

## Certificate of Analysis

Date of Testing: 2023-04-15 06:18:16  
Date of Next Testing: 2027-04-14 06:18:16  
Product Name: **Manganese Chloride Tetrahydrate**  
CAS Number: 13446-34-9  
Specifications & Purity: 99.99% metals basis  
Lot #: D2311857  
SKU #: **M109463**  
Version: **0**  
Analysis #: **187168**  
Storage Temperature: Argon charged

Parameter	Limit Values	Result
Total trace metal imp	0-150 (ppm)	99.00 ppm
Water by Karl Fischer	33-39 (%)	38.13%
Purity(Based On Trace Metals Analysis)	99.99-100 (%)	99.99%
Mn(Complexometric EDTA)	25.5-29 (%)	27.92%
Appearance (M109463)	light red to dark red crystals	light red to dark red crystals
ICP:Confirms Manganese Component	Confirmed	Confirmed
X-Ray Diffraction	Conforms to Structure	Conforms to Structure



John Su  
QA & QC Manager