

# BIOSPECTRA SOLUTIONS

100 Majestic Way, Bangor, PA 18013 / www.biospectra.us

|                      |  |                    |                       |
|----------------------|--|--------------------|-----------------------|
| Effective Date:      | 09-Mar-2026                            | 09-Mar-2029        | : Date of Next Review |
| Prepared By:         | Ariel McCall                           | BSI-COA-0331 v.1.2 | : Supersedes          |
| QA/QC Approval:      | Jessica DeMaio                         | Hannah Kuchmas     | : Management Approval |
| Reason for Revision: | See Revision History in MasterControl. |                    |                       |

**CERTIFICATE OF ANALYSIS**  
**L-CYSTINE diHCl**  
**BIOTECH, LBLE, GMP**  
**BIO QUALIFIED GRADE / LCYS-6350**  
**LOT: LCYS-L03-0526-0016**

$C_6H_{12}N_2O_4S_2 \cdot 2HCl$  \* F.W. 313.22 g/mol. \* CAS# 30925-07-6

Manufacturing Date: 5/9/26 Retest Date: 11/30/27

Packaging Site: 100 Majestic Way, Bangor PA, 18013

| ANALYSIS                             | SPECIFICATION                               | TEST RESULT                        |
|--------------------------------------|---|------------------------------------|
| Appearance and Color                 | White to Slightly Yellow Crystalline Powder | Slightly Yellow Crystalline Powder |
| Assay, Dried Basis                   | 98.0 - 102.0 %                              | 99.6 %                             |
| Bioburden                            | ≤ 100 CFU/g                                 | <10 CFU/g                          |
| Chloride                             | 22.2 - 23.5 %                               | 22.5 %                             |
| Endotoxin                            | < 0.02 EU/mg                                | <0.02 EU/mg                        |
| Heavy Metals (Pb)                    | < 10 ppm                                    | <0.15 ppm                          |
| Identification, IR                   | Conforms to Reference Standard              | Conforms to Reference Standard     |
| Loss on Drying @ 105°C               | ≤ 0.5%                                      | 0.2 %                              |
| pH (0.1% solution)                   | Report                                      | 2.33                               |
| Residue on Ignition                  | ≤ 0.1 %                                     | <0.1 %                             |
| Specific Rotation, Free Basis @ 20°C | -225.0° to -215.0°                          | -221.6 °                           |
| Solubility                           | Passes Test                                 | Passes Test                        |

COUNTRY OF ORIGIN: India

TEST METHOD REFERENCE: DCN: BSI-ATM-0024

MANUFACTURING DATE: The manufacturing date is representative of the final packaging date at BioSpectra.

INTENDED USE: Material represented by this Certificate of Analysis is suitable for use as a process chemical. It is manufactured in accordance with an ISO Certified Quality Management System. The material represented by this Certificate of Analysis is not suitable to be used as an Active Pharmaceutical Ingredient, Drug, Drug Product or Household Item.

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Prepared by: MP Date: 5/22/26 Job Title: QA Tech II

Reviewed by: David McCall Date: 5/26/26 Job Title: QA Tech III