SAFETY DATA SHEET

[Required under safety and health regulations for shipping and handling]

Version: 2023
Date Updated: Jan. 24, 2023

SECTION 1. - - - - - - - - - PRODUCT AND COMPANY IDENTIFICATION- - - - - - - - - -

Product Name	Manganese sulfate, monohydrate
Product Code(s)	MB0334
Recommended Use	For Laboratory Research Use Only Not for Human or Animal Drug Use
Supplier	Bio Basic Inc.
Address	20 Konrad Crescent, Markham, Ontario, Canada, L3R 8T4
Telephone	(905) 474 4493
Fax	(905) 474 5794
For Chemical Emergency Phone#	(416) 995 9730

SECTION 2. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -

GHS Classification in accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)

Serious eye damage (Category 1), H318

Specific target organ toxicity - repeated exposure, Inhalation (Category 2), Brain, H373

Short-term (acute) aquatic hazard (Category 3), H402

Long-term (chronic) aquatic hazard (Category 2), H411

GHS Label elements, including precautionary statement

Labels



Signal word Warning

Hazard statement(s)

H318 Causes serious eye damage.
H373 May cause damage to organs (Brain) through prolonged orrepeated exposure if inhaled.
H402 Harmful to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
P305 + P351 + P338 +P310

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.
P314 Get medical advice/ attention if you feel unwell.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -

Chemical Name	EC No.	CAS-No	Weight %
Manganese sulfate, monohydrate	232-089-9	10034-96-5	<100

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.
Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -

Extinguishing media

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

Special hazards arising from the substance or mixture
Sulfur oxides, Manganese/manganese oxides
Not combustible.

Fire may cause evolution of:
Sulfur oxides
Ambient fire may liberate hazardous vapors.

Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
Extinguishing media

Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact.
Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Storage conditions
Tightly closed. Dry.

Recommended storage temperature see product label-
Storage class (TRGS 510): 11: Combustible Solids

Specific end use(s)
No data available

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -

Components	CAS-No.	Value	Control parameters	Basis
Manganese Sulfate Monohydrate	10034-96-5	TWA	0.2 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks				
		TWAEV	0.2 mg/m3	Québec. Regulation respecting

				occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	0.02 mg/m3	Canada. British Columbia OEL
	Adverse reproductive effect			
		TWA	0.2 mg/m3	Canada. British Columbia OEL
	Adverse reproductive effect			
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV

Exposure controls

Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles.

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Body Protection

Protective clothing.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Don't let product enter drains.

SECTION 9. - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -

Information on basic physical and chemical properties

a) Appearance	Form: crystalline Color: pink
b) Odor	odorless
c) Odor Threshold	No data available
d) pH	3.0 - 3.5 at 50 g/l at 20 °C (68 °F)
e) Melting point/ freezing point	449 °C (> 840 °F) - OECD Test Guideline 102
f) Initial boiling point and boiling range	Not applicable
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Relative density	No data available

n) Water solubility	762 g/l at 20 °C (68 °F)
o) Partition coefficient: n-octanol/water	No data available
p) Autoignition temperature	No data available
q) Decomposition temperature	400 - 450 °C (752 - 842 °F) - Elimination of water of crystallization 850 °C (1562 °F) - (anhydrous substance)
r)	Viscosity No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

Other safety information

Bulk density 300 - 1,200 kg/m3

SECTION 10. - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -

Reactivity
No data available

Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions
Violent reactions possible with: acids

Conditions to avoid
Avoid moisture.

Incompatible materials
No data available

Hazardous decomposition products
In the event of fire: see section 5

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -

Acute toxicity
LD50 Oral - Rat - male and female - 2,150 mg/kg
Remarks: (anhydrous substance)
(ECHA)
Symptoms: After uptake of large quantities:, Nausea, Vomiting, Diarrhea, gastric pain,
Irritations of mucous membranes in the mouth, pharynx, esophagus and gastrointestinal tract.

LC50 Inhalation - Rat - male and female - 4 h - > 4.45 mg/l
(OECD Test Guideline 403)
Remarks: (anhydrous substance)

Symptoms: Possible damages:, mucosal irritations, tissue damage, Pneumonia

Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: (anhydrous substance)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye
(OECD Test Guideline 405)
Remarks: (anhydrous substance)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Result: negative
Remarks: (National Toxicology Program)

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Inhalation - May cause damage to organs through prolonged or repeated exposure. – Brain

Aspiration hazard
No data available

Additional Information

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

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Manganese compounds are generally only very slightly absorbable via the gastrointestinal tract.

Other dangerous properties cannot be excluded.
Handle in accordance with good industrial hygiene and safety practice.
Stomach - Irregularities - Based on Human Evidence

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -

Toxicity
Toxicity to algae static test NOEC – Desmodesmus subspicatus (green algae) - 1 mg/l - 72 h
(OECD Test Guideline 201)
static test ErC50 - Desmodesmus subspicatus (green algae) – 61 mg/l - 72 h
(OECD Test Guideline 201)
Toxicity to bacteria: Not data available.

Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential
No data available

Mobility in soil
No data available

Results of PBT and vPVB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects
Discharge into the environment must be avoided.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -

Waste material must be disposed of in accordance with the national and local regulations.
Leave chemicals in original containers. No mixing with other waste. Handle unclean containers like the product itself.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -

TDG
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Manganese Sulfate Monohydrate)
Labels: 9
ERG Code: 171
Marine pollutant: no

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 : yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packaging's and combination packaging's containing inner packaging's with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -

This product has been classified in accordance with the hazard criteria of the Hazardous

Products Regulations (HPR) and the SDS contains all the information required by the HPR.

SECTION 16. - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -

Further information: no limited for paper copy, just for internal uses.
For research use only. Not intended for human or animal diagnostic or therapeutic uses.

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS