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### Certificate of Analysis

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Product:	Manganese (II) Chloride Tetrahydrate , USP	CP-B1640D
CAS#	13446-34-9	Lot: 7427CP2520
Formula:	MnCl <sub>2</sub> -4H <sub>2</sub> O	FW: 197.91 g/mol
MDL:	MFCD00149792	Density: 2.01 g/cc at 20C
EC:	231-869-6	Dehydrates: 58°C

Meets USP Specifications

TEST	SPECIFICATIONS	RESULT
Appearance	Light pink crystals	Conforms
Assay	98.0% - 101%	99.10%
Identification	To Pass Test	Pass
A	Reaction for Manganese	Conforms
B	Reaction for Chloride	Conforms
Solubility (10% )	Clear, light pink	Conforms
pH at 5%	3.5 – 6.0	5.6
Moisture (LOD )	36.0 – 38.5%	36.5%
Insoluble Matter	max. 0.005%	0.002%
Sulfate	max. 0.005%	< 0.005%
Substance not precipitated by Ammonium Sulfide	max. 0.2%	0.10%
Iron (Fe )	max. 5ppm	< 5ppm
Zinc (Zn )	No turbidity within 5 minutes	Conforms
BSE/ TSE free	BSE/TSE free	Passed

Water is the only solvent used during manufacturing

Manufacturing Date	May-06, 2025
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Meets USP43-NF38 Specifications

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