

BIOBUFFER SOLUTIONS

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

Effective Date:	2-Mar-2026	2-Mar-2029	: Date of Next Review
Prepared By:	Jaron Hughes	BSI-COA-0312 v.1.2	: Supersedes
QA/QC Approval:	Hannah Kuchmas	Jessica DeMaio	: Management Approval
Reason for Revision:	See Revision History in MasterControl.		

CERTIFICATE OF ANALYSIS L-CYSTINE diHCl BIOTECH, LBLE, GMP BIO QUALIFIED GRADE / LCYS-6250 LOT: LCYS-L03-0226-0011

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

Retest Date: 02/29/28

Manufacturing Date: 02/28/26

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 %	99.9 %
Bioburden	≤ 100 CFU/g	< 10 CFU/g
Chloride	22.2 - 23.5 %	22.6 %
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	$\leq 0.5\%$	0.1 %
pH (0.1% solution)	Report	2.29
Residue on Ignition	≤ 0.1 %	< 0.1 %
Specific Rotation, Free Basis @ 20°C	-225.0° to -215.0°	-220.8 °
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.

Prepared by: Chirul McCall Date: 3/3/26 Job Title: QA Tech III

Reviewed by: John R. Bingham Date: 3/3/26 Job Title: QA Supervisor