



Certificate of Analysis

Manganese Sulfate Monohydrate ACS/USP/FCC/EP/BP

Catalog Number: MS1001
Lot Number: 0623601
CAS Number: 10034-96-5
Molecular Formula: $\text{MnSO}_4 \cdot \text{H}_2\text{O}$
Molecular Weight: 169.02
Storage: 15°C - 30°C
Date of Manufacture: April 16, 2016
Retest Date: April 15, 2021

Test	Specification	Result
Appearance	Pale pink to almost white crystalline powder	Conforms
Assay	99.0% - 101.0%	99.95%
Identification	To pass test	Conforms
Loss on Ignition	10.0% - 12.0%	11.15%
Substances Reducing Permanganate	To pass test	Conforms
Insoluble Matter	$\leq 0.01\%$	0.004%
Chloride (Cl)	$\leq 0.005\%$	$< 0.005\%$
Calcium (Ca)	$\leq 0.005\%$	0.0042%
Magnesium (Mg)	$\leq 0.005\%$	0.0044%
Nickel (Ni)	$\leq 0.02\%$	0.0009%
Potassium (K)	$\leq 0.01\%$	0.0028%
Sodium (Na)	$\leq 0.05\%$	0.0076%
Zinc (Zn)	$\leq 0.005\%$	0.0006%
Heavy Metals (as Pb)	$\leq 0.002\%$	$< 0.002\%$
Iron (Fe)	< 10 ppm	< 10 ppm
Substances Not Precipitated By $(\text{NH}_3)_2\text{S}$	$\leq 0.5\%$	0.42%
Arsenic (As)	≤ 3 mg/kg	< 3 mg/kg
Lead(Pb)	≤ 4 mg/kg	0.6 mg/kg
Selenium (Se)	$\leq 0.003\%$	$< 0.003\%$
Solubility	Freely soluble water, Insoluble ethanol	Conforms
Residual Solvents	Only purified water used	Conforms
Solution (10%) appearance	\leq opalescent than reference solution	Conforms
This lot meets ACS/USP/FCC/BP/EP specifications.		

Approved by:

Date: June 24, 2016

For research purposes only. Not for drug or clinical use in humans or human food additive use.



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

John Grubb

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