

## CERTIFICATE OF ANALYSIS

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by Intertek. Certificate Number. 2317548

Catalogue Number	19345
Lot Number	A0478506
Description	Manganese(II) chloride tetrahydrate,ACS reagent
CAS Number	13446-34-9
Quality Test/Release Date	02/Dec/2025
Suggested retest date	02/Dec/2030
Country of Origin	INDIA
Declaration of Origin	synthetic
BSE/TSE	Not directly derived from or manufactured with any animal byproducts in any way (Including but not limited to fermentation or nutrient broth, catalysts, enzymes).

Result Name	Units	Specifications	Test Value
Appearance (Color)		Pink	Pink
Appearance (Form)		Crystals	Crystals
Titration Complexometric	%	98.0 to 101.0	99.7
pH		3.5 to 6.0 (5% soln. at 25°C)	5.6 (5% soln. at 25°C)
Insoluble matter	%	≤0.005	0.003
Sulfate (SO <sub>4</sub> )	%	≤0.005	0.001
Calcium (Ca)	%	≤0.005	≤0.005
Magnesium (Mg)	%	≤0.005	0.005
Potassium (K)	%	≤0.01	≤0.01
Sodium (Na)	%	≤0.05	0.0009
Zinc (Zn)	%	≤0.005	0.0001
Iron (Fe)	ppm	≤5	2
Heavy metals (as Pb)	ppm	≤5	≤4

Geert Torfs  
Supervisor, QC

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third-party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of the catalogue number listed above.