

SAFETY DATA SHEET

NoroTec AB

Date of Issue: April 28, 2020

Version no: 5.0

Replaces: February 22, 2016

NoroTec™ Universal

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

1.1 Product identifier

PRODUCT NAME:	NoroTec™ Universal
Group Name	Fertilizers

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

Use of the product	Fertilizers for agricultural crops for foliar 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
Telephone	+46 411 406 60
Contact person	Bo Isacsson
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

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.
H410	Very toxic to aquatic life with long lasting effects.

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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

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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	The product contains the substance boric acid, which can damage the fertility and the unborn baby. Boric acid is an SVHC substance. However, this product contains < 5.5 weight-% boric acid and is therefore classified according to current classification rules as not reproduction toxic.

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	Magnesium nitrate	233-826-7	10377-60-3	01-2119491164-38-0000	50 - 65	Ox. Sol. 2; H272
2	Magnesium sulphate	231-298-2	7487-88-9	01-2119486789-11-0000	20 - 30	Not classified as dangerous
3	Potassium nitrate	231-818-8	7757-79-1	--	1 - 4	Ox. Sol. 2; H272
4	Manganese sulphate	232-089-9	10034-96-5	01-2119456624-35-0000	1-5	STOT Re. 2; 373 Aquatic Chronic 2, H411
5	Copper nitrate	221-838-5	3251-23-8	2119969290-34-0000	1-5	Acute Tox. 4; H302 Aquatic Chronic 1; H410
6	Zink nitrate	231-943-8	231-943-8 7779-88-6	01-2119488498-16-000	< 2	Acute Tox. 4; H302 Eye Dam. 1; H318 Aquatic Chronic 1, H410
7	Potassium hydroxide	215-181-3	1310-58-3	01-2119487136-33-0000	< 2	Skin Corr. 1A; H314 Acute Tox. 4; H302
8	Ferrous sulphate	231-753-5	7782-63-0	01-2119513203-57-0000	1-5	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319
9	Boric acid	233-139-2	10043-35-3	01-2119486683-25-0000	1-5	Repr. 1B; H360FD
10	Citric acid	201-069-1	77-92-9	01-2119457026-42-0000	2-4	Eye Irrit. 2; H319
11	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.

The product contains < 5,5 weight-% boric acid and is therefore not classified as toxic to reproduction.

The mixture exists as an aqueous solution, which makes the substances magnesium nitrate and potassium nitrate not exhibiting any oxidizing properties.

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4. FIRST AID

4.1 Description of first aid measures

Inhalation	Not relevant.
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 5 minutes. Consult a physician if irritation persists.
Ingestion	Rinse mouth with water. Drink a few glasses of water or milk. Contact physician if larger quantity has been consumed.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	Not relevant.
Skin contact	Irritating to the skin. Repeated exposure causes dry skin, irritation, redness and skin cracking.
Eye contact	Causes serious eye irritation. Splashes may cause reversible irritation of the eye including burning and redness.
Ingestion	Ingestion of larger quantity can cause nausea and vomiting.

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 boron, phosphorus, potassium, copper, manganese, magnesium, zinc and sulfur.

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

Provide good ventilation. Keep people away from the site. Avoid contact with eyes and skin.

Wear appropriate personal protective equipment. For information on personal equipment, see section 8.

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6.1.1 For non-emergency personnel

Wear protective equipment as described under section 8.

6.1.2 For emergency responders

Small spills: Wear protective equipment described under section 8th

Larger spill: Use chemically protective clothing and breathing apparatus.

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. See section 13.

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	Provide good ventilation. Avoid contact with skin and eyes Avoid breathing vapours/spray mist. Do not eat or drink while handling the product. Wash hands before breaks and after work
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7.2 Conditions for safe storage, including any incompatibilities

Storage conditions	Keep dry and cool in a well ventilated place.
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7.3 Special characteristics and risks

Conditions to avoid	Keep away from strong alkaline solution and strong oxidizing agents. Protected against frost. Avoid direct sunlight.
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7.4 Specific end use(s)

Specific use (s)	Fertilizers.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limit:

Substance	CAS no.	Range	ppm	mg/m ³	Country	Remarks
Manganese sulphate (as manganese)	7439-96-5	8 h	--	0,5	UK	--
Copper nitrate (as copper)	7440-50-8	8 h	--	1,0	UK	dm
Potassium hydroxide (respirable dust)	1310-58-3	15 min	--	2,0	UK	--

dm = As dusts and mists.

8.2 Exposure Control

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

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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	Not normally needed. But at risk of inhalation use respirators (half mask with particle filter P2).
8.2.2.2 Eye/face protection	Wear tight-fitting goggles or face shield.
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 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	Green brown
Odour	Practically odourless
Odour threshold	Not available
Solubility	Completely soluble in water.
pH (product)	About 1.3
Melting point /freezing point	Not available
Initial boiling point and kitchen range	100 °C.
Flash point	> 100°C
Evaporation rate	Not available
Flammable (solid, gas)	Not applicable
Burning time	Not applicable
Burning rate	Not applicable
Upper / lower flammability or explosive limits	Not explosive
Steam pressure	Not available
Vapour density	Not available
Relative density	1.28 g/cm ³ at 20 °C
Partition coefficient octanol/water	Not applicable
Ignition temperature	Not relevant
Decomposition Temperature	Not available

9.2 Other information

VOC	Not applicable
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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	None
10.4 Conditions to avoid	None

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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 boron, phosphorus, potassium, copper, manganese, magnesium, zinc and sulfur.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

11.1 Acute toxicity

Not harmful by skin contact. Not harmful if inhaled. Not harmful if swallowed.

Acute toxicity of manganese sulphate

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	782 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 zinc nitrate

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	293 mg/kg	rat	--	--
LD50, dermal	> 2.000 mg/kg	rat	--	--
LC50, inhalation	46-73 mg/l	rat	4 h	--

Acute toxicity of the product

Exposure route	Value/Unit	Species	Exp. time	Method/note
LD50, oral	> 2.000 mg/kg	rat	--	ATE-mix (calculated)
LD50, dermal	> 2.000 mg/kg	rat	--	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	Not relevant.
Skin contact	Irritation by skin contact. Repeated exposure gives rise to dry skin, irritation, redness and skin cracking.
Eye contact	Splashes may cause reversible irritation of the eye including burning and redness.
Ingestion	Ingestion of larger quantity can cause nausea and vomiting.

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.

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11.4.3 Reproduction toxicity

Assessment of reproduction toxicity for the product:

The product is containing the substance boric acid, which can be damaging for fertility.

The product, however, contains < 5.5 weight.-% boric acid and is classified according to the current classification rules as not toxic to reproduction.

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:

Shall not be classified as a specific target organ toxicant (repeated exposure).

However, local effect such as dry skin, irritation, redness and skin cracking will occur.

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

Acute aquatic toxicity of copper nitrate

Test	Value / unit	Test Method	Exp. time	Species
Fish C50	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 algae

Acute aquatic toxicity of zinc nitrate.

Test	Value/unit	Test Method	Exp. time	Species
Fish LC50	0.112 mg/l	ECHA	96 h	--
Daphnia EC50	0.155	ECHA	49 h	--
Algae IC50	0,136	OECD Guideline 201	72 timmar	Pseudokirchnerella subcapitata

Zinc has moderate to high bioaccumulation in aquatic organisms but gives no biomagnification in the food chain.

Ecological toxicity

The product is very toxic to aquatic organisms.

12.2 Persistence and degradability

Conclusion/Summary	The product containing elements such as boron, iron, copper, manganese, magnesium, zinc and sulphur. Elements are by definition not biodegradable
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12.3 Bioaccumulative potential

Conclusion/Summary	Bioaccumulation 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.

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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 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 nitrate/zinc nitrate/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		

IATA (Air Transport)

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

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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.

LIST OF HAZARD STATEMENTS MENTIONED UNDER SECTION 2 and 3

No.	Text
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage
H319	Causes serious eye irritation.
H360FD	May damage fertility or the unborn child
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	February 02, 2010	Erland Jordow	--
v.3	December 12, 2014	Bo Isacsson	The entire safety data sheet has been updated to REACH II format
v.4	February 22, 2016	Bo Isacsson	2, 3, 4, 11, 13 and 15
v.5	May 28, 2020	Bo Isacsson	2, 4, 7, 8, 11 and 12