



Certificate of Analysis

Manganese Chloride Tetrahydrate USP

Catalog Number: MC1005
Lot Number: 0130801
CAS Number: 13446-34-9
Molecular Formula: $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$
Molecular Weight: 197.91
Storage: 15°C – 30°C, Hygroscopic, keep container tightly closed
Date of Manufacture: November 2, 2017
Retest Date: November 1, 2020

Test	Specification	Result
Appearance	Light pink crystals	Conforms
Assay ¹	98.0 – 101.0%	100.93%
Identification ¹	To meet requirements	Conforms
Solubility (10%)	Clear, light pink	Conforms
pH (5%) ¹	3.5 – 6.0	5.54
Moisture (LOD) ¹	36.0 – 38.5%	37.18%
Insoluble Matter ¹	≤ 0.005%	0.002%
Sulfate ¹	≤ 0.005%	< 0.005%
Substances Not Precipitated by Ammonium Sulfide ¹	≤ 0.2%	0.18%
Heavy Metals ¹	≤ 5ppm	< 5ppm
Iron ¹	≤ 5ppm	< 5ppm
Zinc ¹	To meet requirements	Conforms
Organic Volatile Impurities ¹	To meet requirements	Conforms

¹This lot meets the specifications for the USP29 standard.

Approved by:

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Date: January 30, 2018