



Section 1: IDENTIFICATION

Product Name:	Soileos® Manganese
Synonyms:	Mixed fertilizer.
Product Use:	Fertilizer product that can be used to correct manganese deficiencies and as a source of potassium, sulfur, and manganese.
Restrictions on Use:	See product label for any potential restrictions on use.
Manufacturer/Supplier:	Lucent BioSciences, Inc. 207-1425 Marine Dr. West Vancouver, BC V7T 1B9
Phone Number:	1-855-SOILEOS (1-855-764-5367)
Emergency Phone:	1-855-SOILEOS (1-855-764-5367)
Date of Preparation of SDS:	October 18, 2022

Section 2: HAZARD(S) IDENTIFICATION

GHS INFORMATION

Classification: Specific Target Organ Toxicity (Repeated Exposure), Category 2

LABEL ELEMENTS

Hazard Pictogram(s):



Signal Word: Warning

Hazard Statements: May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention: Do not breathe dust.

Response: Get medical attention if you feel unwell.

Storage: Not applicable.

Disposal: Dispose of contents and container in accordance with applicable regional, national and local laws and regulations.

Hazards Not Otherwise Classified: Not applicable.

Ingredients with Unknown Toxicity: None

This material is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

This material is considered hazardous by the Hazardous Products Regulations.



Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	Common name/Synonyms	CAS No.	% wt./wt.
Pea fiber	Not applicable.	Not available.	30-60
Manganese sulfate monohydrate	Not applicable.	10034-96-5	10-30
Potassium hydroxide (K(OH))	Not applicable.	1310-58-3	7-13
Water	Not applicable.	7732-18-5	5-10

Actual concentration range(s) withheld as a trade secret.

Section 4: FIRST-AID MEASURES

Inhalation:	<p>If inhaled: Call a poison center or doctor if you feel unwell.</p> <p>Acute and delayed symptoms and effects: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.</p>
Eye Contact:	<p>If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center or doctor if you feel unwell.</p> <p>Acute and delayed symptoms and effects: May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.</p>
Skin Contact:	<p>If on skin: Wash with plenty of water. Call a poison center or doctor if you feel unwell.</p> <p>Acute and delayed symptoms and effects: May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching.</p>
Ingestion:	<p>If swallowed: Call a poison center or doctor if you feel unwell. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.</p> <p>Acute and delayed symptoms and effects: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.</p>
General Advice:	<p>In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).</p>
Note to Physicians:	<p>Symptoms may not appear immediately. Perform endoscopy in all cases of suspected Potassium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.</p>



Section 5: FIRE-FIGHTING MEASURES

FLAMMABILITY AND EXPLOSION INFORMATION

Not readily combustible solid, as per UN Test N.1., Paragraph 33.2.1.4.3.

Sensitivity to Mechanical Impact: This material is not sensitive to mechanical impact.

Sensitivity to Static Discharge: This material is not sensitive to static discharge.

MEANS OF EXTINCTION

Suitable Extinguishing Media: Small Fire: Dry chemical, CO₂, water spray or regular foam.
Large Fire: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk.

Unsuitable Extinguishing Media: Not available.

Products of Combustion: Oxides of sulphur. Manganese oxide.

Protection of Firefighters: Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6: ACCIDENTAL RELEASE MEASURES

Emergency Procedures: Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering.

Personal Precautions: Do not touch or walk through spilled material. Use personal protection recommended in Section 8.

Environmental Precautions: Keep out of drains, sewers, ditches, and waterways.

Methods for Containment: Do not flush to sewer or allow to enter waterways.

Methods for Clean-Up: Sweep up and shovel into suitable containers for disposal.

Other Information: See Section 13 for disposal considerations.

Section 7: HANDLING AND STORAGE

Handling: Do not swallow. Do not breathe dust. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. See Section 8 for information on Personal Protective Equipment.

Storage: Store locked up. Store away from incompatible materials. See Section 10 for information on Incompatible Materials. Keep out of the reach of children.



Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES

Component:

Dust [CAS No. Not applicable]

ACGIH: 10 mg/m³ (TWA) (Inhalable.); 3 mg/m³ (TWA) (Respirable.);
For Particles (Insoluble or Poorly Soluble) Not Otherwise Specified

OSHA: 15 mg/m³ (Total dust) (TWA), 5 mg/m³ (Respirable fraction) (TWA);
For Particulates Not Otherwise Regulated (PNOR).

Pea fiber [CAS No. Not available]

ACGIH: No TLV established.

OSHA: No PEL established.

Manganese sulfate monohydrate [CAS No. 10034-96-5]

ACGIH: 0.1 mg/m³ (TWA); Inhalable particulate matter (2012);
For Manganese and inorganic compounds, as Mn

OSHA: No PEL established.

Potassium hydroxide [CAS No. 1310-58-3]

ACGIH: 2 mg/m³ (C); (1992)

OSHA: 2 mg/m³ (C) [Vacated];

Water [CAS No. 7732-18-5]

ACGIH: No TLV established.

OSHA: No PEL established.

PEL: Permissible Exposure Limit TLV: Threshold Limit Value TWA: Time-Weighted Average C: Ceiling

Engineering Controls:

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, gas, etc.) below recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT (PPE)



Eye/Face Protection:

Wear safety glasses. Indirect vented, dust-tight goggles are required if dust is generated when handling this product. Use equipment for eye protection that meets the standards referenced by CSA Standard CAN/CSA-Z94.3:20 and OSHA regulations in 29 CFR 1910.133 for Personal Protective Equipment.

Hand Protection:

Wear protective gloves. Consult manufacturer specifications for further information.

Skin and Body Protection:

Wear protective clothing.

Respiratory Protection:

If engineering controls and ventilation are not sufficient to control exposure to below the allowable limits then an appropriate NIOSH/MSHA approved air-purifying respirator that meets the requirements of CSA Standard CAN/CSA-Z94.4-18, with particulate filter, or self-contained breathing apparatus must be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators.

General Hygiene Considerations:

Handle according to established industrial hygiene and safety practices. Consult a competent industrial hygienist to determine hazard potential and/or the PPE manufacturers to ensure adequate protection.



Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown granulated solid/pellets.	Vapor Pressure:	Not available.
Colour:	Light brown to dark brown.	Vapor Density:	Not available.
Odour:	Odourless.	Relative Density:	Not available.
Odour Threshold:	Not available.	Solubilities:	Insoluble in water.
Physical State:	Solid.	Partition Coefficient: n-Octanol/Water:	Not available.
pH (10% water extract):	6.5	Auto-ignition Temperature:	Not available.
Melting Point/Freezing Point:	Not available.	Decomposition Temperature:	Not available.
Initial Boiling Point:	Not available.	Viscosity:	Not available.
Boiling Range:	Not available.	Percent Volatile, wt. %:	Not available.
Flash Point:	Not available.	VOC content, wt. %:	Not available.
Evaporation Rate:	Not available.	Density:	Not available.
Flammability (solid, gas):	See Section 5.	Coefficient of Water/Oil Distribution:	Not available.
Lower Flammability Limit:	Not available.		
Upper Flammability Limit:	Not available.		

Section 10: STABILITY AND REACTIVITY

Reactivity:	Contact with incompatible materials. Exposure to heat.
Chemical Stability:	Stable under normal storage conditions.
Possibility of Hazardous Reactions:	Material is non-corrosive to steel or aluminum according to ASTM G31-72.
Conditions to Avoid:	Contact with incompatible materials. Exposure to heat.
Incompatible Materials:	Acids. Oxidizers.
Hazardous Decomposition Products:	Not available.



Section 11: TOXICOLOGICAL INFORMATION

EFFECTS OF ACUTE EXPOSURE

Product Toxicity	Oral:	Not available.
	Dermal:	Not available.
	Inhalation:	Not available.

Component Toxicity	Component	CAS No.	LD ₅₀ oral	LD ₅₀ dermal	LC ₅₀
	Pea fiber	Not available.	Not available.	Not available.	Not available.
	Manganese sulfate monohydrate	10034-96-5	Not available.	Not available.	Not available.
	Potassium hydroxide	1310-58-3	273 mg/kg (rat)	Not available.	Not available.
	Water	7732-18-5	> 90 mL/kg (rat)	Not available.	Not available.

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion.

Target Organs: Skin. Eyes. Gastrointestinal tract. Respiratory system.

Symptoms (including delayed and immediate effects)

Inhalation:	May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.
Eye:	May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.
Skin:	May cause skin irritation. Signs/symptoms may include localized redness, swelling, and itching. Corrositex® (OECD 435) shows the material to be non-corrosive to skin.
Ingestion:	May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.
Skin Sensitization:	Not available.
Respiratory Sensitization:	Not available.
Medical Conditions Aggravated By Exposure:	Not available.



EFFECTS OF CHRONIC EXPOSURE (FROM SHORT AND LONG-TERM EXPOSURE)

Target Organs:	Skin. Eyes. Gastrointestinal tract. Respiratory system. Lungs. Blood. Kidneys. Central nervous system.
Chronic Effects:	Hazardous by OSHA/WHMIS criteria. May cause chronic effects. Prolonged or repeated contact may dry skin and cause irritation. Chronic manganese poisoning can result from excessive inhalation and exposure of Manganese sulfate and involves impairment of the central nervous system. Early symptoms are sluggishness, sleepiness, and weakness in the legs. Advanced cases have shown fixed facial expression, emotional disturbances, spastic gait, and falling. Illness closely resembles Parkinson's Disease. Kidney effects, blood changes and Manganese psychosis also may occur as a result of chronic exposure. Chronic inhalation exposure can cause lung damage.
Carcinogenicity:	This product does not contain any carcinogens or potential carcinogens above reportable thresholds as listed by ACGIH, IARC, OSHA, or NTP.
Mutagenicity:	Not available.
Reproductive Effects:	Not available.
Developmental Effects	
Teratogenicity:	Not available.
Embryotoxicity:	Not available.
Toxicologically Synergistic Materials:	Not available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity:	Not available.
Persistence/Degradability:	Not available.
Bioaccumulation/Accumulation:	Not available.
Mobility in Environment:	Not available.
Other Adverse Effects:	Not available.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Instructions:	Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.
------------------------	---



Section 14: TRANSPORT INFORMATION

U.S. Department of Transportation (DOT)		Canada Transportation of Dangerous Goods (TDG)	
Proper Shipping Name:	Not regulated.	Proper Shipping Name:	Not regulated.
Class:	Not applicable.	Class:	Not applicable.
UN Number:	Not applicable.	UN Number:	Not applicable.
Packing Group:	Not applicable.	Packing Group:	Not applicable.
Placard(s):	Not applicable.	Placard(s):	Not applicable.

Section 15: REGULATORY INFORMATION

Federal Regulations

United States This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III

Component	Section 302 (EHS) TPQ (lbs.)	Section 304 EHS RQ (lbs.)	CERCLA RQ (lbs.)	Section 313	RCRA Code	CAA 112(r) TQ (lbs.)
Potassium hydroxide	Not listed.	Not listed.	1000	Not listed.	Not listed.	Not listed.

State Regulations

Massachusetts US Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

Component	CAS No.	RTK List
Manganese sulfate monohydrate	10034-96-5	Listed.
Potassium hydroxide	1310-58-3	Listed.

New Jersey US New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

Component	CAS No.	RTK List
Potassium hydroxide	1310-58-3	SHHS

Note: SHHS = Special Health Hazard Substance



Soileos Manganese

Safety Data Sheet

Pennsylvania

US Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Component	CAS No.	RTK List
Manganese sulfate monohydrate	10034-96-5	Listed.
Potassium hydroxide	1310-58-3	E

Note: E = Environmental Hazard

California

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

Section 16: OTHER INFORMATION

Disclaimer:

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for their own particular use.

Date of Preparation of SDS:

October 18, 2022

Version:

1.0

GHS SDS Prepared by:

Aegis Regulatory Inc.
Phone: 1 (519) 488-0351
www.aegisreg.com