

BIOSPECTRA

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

Effective Date:	4-Dec-2019	4-Dec-2022	: Date of Next Review
Prepared By:	Kyle Snyder	19-002903 v.2.0	: Supersedes
QA/QC Approval:	Hannah Bernier	Amy Yenko	: Management Approval
Reason for Revision:	See Revision History in ensur.		

CERTIFICATE OF ANALYSIS

L-CYSTINE diHCl

BIO PHARMA GRADE / CY4250-K025

LOT: CY4250-002-1219

$C_6H_{12}N_2O_4S_2 \cdot 2HCl$ * F.W. 313.22 g/mol. * CAS# 30925-07-6
 Manufacture Date: 2/20/2018 Retest Date: 2/29/2020
 Manufacturing Site: 100 Majestic Way, Bangor PA, 18013
 Packaging Date: 2/25/2018
 Packaging Site: 100 Majestic Way, Bangor PA, 18013

ANALYSIS	SPECIFICATION	TEST RESULT
Appearance and Color	White to Slightly Yellow Crystalline Powder	White to Slightly Yellow Crystalline Powder
Assay (Dried Basis)	98.0% - 102.0%	99.7%
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	<10ppm
Identification (IR Spectrum)	Passes Test	Passes Test
Loss on Drying @ 105°C	5.0% max.	0.1%
pH (0.1% soln.)	Report	2.235
Residue on Ignition	0.1% max.	<0.1%
Specific Rotation (Free Basis) @ 20°C	-215.0° to -225.0°	-221.8
Solubility	Passes Test	Passes Test

COUNTRY OF ORIGIN: U.S.A.TEST METHOD REFERENCE: DCN: 17-002319

INTENDED USE: Material represented by this Certificate of Analysis is suitable to be used only as the following: IPEC Compliant GMP Manufactured Chemical for use in further Manufacturing or as a Reagent for Laboratory and Research. 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: H. Bernier Date: 12/4/19Reviewed by: C. Yenko Date: 12/4/19

The information contained herein is the property of BioSpectra. The recipient is responsible for its safe-keeping, and the prevention of unauthorized appropriation, use, disclosure and copying.