

BIOSPECTRA

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

Effective Date:	13-Jun-2023	13-Jun-2026	: Date of Next Review
Prepared By:	Amy Yencho	Not Applicable	: Supersedes
QA/QC Approval:	Carissa McCollian	Wayne Talamonti	: Management Approval
Reason for Revision:	See Revision History in MasterControl		

CERTIFICATE OF ANALYSIS

MES MONOHYDRATE

BIO EXCIPIENT GRADE / MESM-3251-25

LOT: MESM-0123-00322

 $C_6H_{13}NO_4S \cdot H_2O$ * F.W. 213.3 g/mol. * CAS# 145224-94-8

Manufacturing Date: 6/14/23 Retest Date: 6/30/25

Manufacturing Site: 100 Majestic Way, Bangor PA, 18013

Packaging Date: 6/16/23 Packaging Site: 100 Majestic Way, Bangor PA, 18013

ANALYSIS	SPECIFICATION	TEST RESULT
Absorbance (0.1M)	260 nm ≤ 0.04 a.u.	<0.04 a.u.
Appearance and Color	White / Crystals	White / Crystals
Assay	$\geq 99.5\%$	100.4%
Chloride	$\leq 0.005\%$	$<0.005\%$
Color (1M, Alkaline)	Colorless	Colorless
Endotoxin	< 50 EU/g	<24 EU/g
Enzymes	DNase	None Detected
	RNase	None Detected
	Protease	None Detected
Heavy Metals (as Pb)	≤ 2 ppm	<0.15 ppm
Identification (IR)	Passes Test	Passes Test
Loss on Drying @ 130°C	7 – 9%	9%
pH (1% Solution)	3.0 – 5.0	3.8
pK _a	5.9 – 6.3	6.1
Residue on Ignition	$\leq 0.05\%$	$<0.01\%$
Solubility (5%)	Passes Test	Passes Test
Sulfate	$\leq 0.005\%$	$<0.005\%$
TAMC	≤ 100 CFU/g	<10 CFU/g
TYMC	≤ 100 CFU/g	<10 CFU/g
Trace Elements	Arsenic (As)	<0.45 ppm
	Antimony (Sb)	<2.7 ppm
	Barium (Ba)	<21 ppm

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%	8.8%

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: David McCall Date: 11/2/23 Job Title: QA Tech I

Reviewed by: Jim Dwyer Date: 11/2/23 Job Title: QA Mater. Disp. Supervisor