppm                                       |
| Ammonia (NH <sub>4</sub> )                                 | 0-0.02 (%)                                     | 0.01%  |
| Heavy metal (as Pb)  | 0-10 (ppm)                                     | 9.10 ppm                                       |
| Endotoxin Assay  | 0-1 (EU/mg)                                    | 0.80 EU/mg                                     |
| Specific Rotation [α] <sub>20</sub> /D(c=8 in 1 M HCl)     | 6.1-7.8 (°)                                    | 6.12°  |
| PH( 1% in Water)   | 1.5-2  | 1.56   |
| Chloride (Cl <sup>-</sup> )                                | 19.89-20.29 (%)                                | 19.92%   |
| Appearance (C118575)                                       | White Crystals, Powder or Crystalline<br>Solid | White Crystals, Powder or Crystalline<br>Solid |
| Cell Culture Test  | pass   | Pass   |
| Infrared spectrum  | Conforms to Structure                          | Conforms to Structure                          |
| Ninhydrin-positive substances (other amino acids)          | Conforms                                       | Conforms                                       |
| Origin   | non-animal source                              | non-animal source                              |
| Residual solvents  | complies                                       | complies                                       |
| Solubility in H <sub>2</sub> O , Colorless Clear 100 mg/ml | pass   | Pass   |



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ALADDIN SCIENTIFIC CORPORATION

14078 Meridian Parkway, Riverside, CA. 92518

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

John Su  
QA & QC Manager