

G&B PRODUCT CODE: MANGSULF-01AKU-C7

Your order: 102353  
G&B ref: 121186

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**GURVEY&BERRY**

Ingredients for wellness, nutrition, beauty and more.

**CHUO DENKI KOGYO CO.,LTD.**

HEAD OFFICE : TOKYO TATEMONO YAESU BLDG, 1-4-16, Yaesu, Chuo-ku, Tokyo, Japan 103-0028

MYOKO WORKS : 272 Taguchi, Myoko-shi, Niigata-ken 949-2193, Japan

**CERTIFICATE OF ANALYSIS**

13-Oct-16

Manganese Sulfate 1H<sub>2</sub>O USP/FCC Powder  
CAS REG.NO.10034-96-5

	Specifications	TEST METHOD	Analysis Results
Identification	A solution ( 1 in 10 ) responds to the test for Manganese (191) and for Sulfate (191)	USP	Passes
Description	A pale pink odorless powder. It is freely soluble in water and is insoluble in alcohol.	FCC	Passes
Assay (MnSO <sub>4</sub> ·H <sub>2</sub> O)	98.0%~102.0%	USP	99.72% ✓
(Mn)	31.88%~33.18%		32.39% ✓
Loss on ignition	10.0%~13.0%	USP	10.4% ✓
Substance not precipitated by Ammonium Sulfide	Not more than 0.5 %	USP	0.29% ✓
Arsenic (As)	Not more than 0.0001 %	ICP	<0.0001%
Lead (Pb)	Not more than 0.0001 %	ICP	<0.0001%
Selenium (Se)	Not more than 0.0005 %	ICP	<0.0005%
Heavy metals	Not more than 0.001 %	FCC	<0.001%
Iron (Fe)	Not more than 0.002 %	ICP	<0.0001%
Chloride (Cl)	Not more than 0.01 %	ICP	<0.001%
Zinc (Zn)	Not more than 0.005 %	ICP	<0.001%
Residual solvents	Meets the requirement	USP	Meets the requirement
Cadmium(Cd)		ICP	Not more than 1.0 ppm
Mercury(Hg)		AAS	Not more than 0.1 ppm
PS through 100 mesh			100%
Bulk density			1.12g/cm <sup>3</sup>
Manufacturing Date	: October 7 , 2016		
Retest date	: October 7 , 2019 ✓		
Lot No.			

ICP(Atomic Emission Spectrometer)  
※ ICP(Ca,Mg,Na,K) Conversion value (CaSO<sub>4</sub>+MgSO<sub>4</sub>+Na<sub>2</sub>SO<sub>4</sub>+K<sub>2</sub>SO<sub>4</sub>)

AD 2017-11-07

CHUO DENKI KOGYO CO.,LTD.

Nobuo Kobayashi  
QUALITY ASSURANCE DIVISION

COUNTRY OF ORIGIN: JAPAN ✓

Distributed By: Gurvey & Berry Co. Inc. 310 Judson Street, Unit 15, Toronto, ON, Canada , M8Z 5T6 Tel: 416-259-5700 Fax: 416-259-5417

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Your order: 101770  
G&B ref: 121097

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**GURVEY&BERRY**

**CHUO DENKI KOGYO CO.,LTD.**

HEAD OFFICE : TOKYO TATEMONO YAESU BLDG, 1-4-16, Yaesu, Chuo-ku, Tokyo, Japan 103-0028

MYOKO WORKS : 272 Taguchi, Myoko-shi, Niigata-ken 949-2193, Japan

**CERTIFICATE OF ANALYSIS**

16-May-16

manganese Sulfate 1H<sub>2</sub>O USP/FCC Powder  
CAS REG.NO.10034-96-5

	<u>Specifications</u>	<u>TEST METHOD</u>	<u>Analysis Results</u>
Identification	A solution ( 1 in 10 ) responds to the test for Manganese (191) and for Sulfate (191)	USP	Passes
Description	A pale pink odorless powder. It is freely soluble in water and is insoluble in alcohol.	FCC	Passes
Assay (MnSO <sub>4</sub> ·H <sub>2</sub> O)	98.0%~102.0%	USP	100.42% ✓
(Mn)	31.88%~33.16%		32.62% ✓
Loss on ignition	10.0%~13.0%	USP	10.4% ✓
Substance not precipitated by Ammonium Sulfide	Not more than 0.5 %	USP	0.25% ✓
Arsenic (As)	Not more than 0.0001 %	ICP	<0.0001%
Lead (Pb)	Not more than 0.0001 %	ICP	<0.0001%
Selenium (Se)	Not more than 0.0005 %	ICP	<0.0005%
Heavy metals	Not more than 0.001 %	FCC	<0.001%
Iron (Fe)	Not more than 0.002 %	ICP	0.0002%
Chloride (Cl)	Not more than 0.01 %	ICP	<0.001%
Zinc (Zn)	Not more than 0.005 %	ICP	<0.001%
Residual solvents	Meets the requirement	USP	Meets the requirement
Cadmium(Cd)		ICP	Not more than 1.0 ppm
Mercury(Hg)		AAS	Not more than 0.1 ppm
PS through 100 mesh			100%
Bulk density			1.13g/cm <sup>3</sup>
Manufacturing Date	: May 8, 2016		
Retest date	: May 8, 2019 ✓		
Lot No.			

ICP(Atomic Emission Spectrometer)  
※ ICP(Ca,Mg,Na,K) Conversion value (CaSO<sub>4</sub>+MgSO<sub>4</sub>+Na<sub>2</sub>SO<sub>4</sub>+K<sub>2</sub>SO<sub>4</sub>)

CHUO DENKI KOGYO CO.,LTD.

Nobuo Kobayashi

QUALITY ASSURANCE DIVISION

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