

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

Replaces: April 28, 2016

NoroTec™ Manganese Copper Seed

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

1.1 Product identifier

PRODUCT NAME:	NoroTec™ Manganese Copper Seed
Group Name	Fertilizers based on manganese and copper.

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

Use of the product	Seed treatment.
Limited conditions of use	Not applicable.

1.3 Details of the supplier of the safety data sheet

Company	NoroTec AB
Address	Långebergavägen 40
Zip Code / City or Town	SE-256 69 Helsingborg
Country	Sweden
Telephone	+46 411 406 60
Contact person	Fredrik Olsheden
E-mail	mail@norotec.se

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

Skin Irr. 2; H315

Eye Irr. 2; H319

STOT RE 2; H373

Aquatic Acute 1; H400

Aquatic Chronic 1; H410

2.2 Label Information

Label elements according to (EG) 1272/2008

The mixture requires labelling.



Signal Word: Warning

Hazard Statement

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled or swallowed.
H410	Very toxic to aquatic life with long lasting effects.

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

Replaces: April 28, 2016

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Precautionary statements

P280	Wear protective gloves/protective clothing/eye protection/face protection
P302+P352.	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell
P273	Avoid release to the environment
P391	Collect spillage.
P501	Dispose of contents/container to a licensed hazardous waste disposal contractor.

Contains

Manganese sulphate	10-30 weight-%
Copper nitrate	5-15 weight-%
Copper nitrate	1-5 weight-%

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 Mixtures

No	Component/ ingredient name	EC-number	CAS- number	REACH registration number	Conc. (weight-%)	Classification CLP]
1	Manganese sulphate	232-089-9	7785-87-7	01-2119456624-35-0000	10-30	STOT Re. 2; 373 Aquatic Chronic 2, H411
2	Copper sulphate	231-847-6	7758-98-7	01-2119520566-40-0000	5-15	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Aquatic Acute 1; H400 Aquatic Chronic 1; H410
3	Copper nitrate	221-838-5	3251-23-8	01-2119969290-34-0000	1-5	Acute Tox. 4; H302 Aquatic Acute 1; H400 M=10 Aquatic Chronic 1; H410. M=1
4	Citric acid	201-069-1	77-92-9	01-2119457026-42-0000	1-5	Eye Irrit. 2; H319
5	Urea	200-315-5	57-13-6	01-2119463277-33-0000	1-5	Not classified as dangerous
6	Water	231-791-2	7732-18-5	--	40-65	Not classified as dangerous

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

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 a soft stream of water for 10 minutes. Consult a physician if irritation persists.

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

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NoroTec™ Manganese Copper Seed

Ingestion	Rinse mouth with water. Drink a few glasses of water or milk. Consult a physician if pain or other symptoms persist in the mouth, throat or gastrointestinal tract.
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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	Irritating to the skin. Repeated exposure causes dry skin, irritation, redness and skin cracking.
Eye contact	Causes serious eye irritation. Splashes cause transient irritation of the eye including burning and redness.
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.

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 copper, manganese, sulphur 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.

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

Replaces: April 28, 2016

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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 spray mist. Do not eat or drink while handling the product. Wash hands before breaks and after work. 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.

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	Copper sulphate (as copper)	7440-50-8	dm	WEL	1	2	EH40/2005
GB	Copper nitrate (as copper)	7440-50-8	fume	WEL	0.2	--	EH40/2005
GB	Manganese sulphate (as manganese)	7439-96-5	--	WEL	0.5	--	EH40/2005

Notation

dm	As dusts and mists
fume	As fume
STEL	Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified
TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

8.2 Exposure Control

Avoid contact with skin and eyes. Do not eat, drink or smoke while working. Wash hands before breaks and after work.

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

Replaces: April 28, 2016

NoroTec™ Manganese Copper Seed

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 respirators (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 of the product in concentrated form.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	Blue green
Odour	Practically odourless
Odour threshold	Not available
Solubility	Completely soluble in water at 20 °C.
pH (product)	About 1.8
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)	Non-combustible
Burning time	Not applicable
Burning rate	Not applicable
Upper / lower flammability or explosive limits	Not explosive
Steam pressure	As water
Vapour density	As water
Relative density	1.35 g /cm ³ at 20 °C
Partition coefficient octanol/water	Not applicable
Ignition temperature	Not applicable, product is not combustible
Decomposition Temperature	Not applicable, product is not combustible
Explosive properties	Non-explosive
Oxidising properties	Non-oxidising

9.2 Other information

None.

10. STABILITY AND REACTIVITY

10.1 Reactivity	The product is not reactive.
10.2 Chemical stability	Chemically stable under normal conditions of use and storage.

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

Replaces: April 28, 2016

NoroTec™ Manganese Copper Seed

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 copper, manganese, sulphur and nitrogen.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity of manganese sulphate

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	369 mg/kg	rat	--	--

Acute toxicity of copper sulphate

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	369 mg/kg	rat	--	--

Acute toxicity of copper nitrate

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	950 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
Irritating to skin.

Assessment of eye damage or irritation, classification
Causes serious eye irritation.

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	Irritation by skin contact. Repeated exposure gives rise to dry skin, irritation, redness and skin cracking.
Eye contact	Causes serious eye irritation. Splashes cause transient irritation, including burning and redness.
Ingestion	Ingestion may cause burning pain in the mouth, throat and gastrointestinal tract and cause vomiting, diarrhea and deterioration in general health.

11.3 Sensitization by inhalation/skin contact

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

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

Replaces: April 28, 2016

NoroTec™ Manganese Copper Seed

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 dose 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:

May cause damage to organs through prolonged or repeated exposure if inhaled or swallowed.

Local effect such as dry skin, irritation, redness and skin 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. Repeated oral uptake of the product may cause substance-related effects.

11.6 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

Acute aquatic toxicity of copper sulphate

Test	Value / unit	Test Method	Exp. time	Species
Fish LC50	0.1 mg/l	ECOTOX Database	96 h	Rainbow trout
Daphnia EC50	0.024 mg/l	ECOTOX Database	48 h	Daphnia magna

Acute aquatic toxicity of copper nitrate

Test	Value / unit	Test Method	Exp. time	Species
Fish LC50	0.2 mg/l	IFA GESTIS	96 h	Zebra danio
Daphnia EC50	0.07 mg/l	IFA GESTIS	48 h	Daphnia magna
IC50	0.085 mg/l	--	14 days	Green alga

12.1.3 Ecological toxicity

The product is very toxic to aquatic organisms.

12.2 Persistence and degradability

Conclusion/Summary	The product containing elements such as manganese, copper and sulphur. Elements are by definition not biodegradable
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SAFETY DATA SHEET

NoroTec AB

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Version 3.0

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12.3 Bioaccumulative potential

Conclusion/Summary	Bioaccumulation can be expected from copper and manganese.
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12.4 Mobility in soil

The product is mobile in the soil profile due to its high solubility in water. 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 Other information

The mixture in concentrated form is classified as very 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. (copper sulphate/copper nitrate)

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		

SAFETY DATA SHEET

NoroTec AB

Date of Issue: October 10, 2019

Version 3.0

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NoroTec™ Manganese Copper Seed

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 covered by this legislation.

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. Contact person: Bo Isacsson, NoroTec AB, Sweden

LIST OF HAZARD STATEMENTS MENTIONED UNDER SECTION 2 and 3

No	Text
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure by inhalation and ingestion
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Revision overview

Version	Revision date	Responsible	Changes in section
v.2	April 28, 2016	Bo Isacsson	The entire safety data sheet has been updated to REACH II format
v.3	October 10, 2019	Bo Isacsson	2, 3, 4, 11, 13, 12 and 15