

BIO SPECTRA

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

Effective Date:	22-Apr-2025	22-Apr-2028	: Date of Next Review
Prepared By:	Carissa Albert	BSI-COA-0238 v.1.2	: Supersedes
QA/QC Approval:	Jaron Hughes	Krista Rehrig	: Management Approval
Reason for Revision:	See Revision History in MasterControl		

CERTIFICATE OF ANALYSIS

MES MONOHYDRATE

BIO EXCIPIENT GRADE / MESM-3250

LOT: MESM-E02-0925-0049

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

Manufacturing Date: 09/30/25 Retest Date: 09/30/27

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. max.	0.0028 a.u.
	280 nm 0.1000 a.u. max.	0.0020 a.u.
Appearance and Color	White / Crystals	White / Crystals
Assay	≥99.5%	99.8%
Chloride	0.005% max.	< 0.005%
Color (1M, Alkaline)	Colorless	Colorless
Endotoxin	< 50 EU/g	< 32 EU/g
	DNase	None Detected
Enzymes	RNase	None Detected
	Protease	None Detected
Heavy Metals (as Pb)	2 ppm max.	< 0.15 ppm
Identification (IR)	Passes Test	Passes Test
Loss on Drying @ 130°C	7 – 9%	9%
pH (5% Solution)	3.1 – 3.5	3.4
pH (0.5M)	2.5 – 4.0	3.3
pK _a	5.9 – 6.3	6.2
Residue on Ignition	0.05% max.	< 0.01%
Solubility (5%)	Passes Test	Passes Test
Sulfate	0.005% max.	< 0.005%
TAMC	≤ 100 CFU/g	10 CFU/g
TYMC	≤ 100 CFU/g	10 CFU/g
	Arsenic (As)	≤ 1.5 ppm
Trace Elements	Antimony (Sb)	≤ 9 ppm
	Barium (Ba)	≤ 70 ppm

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ANALYSIS	SPECIFICATION	TEST RESULT
Cadmium (Cd)	≤ 0.2 ppm	< 0.06 ppm
Cobalt (Co)	≤ 0.5 ppm	< 0.15 ppm
Copper (Cu)	≤ 30 ppm	< 1.5 ppm
Chromium (Cr)	≤ 110 ppm	< 1.5 ppm
Iron (Fe)	≤ 2 ppm	< 1.5 ppm
Lead (Pb)	≤ 0.5 ppm	< 0.15 ppm
Trace Elements		
Lithium (Li)	≤ 25 ppm	< 7.5 ppm
Mercury (Hg)	≤ 0.3 ppm	< 0.09 ppm
Molybdenum (Mo)	≤ 150 ppm	< 4.5 ppm
Nickel (Ni)	≤ 2 ppm	< 0.60 ppm
Tin (Sn)	≤ 60 ppm	< 18 ppm
Vanadium (V)	≤ 1 ppm	< 0.30 ppm
Water (by Karl Fischer)	7.8 – 8.9%	8.5%

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 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.

RESIDUAL SOLVENTS STATEMENT: Based on the manufacturing process and the controlled handling, storage and analysis of this product, this product complies with the requirements and specifications listed in the current USP method <467> Tables 1, 2, 3, or 4.

Prepared by: Anil McCall Date: 11/24/25 Job Title: QA Tech III

Reviewed by: Joan Byghn Date: 11/24/25 Job Title: QA Supervisor