



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

Effective Date:	1-Dec-2025	1-Dec-2028	: Date of Next Review
Prepared By:	Carissa Albert	BSI-COA-0218 v.4.5	: Supersedes
QA/QC Approval:	Jaron Hughes	Hannah Kuchmas	: Management Approval
Reason for Revision:	See Revision History in MasterControl		

CERTIFICATE OF ANALYSIS
CYSTEAMINE HCl (2-MEA)
BIO EXCIPIENT GRADE / CSMH-3250

LOT: CSMH-N02-0126-0005

C₂H₇N₁S · HCl ▲ F.W. 113.61 g/mol. ▲ CAS# 156-57-0

Manufacturing Date: 01/09/26 Retest Date: 01/31/28

Manufacturing Site: 100 Majestic Way, Bangor PA, 18013

Packaging Site: 100 Majestic Way, Bangor PA, 18013

ANALYSIS	SPECIFICATION	TEST RESULT
Appearance and Color	White or colorless crystals or powder, may contain lumps	White or colorless crystals or powder, may contain lumps
Appearance of Solution	Colorless, clear solution	Colorless, clear solution
Argentometric Titration	30.6 - 31.8%	31.0%
Assay (HPLC Weight %)	98.0 – 102.0%	99.7%
Bioburden	≤ 100 CFU/g	< 50CFU/g
Endotoxin	≤ 50 EU/g	< 33EU/g
HPLC Minor Component 1 (Area %)	Cystamine ≤2.0%	< 0.2%
Heavy Metals	≤ 20 mg/kg (ppm)	< 20mg/kg (ppm)
Identification (IR)	Conforms to reference standard	Conforms to reference standard
Loss on Drying	≤ 1.0%	0.1%
	Aluminum (Al)	≤ 0.80ppm
	Arsenic (As)	≤ 0.03ppm
	Barium (Ba)	≤ 1.4ppm
	Bismuth (Bi)	≤ 0.40ppm
Trace Metal Analysis (ICP)	Calcium (Ca)	≤ 1.5ppm
	Cadmium (Cd)	≤ 0.004ppm
	Cobalt (Co)	≤ 0.01ppm
	Chromium (Cr)	≤ 0.10ppm
	Copper (Cu)	≤ 0.05ppm
	Iron (Fe)	≤ 0.40ppm

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ANALYSIS	SPECIFICATION	TEST RESULT	
Mercury (Hg)	≤ 1 ppm	< 0.018ppm	
Potassium (K)	≤ 50 ppm	< 4.0ppm	
Lithium (Li)	≤ 5 ppm	< 0.50ppm	
Magnesium (Mg)	≤ 5 ppm	< 0.40ppm	
Manganese (Mn)	≤ 1 ppm	< 0.05ppm	
Molybdenum (Mo)	≤ 5 ppm	< 0.10ppm	
Trace Metal Analysis (ICP)	Sodium (Na)	≤ 50 ppm	< 4.0ppm
	Nickel (Ni)	≤ 1 ppm	< 0.04ppm
	Lead (Pb)	≤ 1 ppm	< 0.01ppm
	Antimony (Sb)	≤ 1 ppm	< 0.18ppm
	Selenium (Se)	≤ 1 ppm	< 0.10ppm
	Strontium (Sr)	≤ 5 ppm	< 0.40ppm
	Vanadium (V)	≤ 1 ppm	< 0.02ppm
	Zinc (Zn)	≤ 1 ppm	< 0.40ppm
Purity (HPLC Area %)	≥ 98.0%	100.0%	
	≥ 92.0%	100.0%	
Purity (Cysteamine (HPLC))	≤ 8.0% related substances	< 0.2%	
Residual Solvents	Ethanol	≤ 5000 ppm	< 2390ppm
	Isopropyl Alcohol (IPA)	≤ 5000 ppm	< 2620ppm
	Tert-Butylmethyl Ether	≤ 5000 ppm	< 2520ppm
Solubility	Clear and colorless	Clear and colorless	

COUNTRY OF ORIGIN: U.S.A.

TEST METHOD REFERENCE: DCN: BSI-ATM-0055

INTENDED USE: Material represented by this Certificate of Analysis is suitable for use as an excipient. It is manufactured in accordance with the ICH Q7 Good Manufacturing Practice Guide. The material represented by this Certificate of Analysis is not suitable to be used as an Active Pharmaceutical Ingredient, Drug Product or Household Item.

Prepared by: April McCall Date: 1/22/26 Job Title: QA Tech 11

Reviewed by: John Wright Date: 1/22/26 Job Title: QA Supervisor