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SAFETY DATA SHEET

Manganese Sulfate - Powder

Section 1. Identification

GHS product identifier : Manganese Sulfate
Product type : Powder

Uses

Area of application : Not Applicable

Supplier

Supplier's details : Greenway Biotech, Inc.

Address

Street : 10632 Painter Ave
Postal code : 90670
City : Santa Fe Springs
Country : United States

Telephone number : +1 562-351-5168

e-mail address of person responsible for this SDS : sales@greenwaybiotech.com

Emergency telephone number (with hours of operation) : US: Chemtrec 24-hours Emergency Response: 1-800-424-9300
Canada: 24 Hour Emergency Service, (Canutec 613-996-6666)

National advisory body/Poison Center

Name : The National Poisons Emergency number
Telephone number : 1 800 222 1222

Section 2. Hazards identification

Physical hazards : Not classified.
Health hazards : Serious eye damage/eye irritation Category 1
Specific target organ toxicity, repeated exposure Category 2
Environmental hazards : Hazardous to the aquatic environment, Category 2
long-term hazard
OSHA defined hazards : Not classified.



Label elements :
Signal word : Danger

Hazard statement	:	Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.
Hazard(s) not otherwise classified (HNOC)	:	None known
Supplemental information	:	None.

Precautionary statement

Prevention: Do not breathe dust. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid release to the environment. Wear eye/face protection.

Response: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Collect spillage.

Storage: Store away from incompatible materials.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3. Composition/information on ingredients

Chemical Name	CAS-Number	% Content
Manganese Sulfate, monohydrate	10034-96-5	100%

Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Section 4. First aid measures

Inhalation: If dust from the material is inhaled, remove the affected person immediately to fresh air. Call a physician if symptoms develop or persist.

Skin contact: Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical attention immediately. Continue rinsing.

Ingestion: Rinse mouth. Get medical attention if symptoms occur.

Symptoms/effects, acute and delayed: Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Severe eye irritation. Permanent eye damage including blindness could result. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed: Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General Information: If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Section 5. Fire Fighting Measures

Suitable extinguishing media	:	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	:	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	:	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Firefighting equipment/instructions	:	Use water spray to cool unopened containers.
Specific methods	:	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	:	No unusual fire or explosion hazards noted.

Section 6. Accidental release measures

Personal precaution: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not breathe dust. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of dust from the spilled material. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection see section 8 of the SDS.

Methods and materials for containment and cleaning up: Stop the flow of material, if this is without risk. Dike far ahead of spill for later disposal. If sweeping of a contaminated area is necessary, use a dust suppressant agent which does not react with the product. Collect dust using a vacuum cleaner equipped with HEPA filter. Following product recovery, flush area with water. Sweep up or vacuum up spillage and collect in suitable container for disposal. Minimize dust generation and accumulation. Prevent entry into waterways, sewer, basements or confined areas. For waste disposal, see section 13 of the SDS.

Environmental precautions: Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Section 7. Handling and storage

Precautions for safe handling: Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Do not get this material in contact with eyes. Avoid breathing dust. Avoid prolonged exposure. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. Practice good housekeeping.

Conditions for safe storage: Store in original tightly closed container. Keep container tightly closed. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

Section 8. Exposure controls / personal protection

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Brandt Manganese Sulfate - Powder	Celling	5 mg/m ³
Components	Type	Value
Manganese Sulfate monohydrate (CAS 10034-96-5)	Celling	5 mg/m ³

US. ACGIH Threshold Limit Values

Material	Type	Value	Form
Brandt Manganese Sulfate - Powder	TWA	0.1 mg/m ³	Inhalable fraction
Components	Type	Value	Form
Manganese Sulfate Monohydrate (CAS 10034-96-5)	TWA	0.02 mg/m ³	Respirable fraction

US. NIOSH: Pocket Guide to chemical Hazards

Material	Type	Value	Form
Brandt Manganese Sulfate - Powder	STEL	3 mg/m ³	Fume
Brandt Manganese Sulfate - Powder	TWA	1 mg/m ³	Fume
Material	Type	Value	Form
Manganese Sulfate, monohydrate (CAS 10034-96-5)	STEL	3 mg/m ³	Fume
Manganese Sulfate, monohydrate (CAS 10034-96-5)	TWA	1 mg/m ³	Fume

Biological limit values: No biological limits noted for the ingredient(s).

Appropriate engineering controls: Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particles below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection: Use tight fitting goggles if dust is generated. Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

Hand protection: Wear appropriate chemical resistant gloves.

Other: Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection: Use a NOISH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.

Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Section 9. Physical and chemical properties

Appearance	:	Powder.
Physical state	:	Solid.
Form	:	Powder.
Color	:	Light pink.
Odor	:	Not available.
Odor threshold	:	Not available.
pH	:	Not available.
Salt-Out / Crystallization Temp	:	Not available.
Melting point/freezing point	:	1292 °F (700 °C) 1292 °F (700 °C) estimated
Initial boiling point and boiling Range	:	1562 °F (850 °C), 1562 °F (850 °C) estimated
Flash point	:	Not available.
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not available.
Upper/lower flammability or explosive limits		
Flammability limit – lower	:	(%) Not available.
Flammability limit – upper	:	(%) Not available.
Explosive limit - lower (%)	:	Not available.
Explosive limit - upper (%)	:	Not available.
Vapor pressure	:	< 0.0000001 kPa at 25 °C, 0.00001 hPa estimated
Vapor density	:	Not available.
Relative density	:	Not available.
Solubility(ies)		
Solubility (water)	:	Not available.
Partition coefficient (n-octanol/water)	:	Not available.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Not available.
Other information		
Bulk density	:	70 - 74 lb/ft3 (Typical)
Molecular formula	:	Mn-O4-S
Molecular weight	:	151 g/mol
pH in aqueous solution	:	7.7 - 7.9 (5% solution)

Section 10. Stability and Reactivity

Reactivity	:	The product is stable and no reactive under normal conditions of Use, storage and transport.
Chemical stability	:	Material is stable under normal conditions.
Possibility of hazardous Reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	Contact with incompatible materials. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
Materials to avoid	:	Strong oxidizing agents.
Hazardous decomposition products	:	No hazardous decomposition products are known.

Section 11. Toxicological information

Information on likely routes of exposure

Ingestion: Expected to be a low ingestion hazard.

Inhalation: Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure by inhalation. Inhalation of dusts may cause respiratory irritation.

Skin Contact: No adverse effects due to skin contact are expected.

Eye Contact: causes serious eye damage. Dust in the eyes will cause irritation.

Symptoms related to the physical, chemical and toxicological characteristics: Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Severe eye irritation. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
Brandt Manganese Sulfate – powder- Oral LD100	Mouse	305 mg/kg
Brandt Manganese Sulfate – powder- Other LD100	Mouse	146 mg/kg
Brandt Manganese Sulfate – powder- Other LD50	Mouse	64 mg/kg

Components	Species	Test Results
Manganese Sulfate, monohydrate (CAS 10034-96-5) – Oral LD100	Mouse	305 mg/kg
Manganese Sulfate, monohydrate (CAS 10034-96-5) – Other LD 100	Mouse	146 mg/kg
Manganese Sulfate, monohydrate (CAS 10034-96-5) – Other LD50	Mouse	64 mg/kg

Skin corrosion/ irritation: Prolonged skin contact may cause temporary irritation.

Serious eye damage/ eye irritation: causes serious eye damage. Dust in the eyes will cause irritation.

Respiratory sensitization: Not available.

Skin sensitization: This product is not expected to cause skin sensitization.

Germ cell mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA specifically regulated substances (29 CFR 1910. 1001-1050): Not listed.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity-single exposure: Not classified

Specific target organ toxicity- repeated exposure: May Cause damage to organs through prolonged or repeated exposure

Aspiration hazard: Not available

Chronic effects: Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

Section 12. Ecological Information

Ecotoxicity: Toxic to aquatic life with long lasting effects.

Product	Species	Test Results
Brandt Manganese Sulfate – Powder- Crustacea EC50	Water flea (daphnia magna)	7.09 – 9.36 mg/l, 48 hours
Brandt Manganese Sulfate – Powder- Fish- LC50	Fathead minnow (Pimephales promelas)	24.3 – 38.9 mg/l, 96 hours

Components	Species	Test Results
Brandt Manganese Sulfate – Powder- Crustacea EC50	Water flea (daphnia magna)	7.09 – 9.36 mg/l, 192 hours
Brandt Manganese Sulfate – Powder- Fish- LC50	Fathead minnow (Pimephales promelas)	29.7 – 52.7 mg/l, 192 hours 24.3 – 38.9 mg/l, 96 hours

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulative potential: Not available.

Mobility in Soil: No data available.

Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13. Disposal Considerations

Disposal instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/ water supplies. Do not contaminate ponds, waterways or ditches local/regional/national/international regulations.

Local disposal regulations: Dispose in accordance with all applicable regulations.

Hazardous waste code: The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packing: Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow the label warnings even after container is emptied.

Section 14. Transportation Information

General	:	IMDG Regulated Marine Pollutant.
DOT	:	Not regulated as dangerous goods.
IATA		
UN number	:	UN3077
UN proper shipping name	:	Environmentally hazardous substances, solid, n.o.s. (Manganese, monosulfate, monohydrate)
Transport Hazard class	:	9
Subsidiary risk	:	-
Label(s)	:	9
Packing group	:	III

Environmental hazards : Yes
Special precautions for user : Read safety instructions, SDS and the emergency procedures before handling.
Passenger and cargo aircraft : Forbidden.
Cargo aircraft only : Forbidden.

IMDG

UN number : UN3077
UN proper shipping name : Environmentally hazardous substances, solid, n.o.s. (Manganese, monosulfate, monohydrate)
Transport hazard class : 9
Subsidiary risk : -
Label(s) : 9
Packing group : III
Marine pollutant : Yes
EmS : Not available.
Special precautions for user : Read safety instructions, SDS and emergency procedures Before handling.

IATA;IMDG



Marine pollutant



Section 15. Regulatory information

US federal regulations : This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List. This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) : Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4) : Manganese Sulfate, monohydrate (CAS 1003496-5) Listed.
SARA 304 Emergency release notification : Not Regulated
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) : Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories : Immediate Hazard - Yes
 Delayed Hazard – Yes
 Fire Hazard – No
 Pressure Hazard – No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance : Not listed.

SARA 311/312 Hazardous chemical : Yes

Chemical Name	CAS number	% by weight.
Manganese Sulfate, monohydrate	10034-96-5	100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Manganese Sulfate, monohydrate (CAS 10034-96-5)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68. 130): Not Regulated.

Safe Drinking Water Act (SDWA): Not regulated.

Food and Drug Administration (FDA): Total food additive. Direct food additive. GRAS food additive.

US state regulations**US. Massachusetts RTK – Substance List**

Not regulated.

US. New Jersey Worker and Community Right-to-know Act

Manganese Sulfate, monohydrate (CAS 10034-96-5)

US. Pennsylvania Worker and Community Right-to-know Law

Not listed.

US. Rhode Island RTK

Manganese Sulfate, monohydrate (CAS 10034-96-5)

US. California Proposition 65

WARNING: This product contains a chemical known to the state of California to cause cancer and birth defects or other reproductive harm.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical substances in China (IECSC)	Yes
Europe	European Inventory of existing Commercial Chemical Substances (ELINCS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of existing and new Chemical substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of chemicals and chemical substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s). A "no" indicates that one or more of the components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Section 16. Other information

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Disclaimer: Greenway Biotech, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to assure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. While the information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose are made regarding products described or information set forth, or that the products, or information may be used without infringing the intellectual property rights of others. In no case shall the information provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the information furnished by our company hereunder are given gratis and we assume no obligation or liability for the information given or results obtained, all such be given and accepted at your risk.

