

BIOSPECTRA

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

Effective Date:	22-Jan-2025	22-Jan-2028	: Date of Next Review
Prepared By:	Amy Yenko	Not Applicable	: Supersedes
QA/QC Approval:	Krista Rehrig	Carissa Albert	: Management Approval
Reason for Revision:	See Revision History in MasterControl.		

CERTIFICATE OF ANALYSIS

MES MONOHYDRATE

BIOTECH, GMP

BIO PHARMA GRADE / MESM-4221

LOT: MESM-E02-0625-0031

C₆H₁₃NO₄S·H₂O ★ F.W. 213.3 g/mol. ★ CAS# 145224-94-8

Manufacturing Date: 06/18/25 Retest Date: 06/30/27

Manufacturing Site: 100 Majestic Way, Bangor PA, 18013

Packaging Site: 100 Majestic Way, Bangor PA, 18013

ANALYSIS	SPECIFICATION	TEST RESULT
Absorbance (1M)	260 nm	≤ 0.1000 a.u.
	280 nm	≤ 0.1000 a.u.
Appearance and Color	White / Crystals	White / Crystals
Assay	≥ 99.0 %	99.3 %
Chloride	≤ 50 ppm	< 50 ppm
Color (1M, Alkaline)	Colorless	Colorless
Enzymes	DNase	None Detected
	RNase	None Detected
	Protease	None Detected
Heavy Metals (as Pb)	≤ 2 ppm	< 0.15 ppm
Identification, IR	Conforms to Reference Standard	Passes Test
Loss on Drying @ 130°C	7 – 10 %	9 %
pH (5% solution)	3.1 – 3.5	3.4
pH (0.5M)	2.5 – 4.5	3.3
pK _a	5.9 – 6.3	6.1
Residue on Ignition	≤ 0.05 %	< 0.05 %
Sulfate	≤ 50 ppm	< 50 ppm

ANALYSIS	SPECIFICATION	TEST RESULT
Arsenic (As)	≤ 2 ppm	< 0.45 ppm
Calcium (Ca)	≤ 50 ppm	< 15 ppm
Cadmium (Cd)	≤ 5 ppm	< 0.06 ppm
Cobalt (Co)	≤ 5 ppm	< 0.15 ppm
Copper (Cu)	≤ 2 ppm	< 1.5 ppm
Chromium (Cr)	≤ 5 ppm	< 1.5 ppm
Trace Metals Iron (Fe)	≤ 2 ppm	< 1.5 ppm
Lead (Pb)	≤ 2 ppm	< 0.15 ppm
Magnesium (Mg)	≤ 5 ppm	< 1.5 ppm
Manganese (Mn)	≤ 5 ppm	< 1.5 ppm
Nickel (Ni)	≤ 5 ppm	< 0.60 ppm
Potassium (K)	≤ 50 ppm	< 15 ppm
Sodium (Na)	≤ 50 ppm	< 15 ppm
Zinc (Zn)	≤ 5 ppm	< 1.5 ppm

COUNTRY OF ORIGIN: U.S.A.

TEST METHOD REFERENCE: DCN: BSI-ATM-0009

INTENDED USE: Material represented by this Certificate of Analysis is suitable for use as a process chemical. It is manufactured in accordance with the IPEC-PQG Joint Good Manufacturing Practice Guide. 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: Shirley McCall Date: 1/5/26 Job Title: QA Tech III

Reviewed by: Joan Bligh Date: 1/6/26 Job Title: QA Supervisor