Safety Data Sheet

Martrex, Inc.

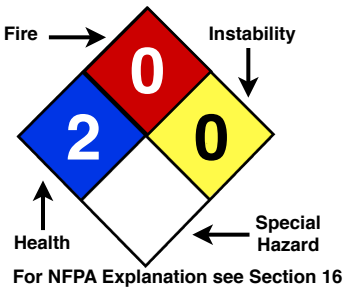
Section 1: Chemical Product and Company Information

Product name: Martrex Manganese Sulfate 31%
Reference Number: n/a
Web: www.martrexinc.com
Supplier/ Further Information: Martrex, Inc.

1107 Hazeltine Blvd,
Suite 535 MD 27,
Chaska, Minnesota 55318

Phone: 952/933-5000
Toll Free: 800/328-3627
FAX: 952/933-1889

EPA Registration Number: n/a
CAS#: 10034-96-5
Chemical Name: Manganese Sulfate Monohydrate
Synonyms: Sulfuric acid, manganese(2+) salt (1:1), monohydrate (8CI,9CI); Manganese monosulfate monohydrate; Manganese sulfate(MnSO4) monohydrate; Manganese(2+) sulfatemonohydrate; Manganous sulfate monohydrate; Sulfuric acid manganese salt
Chemical Family: Inorganic salt
Product Use: n\a
SDS Number: n/a



For NFPA Explanation see Section 16

24 Hour Emergency Phone - Chemtrec Transport: 1-800-424-9300; Medical: 1-800-441-3637

Section 2: Hazards Identification

Emergency Overview

Warning! **May cause damage to organs through prolonged or repeated exposure.**
Toxic to Aquatic Life with Long Lasting Effects.

GHS Classification (Global Harmonized Classification see Section 16)**:**

Specific Target Organ Toxicity - repeated exposure.	**Category 2**	(H373)
Hazardous to the aquatic environment, long-term hazard	**Category 2**	(H411)

GHS Label, Hazards and Precautionary Statements

GHS Pictogram:

(GHS Pictogram Hazards Definitions See Section 16)

Label Signal Word: **Warning**

Hazard Statements:

May cause damage to organs through prolonged or repeated exposure through inhalation and if swallowed. (H373)

Toxic to Aquatic Life with Long Lasting Effects. (H411)

Precautionary Statements:

Prevention:

Do not breathe dust, fume, gas, mist, vapors, spray. (P260)
Avoid release to the environment. (P273)

Response:

Get Medical Advice / Attention if you feel unwell. (P314)
Collect Spillage. (P391)

Disposal Considerations:

Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. (P501)

Emergency Overview

OSHA Hazards: No known OSHA hazards

Target Organs: Lungs, Nerves.

FPA Ratings: Health: **2** Flammability: **0** Reactivity: **0**

Potential Acute Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed

Carcinogenicity Data: See Section 11 for more Toxicological information

Section 3: Composition/Information on Ingredients

Hazardous Component	CAS#	%	OSHA Limits	ACGIH Limits	OTHER Limits
Manganese Sulfate Monohydrate	10034-96-5	100%	5 mg/m3 (as MN)	5 mg/m3 (as MN)	no data

Section 4: First Aid Measures

General advice: **Consult a physician.** Show this Safety Data Sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing give artificial respiration. **Consult a physician.**

In case of skin contact: Wash off with soap and plenty of water. **Consult a physician.**

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and **consult a physician.**

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water. **Consult a physician.**

NOTE TO THE PHYSICIAN: Treat symptomatically and supportively.

Section 5: Fire Fighting Measures

Suitable extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters:

Wear self contained breathing apparatus for fire fighting if necessary.

Flammability Classification: This product is essentially non-flammable and is used commercially as a fire retardant.

Auto-Ignition Temperature: Not applicable

Flash Points: Not applicable

Flammable Limits: Not applicable

Products of Combustion: no data

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances: no data

Fire Extinguishing Media: Use media suitable to extinguish source of fire.

Special Fire Fighting Information: Wear appropriate personal protective equipment as specified in Section 8.

Hazardous Combustion Products: Hazardous decomposition products formed under fire conditions. - Sulphur oxides, Manganese/manganese oxides.

Section 6: Accidental Release Measures

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning: Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

Spill and Leak Personal Procedures: Wear appropriate personal protective as specified in Section 8.

Environmental and Regulatory Reporting: See Sections 12, 13 and 15

Section 7: Handling and Storage

Precautions for safe handling: Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place.

Hygroscopic Keep in a dry place

Section 8: Exposure Controls / Personal Protection

Components with workplace control parameters

Hazardous Component	CAS#	Value	Control Parameters	Update	Basis
Manganese Sulfate Monohydrate	10034-96-5	CEIL	5 mg/m3	1993-06-30	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		CEIL	5 mg/m3	1989-03-01	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	0.2 mg/m3	1995-05-23	USA. ACGIH Threshold Limit Values (TLV)

Remarks: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL.
See Notice of Intended Changes (NIC)

Personal protective equipment

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: For prolonged or repeated contact use protective gloves.

Eye protection: Safety glasses with side-shields conforming to EN166

Skin and body protection: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygienic Work Practices: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section 9: Physical and Chemical Properties

Chemical Name: Manganese Sulfate Monohydrate
Percent Equivalent: 57%
Physical State: solid powder
Color and Appearance: light red
pH: 3.0 - 3.5 at 50 g/l at 20 °C (68 °F)
Melting Point: 700 °C (1,292 °F)
Boiling Point: no data
Flash point: no data

Ignition temperature: no data
Lower explosion limit: no data
Upper explosion limit: no data
Specific Gravity: 1.43 @ 60ºF
Vapor Pressure: no data
Density: 2.95 g/cm3
Solubility in water: No data
Chemical Formula: $MnSO_4 \cdot H_20$
Formula Wt: 169.02 g/mol

Section 10: Stability and Reactivity

Chemical Stability (stable under normal temperature and pressures)**:**
Stable__X__ Unstable____
Hazardous Polymerization:
May Occur____ Will Not Occur__X__
Conditions to Avoid: Avoid moisture
Materials to Avoid: no data
Hazardous Decomposition Products: Hazardous decomposition products formed under fire conditions. - Sulphur oxides, Manganese/manganese oxides

Section 11: Toxicological Information

Acute toxicity:

Harmful: danger of serious damage to health by prolonged exposure if swallowed.
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Genotoxicity in vitro - Hamster - ovary: Cytogenetic analysis
Genotoxicity in vitro - Hamster - ovary: Sister chromatid exchange
Genotoxicity in vivo - mouse - Oral: Micronucleus test
Genotoxicity in vivo - mouse - Oral: Cytogenetic analysis
Genotoxicity in vivo - mouse - Oral: sperm

Carcinogenicity

Carcinogenicity - mouse - Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. **Endocrine:**Thyroid tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Reproductive toxicity - mouse - male - Oral
Paternal Effects: Spermatogenesis (including genetic material, sperm morphology,motility, and count). no data available

Specific target organ toxicity - single exposure (GHS): no data available

Specific target organ toxicity - repeated exposure (GHS): May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: no data available

Potential health effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Signs and Symptoms of Exposure: Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds. Prolonged or repeated inhalation may cause: Pneumonia

Additional Information: **RTECS: OP0893500**

Section 12: Ecological Information

Toxicity: no data available

Persistence and degradability: **no data available**

Bio-accumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Section 13: Disposal Considerations

Product: Observe all federal, state, and local environmental regulations.

Contaminated packaging: Dispose of as unused product.

Section 14: Transport Information

DOT (US): Not dangerous goods

IMDG:

UN-Number: 3077 **Class:** 9 **Packing group:** III **EMS-No:** F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate)

Marine pollutant: No

IATA:

UN-Number: 3077 **Class:** 9 **Packing group:** III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate)

Section 15: Regulatory Information

OSHA Hazards: No known OSHA hazards

DSL Status: All components of this product are on the Canadian DSL list.

SARA Components:

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:	CAS-No.	Revision Date
Manganese Sulfate Monohydrate	10034-96-5	1987-01-01

SARA 311/312 Hazards: No SARA Hazards

Massachusetts Right To Know Components:
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components	CAS-No.	Revision Date
Manganese Sulfate Monohydrate	10034-96-5	1987-01-01

New Jersey Right To Know Components	CAS-No.	Revision Date
Manganese Sulfate Monohydrate	10034-96-5	1987-01-01

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16: Other Information

Acronyms

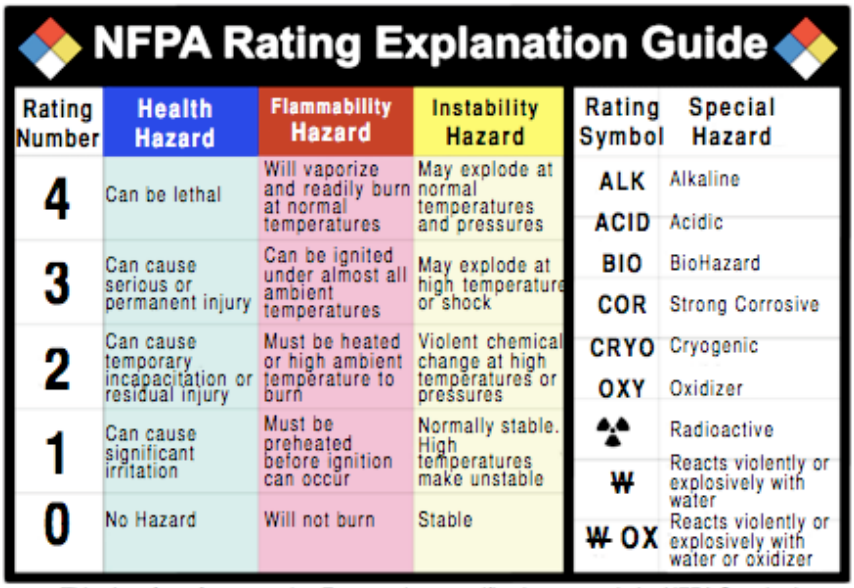
ACGIH - American Conference of Governmental Industrial Hygienists
ANSI - American National Standards Institute
CAS - Chemical Abstracts Service
CERCLA - Comprehensive Environmental Response, Compensation & Liability Act of 1980
CFR - Code of Federal Regulations
CHEMTREC - Chemical Transportation Emergency Center
CPR - Controlled Products Regulations
CWC - Chemical Weapons Convention
DOT - U.S. Department of Transportation
DSL - Canadian Domestic Substance List
EHS - Extremely Hazardous Substance
EPA - U.S. Environmental Protection Agency
HMIS - Hazardous Material Identification System
IARC - International Agency for Research on Cancer
LEL/UEL - Lower and Upper Explosive Limit
mg/m³ - Milligrams per cubic meter
NAERG - North American Emergency Response Guidebook
NIOSH - National Institute of Occupational Safety and Health
NFPA - National Fire Protection Association
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit (set by OSHA)

GHS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
		
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder	**Corrosion**	**Exploding Bomb**
		
• Gases Under Pressure	• Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle	**Environment** (Non-Mandatory)	**Skull and Crossbones**
		
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

24 Hour Emergency Phone - Chemtrec: 1-800-424-9300 Transportation
1-800-441-3637 Medical

PPE - Personal Protective Equipment
RCRA - Resource Conservation and Recovery Act of 1976
SARA - Superfund Amendments and Reauthorization Act
SDS - Safety Data Sheet
STEL - Concentration to which workers can be exposed continuously for a **short** period of time without suffering from irritation, irreversible tissue damage or narcosis of sufficient degree to increase the likelihood of accidental injury, impair self-rescue or materially reduce work efficiency.
TDG (Canadian)**:** Transport of Dangerous Goods Regulations
TLV - Threshold Limit Value (set by ACGIH)
TWA - 8-hour Time Weighted Average
TSCA - US Toxic Substance Control Act
WHMIS - Workplace Hazardous Material Information System



This chart for reference only - For complete specifications consult the NFPA Standard

SDS Issue Date: 12-17-2014
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