

SAFETY DATA SHEET

NoroTec AB

Date of Issue: May 28, 2020

Version no: 6.0

Replaces: February 18, 2016

NoroTec™ Manganese

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

1.1 Product identifier

PRODUCT NAME:	NoroTec™ Manganese
Group Name	Fertilisers based on manganese.

1.2 Relevant identified uses of the substance or preparation and uses advised against

Use of the product	Fertilizers against manganese deficiency in agricultural crops for foliar and seed treatment.
Limited conditions of use	Not applicable

1.3 Details of the supplier of the safety data sheet

Company	NoroTec AB
Address	Södergatan 74
Zip Code / City or Town	SE-274 34 Skurup
Country	Sweden
E-mail	mail@norotec.se
Telephone	+46 411 406 60
Contact person	Bo Isacsson

1.4 Emergency telephone number

Emergency telephone number	Call 112 – ask for Poisson Information Centre.
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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or preparation

Product definition: Mixture

Classification according to (EG) 1272/2008

STOT RE 2; H373

Aquatic Chronic 2; H411

2.2 Label Information

Label elements according to (EG) 1272/2008

Labelling required.



Signal Word: Warning

Hazard Statement

H373	May cause damage to organs through prolonged or repeated exposure if inhaled or swallowed.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P314	Get medical advice/attention if you feel unwell

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P273	Avoid release to the environment
P391	Collect spillage.
P501	Dispose of contents/container to a licensed hazardous waste disposal contractor.

Contains

Manganese sulphate	25-50 weight-%
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2.3 Other hazards

PBT / vPvB	The product contains no PBT or vPvB substances.
Other hazards which do not cause classification	Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance (UVCB)

No	Component/ ingredient name	EC-number	CAS- number	REACH registration number	Conc. (weight-%)	Classification CLP]
1	Manganese sulphate	231-298-2	7487-88-9	01-2119486789-11-0000	25-50	STOT RE 2, H373 Aquatic Chronic 2, H411
2	Citric acid	201-069-1	77-92-9	01-2119457026-42-0000	2-4	Eye Irrit. 2; H319
3	Water	231-791-2	7732-18-5	--	40-65	Not classified as dangerous

Occupational exposure limits are mentioned under section 8, if such exist. See section 16 for the full text of the hazard statements declared above.

4. FIRST AID

4.1 Description of first aid measures

Inhalation	Rest in fresh air.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with soap and water.
Eye contact	Hold eyelids apart. Rinse with water for a few minutes. Consult a physician if irritation persists.
Ingestion	Rinse mouth with water. Drink a few glasses of water or milk. Consult a physician if burning or other symptoms persist in the mouth, throat or gastrointestinal tract.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	Inhalation may cause burning in the eyes, nose, mouth and throat. The product contains manganese sulphate. Inhalation of spray mist or particles for a longer period can cause chronic manganese intoxication with the influence of the central nervous system. Symptoms of effects include sleepiness, tremors and twitching in the arms and legs.
Skin contact	Repeated exposure causes dry skin, irritation, redness and cracking.
Eye contact	Splashes may cause transient irritation of the eyes.
Ingestion	Ingestion may cause burning pain in the mouth, throat and gastrointestinal tract and cause vomiting, diarrhea and reduced general condition.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.
Specific treatments	No specific treatment.

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5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

General information	Non-flammable product.
5.1.1 Suitable extinguishing media	The product is not flammable. Choose extinguishing agents based on the surrounding fire
5.1.2 Unsuitable extinguishing media	None

5.2 Special hazards arising from the substance or preparation

Hazards from the substance or preparation	No fire or explosion risk exists.
Hazardous thermal decomposition products	Oxides of manganese, sulfur and nitrogen.

5.3 Advice to firefighters

5.3.1. Special protective actions for fire-fighters	Avoid inhalation of toxic fumes.
5.3.2 Special protective equipment for fire-fighters	Fire-fighters should use chemically protective clothing and self-contained breathing apparatus.
5.3.3 Further information	If possible, move the product from the fire area. Otherwise cool containers exposed to flames with water until fire is out. Do not allow run-off from firefighting to enter drains or water courses

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment. Avoid contact with eyes and skin.
For information on personal equipment, see section 8.

6.2 Environmental precautions

Avoid dispersal of spilt material in waterways and sewers or contaminate of soil and vegetation. If this is not possible immediately contact the police and relevant authorities.

6.3 Methods and materials for containment and cleaning up

Dike spills using vermiculite, sand or other inert absorbent material and place in sealable containers.
Clean up area with detergent and water subsequently. Collected material should be disposed of as hazardous waste.

6.4 Reference to other sections

See section 8 for personal protective equipment.
See section 13 for handling of waste materials.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling	Avoid contact with skin and eyes Avoid breathing vapours/spray mist. Do not eat or drink while handling the product. See Section 8 for personal protective equipment.
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7.2 Conditions for safe storage, including any incompatibilities

Storage conditions	Store in tightly closed original packaging. Keep dry and cool in a well ventilated place.
Conditions to avoid	Protected against frost. Avoid direct sunlight.

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7.3 Special characteristics and risks

Conditions to avoid	Keep away from strong alkaline solution and strong oxidizing agents.
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7.4 Specific end use(s)

Specific use (s)	Not relevant.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limit (Work Exposure Limit)

Country	Name of substance	CAS No	Notation	Identifier	TWA mg/m ³	STEL mg/m ³	Source
GB	Manganese sulphate (as manganese)	7439-96-5	--	WEL	0.5	--	EH40/2005

Notation

TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average
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8.2 Exposure Control

Avoid contact with skin and eyes. Do not eat, drink or smoke while working. Avoid breathing vapours/spray mist.

8.2.1 Appropriate technical controls

Not relevant for this product.

8.2.2 Individual protective measures, e.g. protective personal equipment.

8.2.2.1 Respiratory protection	At risk of inhalation of spray mist use respiratory equipment (half mask with particle filter P2).
8.2.2.2 Eye/face protection	Wear tight-fitting safety goggles.
8.2.2.3 Hand protection	Use protective gloves made of neoprene or nitrile rubber.
8.2.2.4 Body protection	Wear appropriate protective clothing.
8.2.2.5 Thermal hazards	The product does not constitute a thermal hazard. No special measures required.
8.2.2.6 Other information	Portable eye wash equipment should be available.

8.2.2 Environmental exposure controls

Avoid release to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	Salmon pink
Odour	Practically odourless
Odour threshold	Not available
Solubility	Completely soluble in water.
pH (product)	About 1.5
Melting point /freezing point	0°C
Initial boiling point and kitchen range	100°C
Flash point	Not applicable, product is not combustible
Evaporation rate	As water
Flammable (solid, gas)	Not combustible substance.

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Burning time	Not applicable
Burning rate	Not applicable
Upper / lower flammability or explosive limits	Not explosive
Steam pressure	As water
Vapour	As water
Relative density	Approximately 1.50 g /cm ³ at 20°C
Octanol / water	Not applicable
Ignition temperature	Not applicable, product is not combustible
Decomposition Temperature	Not applicable, product is not combustible
Oxidising properties	Non-oxidising

9.2 Other information

None

10. STABILITY AND REACTIVITY

10.1 Reactivity	Non-reactive.
10.2 Chemical stability	Chemically stable under normal conditions of use and storage.
10.3 Possibility of hazardous reactions	Inapplicable in normal conditions of storage and use.
10.4 Conditions to avoid	Strong heat. Direct sunlight. Protect from frost.
10.5 Incompatible materials	Strong alkaline solutions and strong oxidizing agents.
10.6 Hazardous decomposition products	Thermal decomposition results in the formation of oxides of manganese, sulfur and nitrogen.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

11.1 Acute toxicity

Acute toxicity of manganese sulphate

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	782 mg/kg	rat	--	--

Acute toxicity of the product

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	> 2.000 mg/kg	--	--	ATE-mix, calculated
LD50, dermal	> 2.000 mg/kg	--	--	ATE-mix, calculated
LC50, inhalation	> 20 mg/l	--	4 h	ATE-mix, calculated

Irritation/Corrosion

Assessment of skin corrosion/irritation, classification

Non-irritating.

Assessment of eye damage or irritation, classification

Non-irritating.

11.2 Potential acute effects

Inhalation	Inhalation may cause burning in the eyes, nose, mouth and throat. The product contains manganese sulphate. Inhalation of spray mist or particles for a longer period can cause chronic manganese intoxication with the effects on the central nervous system. Symptoms of effects include sleepiness, tremors and twitching in the arms and legs.
Skin contact	Repeated exposure gives rise to dry skin, irritation, redness and skin cracking.

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Eye contact	Splashes may cause transient irritation of the eyes.
Ingestion	Ingestion may cause burning pain in the mouth, throat and gastrointestinal tract and cause vomiting, diarrhea and reduced general condition.

11.3 Sensitization by inhalation/skin contact

Assessment of sensibility for the product:
The product does not contain any sensitizing agents.

11.4.1 Germ cell mutagenicity

Assessment of mutagenicity for the product:
Based on available data, the classification criteria are not met.

11.4.2 Carcinogenicity

Assessment of carcinogenicity for the product:
Based on available data, the classification criteria are not met.

11.4.3 Reproduction toxicity

Assessment of reproduction toxicity for the product:
Based on available data, the classification criteria are not met.

11.5.1 Specific target organ toxicity (single exposure)

STOT assessment single dos toxicity:
Shall not be classified as a specific target organ toxicant (single exposure).

11.5.2 Repeated dose toxicity and specific organ toxicity (repeated exposure)

STOT assessment of repeated dose toxicity:
Repeated contact with the product causes no systematic effects.
However, local effect such as dry skin, irritation, redness and cracking will occur.
The product contains manganese sulphate. Repeated inhalation of spray mist or particles for a longer period can cause chronic manganese intoxication with the effects on the central nervous system. Symptoms of effects include sleepiness, tremors and twitching in the arms and legs. Repeating oral ingestion of the product may cause substance-related effects.

11.7 Aspiration

Shall not be classified as presenting an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1. 1 Toxicity

Acute aquatic toxicity of manganese sulphate

Test	Value / unit	Test Method	Exp. time	Species
Fish LC50	30 mg/l	ECOTOX Database	96 h	Fathead minnow
Daphnia EC50	8 mg/l	ECOTOX Database	48 h	Daphnia magna
Algae ErC50	61	ECHA Dossier	72 h	Desmodesmus subspicatus

12.1.2 Ecological toxicity

The product is toxic to aquatic organisms.

12.2 Persistence and degradability

Conclusion/Summary	The product contains the elements manganese and sulphur. Elements are by definition not biodegradable
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12.3 Bioaccumulative potential

Conclusion/Summary	Bioaccumulation of manganese can be expected
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12.4 Mobility in soil

The product is mobile in the soil profile due to its high water solubility.
Adsorption to solid soil particles is not expected.

12.5 Results of PBT and vPvB assessment

The product contains no substances which are identified as a PBT or vBvP substance (substance that is persistent, bioaccumulative and toxic).

12.6 Other adverse effects

None known

12.7 Environmental information/conclusion

The mixture in concentrated form is classified as toxic to aquatic life with long lasting effects.
Solution ready for use that is spread on arable land is not considered dangerous for the environment.
However, avoid spreading near lakes and rivers

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Method of disposal	Residues and waste are hazardous waste. Dispose of at an approved disposal facility.
Hazardous waste	Yes

Packaging

Method of disposal	Uncleaned empty packaging is hazardous waste. Dispose of at an approved disposal facility.
Hazardous waste	Yes
Special precautions	Not relevant

European Waste Catalogue (EWC)

EWC Waste Code	Type of waste
02 01 08*	Agrochemical waste containing dangerous substances
15 01 10*	Packaging containing residues of or contaminated by dangerous substances

14. TRANSPORT INFORMATION

This product is classified as dangerous goods.

UN-no:	3082
Proper Shipping Name:	Environmentally hazardous substance, liquid n.o.s.(manganese sulphate)

ADR / RID (Road / Rail Transport)

Class:	9	Packing Group:	III
Label:	--	Environmental hazards:	Yes
Hazard number:	90	Tunnel restriction code:	E

IMDG (SEA)

Class:	9	Packing Group:	III
Label:	--	EmS:	F-A, S-F
Marine Pollutant:	Yes		

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IATA (Air Transport)

Class:	9	Packing Group:	III
Label:	--	Environmental hazards:	Yes

14.7 Bulk transport in accordance with annex II of convention Marpol 73/78 and IBC-Code

Not applicable

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or preparation

Classification and labelling according to (EG) 1272/2008 is available under section 2. This Safety Data Sheet is prepared in accordance with Annex II of the REACH Regulation (EC) 1907/2006 and Regulation (EC) No. 453/2010 Appendix I.

Authorisation	Not required.
Restriction in use	None.
Other EU legislation	This product contains no ozone depleting substance and no persistent organic pollutant.

15.2 Chemical Safety Assessment

Not relevant for products.

16. OTHER INFORMATION

THE PRODUCER'S NOTES

This safety data sheet is provided by MM-Support AB, Sweden, and approved by NoroTec AB, Sweden.

LIST OF HAZARD STATEMENTS MENTIONED UNDER SECTION 2 and 3

No.	Text
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure through inhalation or ingestion.
H411	Toxic to aquatic life with long lasting effects.

Revision overview

Version	Revision date	Responsible	Changes in section
v.2	March 20, 2009	Erland Jordow	--
v.3	February 2, 2010	Erland Jordow	--
v.4	March 12, 2013	Bo Isacsson	The entire safety data sheet has been updated to REACH II format
v.5	February 18, 2016	Bo Isacsson	2, 3, 4, 11, 13, and 15
v.6	May 28, 2020	Bo Isacsson	3, 4, 8, 11, and 12