

## Section 1. Identification

**Product identifier** : Signature® Iron-Nitrain 12-0-0

**Other means of identification**

**Synonyms** : SDS #: 1001063974-21-LPI


**Product code(s)** : 1001063974


**Product type** : Liquid.

### Relevant identified uses of the substance or mixture and uses advised against

#### Identified uses

Fertilizer.

**Supplier's details** :  LOVELAND PRODUCTS, INC.  
P.O. Box 1286  
Greeley, CO 80632-1286  
  
Loveland Products Canada Inc.  
789 Donnybrook Drive  
Dorchester, Ontario N0L 1G5  
  
retail-SDS@nutrien.com – www.nutrienagsolutions.com

**Emergency telephone number (with hours of operation)** :  24-Hour Emergency Phone: 1-800-424-9300- Medical Emergencies:  
1-866-944-8565  
U.S. Coast Guard National Response Center: 1-800-424-8802

## Section 2. Hazard identification

**Classification of the substance or mixture** : ACUTE TOXICITY (oral) - Category 4  
SKIN IRRITATION - Category 2  
EYE IRRITATION - Category 2A  
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (central nervous system (CNS)) - Category 2

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### GHS label elements

**Hazard pictograms**



**Signal word** : Warning

**Hazard statements** : Harmful if swallowed.  
Causes serious eye irritation.  
Causes skin irritation.  
May cause damage to organs through prolonged or repeated exposure. (central nervous system (CNS))

### Precautionary statements

**General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

## Section 2. Hazard identification

- Prevention** : Wear protective gloves. Wear eye or face protection. Do not breathe vapor or spray. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
- Response** : Get medical attention if you feel unwell. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : None known.
- Other hazards which do not result in classification** : None known.

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

Ingredient name	% (w/w)	CAS number
Water	33	7732-18-5
iron (II) sulfate	30	7720-78-7
Urea	26	57-13-6
manganese sulfate	10	7785-87-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First-aid measures

### Description of necessary first aid measures

- Eye contact** : Begin eye irrigation immediately. Exposures to eye irritants may require medical evaluation following decontamination if pain or irritation persists. Immediately rinse eyes with large quantities of water or saline for a minimum of 15 minutes. If possible, remove contact lenses being careful not to cause additional eye damage. If the initial water supply is insufficient, keep the affected area wet with a moist cloth and transfer the person to the nearest place where rinsing can be continued for the recommended length of time. For additional advice call the medical emergency number on this SDS or your poison center or doctor.
- Inhalation** : Remove person to fresh air. No known significant effects. Seek medical attention for any signs of wheezing and/or breathing difficulties. For additional advice call the medical emergency number on this SDS or your poison center or medical provider.
- Skin contact** : Causes skin irritation. Adverse effects may be delayed up to 24 hours after exposure. Wash with soap and water. Take off contaminated clothing and gloves and wash them to remove contamination, including the inside, before reuse. If skin irritation or rash occurs: Get medical attention.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. For additional advice call the medical emergency number

## Section 4. First-aid measures

on this SDS or your poison center or doctor.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye irritation. Adverse effects may be delayed up to 24 hours after exposure.
- Inhalation** : No known significant effects or critical hazards. May cause respiratory irritation.
- Skin contact** : Causes skin irritation. Adverse effects may be delayed up to 24 hours after exposure.
- Ingestion** : Harmful if swallowed. May be irritating to mouth, throat and stomach.

#### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
irritation
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting  
diarrhea

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. For professional, multilingual, medical support, in case of medical emergencies involving Nutrien products, telephone the Nutrien global 24 hour Emergency Number: 1-303-389-1653.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. Mouth-to-mouth resuscitation of oral exposure patients is not recommended. First-aiders with contaminated clothing should be properly decontaminated.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

**Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
phosphorus oxides  
sulfur oxides  
Ammonia

## Section 5. Fire-fighting measures

cyanuric acid  
hydrogen chloride  
hydrogen cyanide  
Hydrogen fluoride  
hydrogen sulfide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Remark** : If mixed with chlorine or hypochlorites, it may form nitrogen trichloride which may explode spontaneously in air. Contain and collect the water used to fight the fire for later treatment and disposal.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused adverse impacts (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

- Small spill** : Put on appropriate personal protective equipment (see Section 8). Move containers from spill area. Recover the material and use it for the intended purpose.  
or  
Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Put on appropriate personal protective equipment (see Section 8). Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Use appropriate equipment to put the spilled substance in a container for reuse or disposal. Recycle to process, if possible.  
or  
Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and storage

### Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Do not breathe vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Do not ingest. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

## Section 7. Handling and storage

**Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. May form steep piles that can collapse without warning when transported or stored in bulk. This may damage equipment and endanger workers. The risk of cliffing and sudden collapse increases if product is loaded or stored when hot or in high humidity conditions. Avoid forming steep slopes when removing product. If product has caked, cliffed, or has adhered to the storage or transport container, stay out of the potential engulfment zone in case the material collapses. Do not enter bins, railcars or trucks without conducting a risk assessment and following all confined space entry requirements. Ensure that consideration is given to fall protection and mobile equipment securement if applicable. Carefully loosen the set product from outside the container using mechanical vibration, sledge hammers, or other devices.

Ensure that bulk bags or smaller packaged products stored in tiers are stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, rolling, or collapse. Use caution when opening truck or railcar doors as product may have shifted during transport.

Must be stored in a dry location. Absorbs moisture on long-term storage under high humidity conditions. Store away from incompatible materials (see Section 10). When product is stored in sealable containers, keep container tightly closed and sealed until ready for use. Sealable containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>Canadian Regulations</b> Water iron (II) sulfate          Urea   manganese sulfate	- <b>CA Alberta Provincial:</b> (Canada, 6/2018). 8 hrs OEL: 1 mg/m <sup>3</sup> , (as Fe) 8 hours. <b>British Columbia Provincial:</b> (Canada, 10/2019). TWA: 1 mg/m <sup>3</sup> , (as Fe) 8 hours. STEL: 2 mg/m <sup>3</sup> , (as Fe) 15 minutes. <b>CA Quebec Provincial.</b> (Canada, 7/2019). TWAEV: 1 mg/m <sup>3</sup> , (as Fe) 8 hours. <b>CA Ontario Provincial (Canada, 6/2019).</b> TWA: 1 mg/m <sup>3</sup> , (as Fe) 8 hours. <b>Saskatchewan Provincial:</b> (Canada, 7/2013). STEL: 3 mg/m <sup>3</sup> , (measured as Fe) 15 minutes. TWA: 1 mg/m <sup>3</sup> , (measured as Fe) 8 hours. <b>AIHA WEEL (United States, 7/2018).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. <b>British Columbia Provincial:</b> (Canada, 10/2019). TWA: 0.02 mg/m <sup>3</sup> , (as Mn) 8 hours. Form: Respirable TWA: 0.2 mg/m <sup>3</sup> , (as Mn, Total) 8 hours. <b>CA Quebec Provincial.</b> (Canada, 7/2019). TWAEV: 0.2 mg/m <sup>3</sup> , (as Mn) 8 hours. Form: Total dust. <b>CA Alberta Provincial:</b>

## Section 8. Exposure controls/personal protection

### U.S. Federal Regulations manganese sulfate

Water  
iron (II) sulfate

Urea

(Canada, 6/2018).  
8 hrs OEL: 0.2 mg/m<sup>3</sup>, (as Mn) 8 hours.  
**CA Ontario Provincial (Canada, 6/2019).**  
TWA: 0.2 mg/m<sup>3</sup>, (as Mn) 8 hours.  
**Saskatchewan Provincial:** (Canada, 7/2013).  
STEL: 0.6 mg/m<sup>3</sup>, (measured as Mn) 15 minutes.  
TWA: 0.2 mg/m<sup>3</sup>, (measured as Mn) 8 hours.

**NIOSH REL (United States, 10/2016).**  
TWA: 1 mg/m<sup>3</sup>, (as Mn) 10 hours. Form: Fume  
STEL: 3 mg/m<sup>3</sup>, (as Mn) 15 minutes. Form: Fume  
**ACGIH TLV (United States, 3/2019).**  
TWA: 0.1 mg/m<sup>3</sup>, (as Mn) 8 hours. Form: Inhalable fraction  
TWA: 0.02 mg/m<sup>3</sup>, (as Mn) 8 hours. Form: Respirable fraction  
**OSHA PEL 1989 (United States, 3/1989).**  
CEIL: 5 mg/m<sup>3</sup>, (as Mn)  
**OSHA PEL (United States, 5/2018).**  
CEIL: 5 mg/m<sup>3</sup>, (as Mn)

None.  
**ACGIH TLV (United States, 3/2019).**  
TWA: 1 mg/m<sup>3</sup>, (as Fe) 8 hours.  
**NIOSH REL (United States, 10/2016).**  
TWA: 1 mg/m<sup>3</sup>, (as Fe) 10 hours.  
**OSHA PEL 1989 (United States, 3/1989).**  
TWA: 1 mg/m<sup>3</sup>, (as Fe) 8 hours. Form: Soluble  
**AIHA WEEL (United States, 7/2018).**  
TWA: 10 mg/m<sup>3</sup> 8 hours.

### Appropriate engineering controls

- : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

#### Skin protection



## Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Recommended: Rubber gloves. Contact your personal protective equipment manufacturer to verify the compatibility of the equipment for the intended purpose.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Approved/certified respirator with pesticide cartridge. Contact your personal protective equipment manufacturer to verify the compatibility of the equipment for the intended purpose.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Liquid. [solution]
- Color** : Brown. [Light]
- Odor** : Characteristic.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not applicable.
- Boiling point** : Not applicable.
- Flash point** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.  
Non-flammable substance.
- Lower and upper explosive (flammable) limits** : Not applicable.
- Vapor pressure** : Not applicable.
- Vapor density** : Not available.
- Relative density** : Not available.
- Density** : 1.433 g/cm<sup>3</sup> [Bulk density: 11.96 lbs/gal / 1.43 kg/L]
- Solubility** : Water soluble.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not applicable.
- Viscosity** : Not applicable.

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Store in a cool, well-ventilated area away from incompatible materials and ignition sources.
- Incompatible materials** : May react or be incompatible with acids. May react or be incompatible with oxidizing materials. May react or be incompatible with alkalis. Incompatible with halogens. If mixed with chlorine or hypochlorites, it may form nitrogen trichloride which may explode spontaneously in air. May be incompatible with some materials of construction. Incompatible with copper alloys, copper, and zinc. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
iron (II) sulfate	LD50 Oral	Rat	319 mg/kg	-
manganese sulfate	LD50 Oral	Rat	2150 mg/kg	-

**Conclusion/Summary** : Harmful if swallowed.

#### Irritation/Corrosion

Not available.

#### Conclusion/Summary

- Skin** : Causes skin irritation.
- Eyes** : Causes eye irritation.
- Respiratory** : May cause respiratory irritation.

#### Sensitization

Not available.

#### Conclusion/Summary

- Skin** : No known significant effects or critical hazards.
- Respiratory** : No known significant effects or critical hazards.

#### Mutagenicity

Not available.

**Conclusion/Summary** : No mutagenic effect.

#### Carcinogenicity

Not available.

**Conclusion/Summary** : No known significant effects or critical hazards.

#### Reproductive toxicity

Not available.



## Section 11. Toxicological information

**Conclusion/Summary** : Not considered to be toxic to the reproductive system.

### Teratogenicity

Not available.

**Conclusion/Summary** : No known significant effects or critical hazards.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
manganese sulfate	Category 2	Inhalation	central nervous system (CNS)

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Skin contact  
Eye contact  
Inhalation

### Potential acute health effects

**Eye contact** : Causes serious eye irritation. Adverse effects may be delayed up to 24 hours after exposure.

**Inhalation** : No known significant effects or critical hazards. May cause respiratory irritation.

**Skin contact** : Causes skin irritation. Adverse effects may be delayed up to 24 hours after exposure.

**Ingestion** : Harmful if swallowed. May be irritating to mouth, throat and stomach.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness

**Inhalation** : Adverse symptoms may include the following:  
irritation

**Skin contact** : Adverse symptoms may include the following:  
irritation  
redness

**Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting  
diarrhea

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : See above.

**Potential delayed effects** : See above.

#### Long term exposure

**Potential immediate effects** : See above.

**Potential delayed effects** : See below.

### Potential chronic health effects

**Conclusion/Summary** : No known significant effects or critical hazards.

## Section 11. Toxicological information

<b>General</b>	: May cause damage to organs through prolonged or repeated exposure.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
iron (II) sulfate	Acute EC50 143000 µg/l Fresh water	Crustaceans - Crangonyx pseudogracilis - Adult	48 hours
manganese sulfate	Acute EC50 7.2 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1750 µg/l Fresh water	Fish - Salvelinus fontinalis	96 hours
	Acute EC50 25700 µg/l Marine water	Algae - Phaeodactylum tricornutum	96 hours
	Acute EC50 8.28 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 0.15 mg/l Fresh water	Crustaceans - Canthocamptus sp. - Larvae	48 hours
	Acute LC50 3.32 mg/l Fresh water	Fish - Oncorhynchus mykiss - Embryo	96 hours
	Chronic NOEC 1270 µg/l Fresh water	Fish - Pimephales promelas - Egg	28 days

### Persistence and degradability

Not available.

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
iron (II) sulfate	-	20	low









### Mobility in soil

<b>Soil/water partition coefficient (K<sub>oc</sub>)</b>	: Not available.
<b>Other adverse effects</b>	: No known significant effects or critical hazards.

## Section 13. Disposal considerations

<b>Disposal methods</b>	: The generation of waste should be avoided or minimized wherever possible. Recycle to process, if possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
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## Section 14. Transport information

	<b>TDG Classification</b>	<b>DOT Classification</b>	<b>Mexico Classification</b>	<b>IMDG</b>	<b>IATA</b>
<b>UN number</b>	UN3082	Not regulated.	UN3082	UN3082	UN3082
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (manganese sulphate)	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (manganese sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (manganese sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (manganese sulphate)
<b>Transport hazard class(es)</b>	9  	-	9  	9  	9  
<b>Packing group</b>	III	-	III	III	III
<b>Environmental hazards</b>	Yes.	No.	Yes.	Yes.	Yes.
<b>Additional information</b>	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark). Non-bulk packages of this product are not regulated as dangerous goods when transported by road or rail. <b>Remarks</b> Classification per the current revision, Transportation of Dangerous Goods Regulation, Part 2, Sec 2.3.	<b>Reportable quantity</b> 3333.3 lbs / 1513.3 kg [278.98 gal / 1056.1 L]. Packages of less than the reportable quantity are not subject to Hazmat transportation requirements.	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.	This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

**Special precautions for user :** **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL and the IBC Code :** Not available.

## Section 15. Regulatory information

### Canadian lists

**Canadian NPRI** : The following components are listed: manganese (and its compounds)

**CEPA Toxic substances** : None of the components are listed.

**Canada inventory** : All components are listed or exempted.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**Australia** : All components are listed or exempted.

**China** : Not determined.

**Europe** : At least one component is not listed in EINECS but all such components are listed in ELINCS. Please contact your supplier for information on the inventory status of this material.

**Japan** : **Japan inventory (ENCS)**: Not determined.  
**Japan inventory (ISHL)**: Not determined.

**Malaysia** : Not determined

**New Zealand** : All components are listed or exempted.

**Philippines** : Not determined.

**Republic of Korea** : All components are listed or exempted.

**Taiwan** : Not determined.

**Turkey** : Not determined.

**U.S. Federal Regulations** : **TSCA 5(a)2 proposed significant new use rules**: N-methyl-2-pyrrolidone  
**TSCA 5(a)2 final significant new use rules**: NBPT  
**TSCA 5(e) substance consent order**: NBPT  
**TSCA 8(a) CDR Exempt/Partial exemption**: Not determined  
**TSCA 8(b) Active inventory**: All components are listed or exempted.  
**Clean Water Act (CWA) 307**: Nickel  
**Clean Water Act (CWA) 311**: iron (II) sulfate

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

## Section 15. Regulatory information

**DEA List II Chemicals** : Not listed  
**(Essential Chemicals)**

### SARA 302/304 Composition/information on ingredients

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard  
 Delayed (chronic) health hazard.

### Composition/information on ingredients


Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard.
iron (II) sulfate	≥25 - ≤50	No.	No.	No.	Yes.	No.
manganese sulfate	≤10	No.	No.	No.	No.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	manganese sulphate	7785-87-7	9.7
<b>Supplier notification</b>	manganese sulphate	7785-87-7	9.7

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

- Massachusetts** : The following components are listed: FERROUS SULFATE
- New York** : The following components are listed: Ferrous sulfate
- New Jersey** : The following components are listed: FERROUS SULFATE; SULFURIC ACID, IRON (2+) SALT (1:1); MANGANESE compounds, n.o.s.
- Pennsylvania** : The following components are listed: SULFURIC ACID, IRON(2+) SALT (1:1); MANGANESE COMPOUNDS
- California Prop. 65** :  **WARNING:** This product can expose you to chemicals including Nickel, which is known to the State of California to cause cancer, and N-methylpyrrolidone, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Nickel	Yes.	No.	-	-
N-methyl-2-pyrrolidone	No.	Yes.	-	Yes.

## Section 16. Other information

### History

**Date of issue/Date of revision** : 5/12/2021

**Date of previous issue** : 3/22/2021

**Version** : 1.1

 Indicates information that has changed from previously issued version.

 Section 1. Identification

## Section 16. Other information

### Key to abbreviations

- : ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 UN = United Nations  
 HPR = Hazardous Products Regulations

### Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (central nervous system (CNS)) - Category 2	Calculation method

### References

- : Transportation of Dangerous Goods Act and Clear Language Regulations, current edition at time of SDS preparation, Transport Canada;  
 Hazardous Products Act and Regulations, current revision at time of SDS preparation, Health Canada;  
 Domestic Substances List, current revision at time of SDS preparation, Environment Canada;  
 29 CFR Part 1910, current revision at time of SDS preparation, U.S. Occupational Safety and Health Administration;  
 40 CFR Parts 1-799, current revision at time of SDS preparation, U.S. Environmental Protection Agency;  
 49 CFR Parts 1-199, current revision at time of SDS preparation, U.S. Department of Transport;  
 Mexican Official Standard NOM-018-STPS-2015, Harmonised System for the Identification and Communication of Hazards and Risks by Hazardous Chemicals in the Workplace;  
 NORMA Oficial Mexicana NOM-010-STPS-2014, Agentes químicos contaminantes del ambiente laboral-Reconocimiento, evaluación y control.  
 Mexican Official Standard NOM-002-SCT / 2011, List of the most commonly transported hazardous substances and materials;  
 Threshold Limit Values for Chemical Substances, current edition at time of SDS preparation, American Conference of Governmental Industrial Hygienists;  
 NFPA 400, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;  
 NFPA 704, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;  
 Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers;  
 ERG 2016, Emergency Response Guidebook, U.S. Department of Transport, Transport Canada, and the Secretariat of Transportation and Communications of Mexico  
 Hazardous Substances Data Bank, current revision at time of SDS preparation, National Library of Medicine, Bethesda, Maryland  
 Integrated Risk Information System, current revision at time of SDS preparation, U.S. Environmental Protection Agency, Washington, D.C.  
 Pocket Guide to Chemical Hazards, current revision at time of SDS preparation, National Institute for Occupational Safety and Health, Cincinnati, Ohio ;  
 Agency for Toxic Substances and Disease Registry Databank, current revision at time of SDS preparation, U.S. Department of Health and Human Services, Atlanta, Georgia  
 National Toxicology Program, Report on Carcinogens, Division of the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.  
 Registry of Toxic Effects of Chemical Substances. National Institute for

## Section 16. Other information

Occupational Safety and Health, Cincinnati, Ohio  
California Code of Regulations, Title 27, Div 4, Chapter 1, Proposition 65 Aug 30,  
2018 rev and current updates

### [Notice to reader](#)

Supply chain partners must ensure they pass this SDS, and all other relevant safety information to their customers.

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