



Certificate of Analysis

Manganese Chloride Tetrahydrate ACS/USP

Catalog Number: MC1003
Lot Number: 0508801
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: September 15, 2016
Retest Date: September 14, 2021

Test	Specification	Result
Appearance	Light pink crystals	Conforms
Assay	98.0 – 101.0%	99.86%
Identification	To meet requirements	Conforms
Solubility (10%)	Clear, light pink	Conforms
pH (5%)	3.5 – 6.0	4.54
Moisture (LOD)	36.0 – 38.5%	36.32%
Insoluble Matter	$\leq 0.005\%$	0.003%
Sulfate	$\leq 0.005\%$	$< 0.005\%$
Calcium	$\leq 0.005\%$	0.0008%
Magnesium	$\leq 0.005\%$	0.0041%
Potassium	$\leq 0.01\%$	0.0011%
Sodium	$\leq 0.05\%$	0.0004%
Substances Not Precipitated by Ammonium Sulfide	$\leq 0.2\%$	0.17%
Heavy Metals	$\leq 5\text{ppm}$	$< 5\text{ppm}$
Iron	$\leq 5\text{ppm}$	$< 5\text{ppm}$
Zinc	To meet requirements	Conforms
Lead	$\leq 4\text{mg/kg}$	2mg/kg
Organic Volatile Impurities	To meet requirements	Conforms

Approved by:

John Grubb, PhD
Gojira Fine Chemicals, LLC
Quality Manager
Tel: 440-539-7033 Fax: 888-211-5523
john@gojiraafc.com

Date: May 9, 2018



Gojira Fine Chemicals, LLC

Quality Products & Services Meeting Customer Needs
5386 Majestic Parkway, Suite 7, Bedford Heights, OH 44146
www.gojirafc.com • sales@gojirafc.com
