

Date: **15.04.19**

Previous date: 29.1.2019

Trade name / substance name: ZM-Grow

Version number: 3.1

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH), as amended by 2015/830/EU

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier**

Trade name / substance name	ZM-Grow
CAS number	Not applicable. Mixture, not a substance.
EC number	Not applicable. Mixture, not a substance.
REACH Registration number	Not applicable. Mixture, not a substance.

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

Relevant identified uses	Fertilizer use
Uses advised against	None identified

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	Tracegrow Oy
Street address	Teollisuustie 21
Country ID/Postcode/Place	FI-86710 Kårsämäki
Telephone number	+358 (0)44 239 7905
E-mail address of competent person responsible for the SDS	info@tracegrow.com

1.4 Emergency telephone number

Poison centre Finland (24 h/d):
+358 (0)800 147 111 (free of charge)
+358 (0)9 471 977 (local network charge)

SECTION 2: HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008 (CLP):**

Eye Dam. 1 H318	Causes serious eye damage.
STOT RE 2 H373	May cause damage to the brain through prolonged or repeated exposure via inhalation.
Aquatic Chronic 2 H411	Toxic to aquatic life with long lasting effects.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008 (CLP):**

Eye Dam. 1 H318	Causes serious eye damage.
STOT RE 2 H373	May cause damage to the brain through prolonged or repeated exposure via inhalation.
Aquatic Chronic 2 H411	Toxic to aquatic life with long lasting effects.

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GHS05, GHS08, GHS09

Signal word: Danger

Precautionary statement on prevention

- P260 Do not breathe mist, vapours or spray.
 P273 Avoid release to the environment.
 P280 Wear protective gloves, protective clothing and eye protection.

Precautionary statement on emergency measures

- P314 Get medical advice/attention if you feel unwell.
 P391 Collect spillage.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER/doctor.

Precautionary statement on waste treatment

- P501 Dispose of contents in accordance with national regulations.

2.3 Other hazards

The mixture does not contain PBT or vPvB substances (not applicable - inorganic substances). The mixture does not contain SVHC-substances in concentrations at or above 0,1 % (w/w).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Name of substance	CAS, EC or index number	Concentration
Not applicable. Mixture.	-	-

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3.2 Mixtures				
Name of substance	CAS, EC or index number	REACH registration number	Concentration	Classification according to Regulation (EC) No 1278/2008 (CLP)
Water	7732-18-5 231-791-2	-	69,7 – 77,8 %	No hazard classification
Manganese sulphate	7785-87-7 232-089-9	No registration obligation in accordance with article 2(7(d)) of the REACH Regulation	11,3 – 14,7 %	Harmonized classification STOT RE 3 H373 Aquatic Chronic 2 H411
Zinc sulphate	7733-02-0 231-793-3	No registration obligation in accordance with article 2(7(d)) of the REACH Regulation	10,1 – 13,2 %	Harmonized classification Acute Tox. 4 H302 Eye Dam. 1 H318 Aquatic Acute 1 H400 Aquatic Chronic 1 H410

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures****General Advice**

Pay attention to self-protection. Move victim out of danger zone. In case of doubt or if symptoms persist, always call a doctor. If possible, show this SDS or the product label to the doctor.

Eye Contact

Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Cold water may be used. Protect the eye that is not injured. Seek medical attention.

Skin Contact

Immediately flush skin with plenty of water. Subsequently wash again with water and soap. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Seek medical attention.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention.

Ingestion

Do NOT induce vomiting unless directed to do so by medical personnel. Rinse mouth immediately and drink large quantities of water. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye damage. May cause damage to the brain, cough, sore throat or shortness of breath through prolonged or repeated exposure via inhalation. May cause skin irritation. May cause nasal/respiratory tract irritation. May cause redness, pain or temporary loss of vision through prolonged or repeated exposure via the eyes. May cause redness through prolonged or repeated exposure via the skin. May cause abdominal pain, diarrhea, nausea or vomiting if repeatedly ingested.

4.3 Indication of any immediate medical attention and special treatment needed

Not known.

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SECTION 5: FIREFIGHTING MEASURES**5.1 Extinguishing media**

The mixture is not flammable under normal storage, handling and use conditions. Suitable extinguishing media: water spray jet, water mist, foam, carbon dioxide (CO₂), extinguishing powder. Extinguishing media which must not be used for safety reasons: Full water jet.

5.2 Special hazards arising from the substance or mixture

The zinc sulphate in the mixture might give off toxic and irritant fumes when heated or during burning. In case of fire, sulphur dioxide (SO₂) or sulphur trioxide may be liberated from the zinc sulphate in the mixture.

5.3 Advice for firefighters

It is advisable to use protective clothing that meets at least the requirements of the standard EN469, as well as a respirator. Extinguishing water or splash waters that have been in contact with the mixture should not be allowed into waterbodies or the sewage system untreated. If possible, such waters should be directed to, for example, a settling tank or be absorbed in order to avoid environmental exposure.

The mixture is not flammable. Keep away from other combustible materials. Keep away unprotected personnel.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Personal protection in case of a spill:

Tightly sealed safety glasses, protective clothing, respirator, boots, protective gloves. Follow general good industrial hygiene and safety practices. Ensure adequate ventilation.

6.2 Environmental precautions

Avoid release to the environment. The mixture should not be released into the sewage system or water bodies. Collect spillage.

6.3 Methods and material for containment and cleaning up

Collect any spillage with non-flammable, absorbent material, such as sand. Use appropriate tools to collect the waste in a convenient disposal container. Finish cleaning by spreading water or appropriate washing agent on the contaminated surface and dispose of according to local and regional authority requirements. Sewers should be covered if necessary. Wash contaminated area with water or a suitable detergent.

6.4 Reference to other sections

See Sections 8 (Exposure controls/personal protection) and 13 (Disposal considerations).

SECTION 7: HANDLING AND STORAGE**7.1 Precautions for safe handling**

Wear suitable protective clothing. In case of insufficient ventilation, wear respiratory equipment. Provide eye wash and sufficient washing facilities. Wash hands after use. Avoid eating or drinking while using the product. Keep away from food, drink and animal feedingstuffs. Never open the packages under pressure.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store container in a dry, well-ventilated area. Recommended storage temperature: +2 °C – +45 °C.

7.3 Specific end use

No specific end use.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****Occupational Exposure limit values**

Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU:

Manganese and inorganic manganese compounds (as manganese) 0,2 mg/m³ (8 h; inhalable fraction)
0,05 mg/m³ (8 h; respirable fraction)

DNELs

DNELs not available for the mixture.

DNELs of the ingredients:

Route of exposure	DNELs for Manganese sulphate (CAS 7785-87-7)	
	Workers	General Public
Inhalation (long term)	0,2 mg/m ³	0,043 mg/m ³
Dermal (long term)	0,004 mg/kg bw/day	0,002 mg/kg bw/day

Route of exposure	DNELs for Zinc sulphate (CAS 7733-02-0)	
	Workers	General Public
Inhalation (long term)	1 mg/m ³	1,25 mg/m ³
Dermal (long term)	8,3 mg/kg bw/day	8,3 mg/kg bw/day
Oral (long term)	Information not available	0,83 mg/kg bw/day

PNECs

PNECs not available for the mixture.

PNECs of the ingredients:

Environmental protection target	PNECs for Manganese sulphate (CAS 7785-87-7)
Fresh water	0,013 mg/L
Marine water	0 mg/L
Sediment (freshwater)	0,011 mg/kg sediment dw
Sediment (marine water)	0,001 mg/kg sediment dw
Soil	25,1 mg/kg soil dw
Microorganisms in sewage treatment (STP)	56 mg/L

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Environmental protection target	PNECs for Zinc sulphate (CAS 7733-02-0)
Fresh water	20,6 µg/L
Marine water	6,1 µg/L
Sediment (freshwater)	117,8 mg/kg sediment dw
Sediment (marine water)	56,5 mg/kg sediment dw
Soil	35,6 mg/kg soil dw
Microorganisms in sewage treatment (STP)	100 µg/L

8.2 Exposure controls**Engineering Controls**

Ensure adequate ventilation.

Eye/face protection

Tightly sealed safety glasses.

Skin protection

Protective clothing and shoes.

Hand protection

Protective gloves. Suitable materials for gloves are natural rubber, natural latex, polychloroprenes, chloroprenenerubber, nitrile rubber, butyl rubber, fluororubber or PVC. Breakthrough time to be greater than task duration. Textile or leather gloves are not suitable as protective gloves.

Respiratory protection

Wear a respirator especially if mist, vapours or spray can be formed.

Thermal hazards

Non-flammable. The zinc sulphate in the mixture might give off toxic and irritant fumes when heated or during burning. In case of fire, sulphur dioxide (SO₂) or sulphur trioxide may be liberated from the zinc sulphate and in the mixture.

Environmental exposure controls

Toxic to aquatic life with long lasting effects. The mixture should not be allowed into waterbodies or the sewage system. Collect spillage.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance	Clear liquid
Odour	Odourless
Odour threshold	Not applicable
pH	3,8 – 4,0
Melting point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not applicable

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Evaporation rate	Not available
Flammability (solid, gas)	Liquid, not flammable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	Not applicable
Vapour density	Not available
Relative density	1,34 – 1,40 (Water = 1)
Solubility	Easily soluble in cold water and hot water.
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not applicable
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidising properties	Not available

9.2 Other information

No other information.

SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity**

The mixture is not reactive under normal environmental conditions or under normal operating conditions.

10.2 Chemical stability

The product is stable under normal environmental conditions and under normal operating conditions.

10.3 Possibility of hazardous reactions

The zinc sulphate in the mixture might give off toxic and irritant fumes when heated or during burning.

10.4 Conditions to avoid

In case of warming: danger of bursting container.

10.5 Incompatible materials

Not known.

10.6 Hazardous decomposition products

The zinc sulphate and in the mixture might give off toxic and irritant fumes when heated or during burning. Not flammable. In case of fire, sulphur dioxide (SO₂) or sulphur trioxide may be liberated from the zinc sulphate and in the mixture.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****Acute toxicity**

Information not available

Skin corrosion/irritation

May cause skin irritation.

Serious eye damage/irritation

The mixture is classified as damaging to the eye with the hazard statement Eye Dam. 1 H318: Causes serious eye damage.

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Respiratory or skin sensitization

May cause nasal/respiratory tract irritation.

Germ cell mutagenicity

Information not available.

Carcinogenicity

Information not available.

Reproductive toxicity

Information not available.

Specific target organ toxicity - single exposure

Information not available.

Specific target organ toxicity - repeated exposure

The mixture is classified with regard to specific target organ toxicity in repeated exposure, with the hazard classification STOT RE 2, H373: May cause damage to the brain through prolonged or repeated exposure via inhalation.

Aspiration hazard

Information not available.

Other information

No other information.

Toxicological health effects

Ingestion: May cause abdominal pain, diarrhea, nausea or vomiting if repeatedly ingested.

Skin: May cause skin irritation. May cause redness through prolonged or repeated exposure via the skin.

Inhalation: May cause damage to the brain, cough, sore throat or shortness of breath through prolonged or repeated exposure via inhalation. May cause nasal/respiratory tract irritation.

Eyes: The mixture causes serious eye damage. May cause redness, pain or temporary loss of vision through prolonged or repeated exposure via the eyes.

SECTION 12: ECOLOGICAL INFORMATION**12.1 Toxicity**

The mixture is classified as chronically toxic with the hazard statement Aquatic Chronic 2, H411: Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Information not available.

12.3 Bioaccumulative potential

Information not available.

12.4 Mobility in soil

Information not available.

12.5 Results of PBT and vPvB assessment

Not applicable (inorganic substances).

12.6 Other adverse effects

Not known.

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SECTION 13: DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Unused mixture is to be handled as hazardous waste in accordance with national regulations. Waste should not be disposed of by releasing it into the sewage system. Avoid release to the environment. The empty packaging can be treated as ordinary waste.

SECTION 14: TRANSPORT INFORMATION**14.1 UN number**

UN 3082

14.2 UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.

14.3 Transport hazard class

Class 9, Miscellaneous Dangerous Substances and Articles (M6: Pollutant to the aquatic environment, liquid)

**14.4 Packing group**

III

14.5 Environmental hazards

Environmentally hazardous substance. Pollutant to the aquatic environment.

14.6 Special precautions for user

No special precautions.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Annex II of Marpol is not applicable. The product is not transported in bulk tankers.

SECTION 15: REGULATORY INFORMATION**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

The following are known:

Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU, see section 8.

Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (the Seveso III directive):

Manganese sulfate is a category E2 Seveso substance: Hazardous to the Aquatic Environment in Category Chronic 2.

Zinc sulfate is a category E1 Seveso substance: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

In accordance with the REACH Regulation ((EC) N:o 1907/2006) the mixture does not contain SVHC substances in concentrations at or above 0,1 % (w/w).

15.2 Chemical Safety Assessment

The substances in the mixture are exempt from registration obligations in accordance with article 2(7(d)) of the REACH regulation. A chemical safety assessment is therefore not required for the substances.

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SECTION 16: OTHER INFORMATION**Indication of changes**

Version 2.0: Name of the company and of the product changed. Concentration ranges and the density of the mixture finetuned.

Version 3.0: The legislative status of the substances in the mixture under the REACH Regulation specified; no registration obligation in accordance with article 2(7(d)) of the REACH regulation.

Version 3.1: Small specifications to the concentration range and some of the physical and chemical properties; no effect on the hazard classification or hazardous properties of the mixture.

Abbreviations and acronyms

CLP	Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
DNEL	Derived no-effect level
EC number	An identifier of substances commercially available within the European Union
PBT	Persistent, bioaccumulative and toxic
PNEC	Predicted no-effect concentration
REACH	Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
vPvB	Very persistent and very bioaccumulative

Key literature references and sources for data

REACH Registration dossiers of the substances:

Manganese sulphate, 29.5.2017, available at echa.europa.eu

Zinc sulphate, 23.4.2017, available at echa.europa.eu

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

The hazard classification of the mixture is based on the classification methods and specific rules for the classification of mixtures as presented in the CLP Regulation ((EC) 1272/2008)

H318 – Summation method

H373 – Generic concentration limits

H302 – acute toxicity estimates (ATE)

H400, H410, H411 – Summation method weighted with M-factors

Relevant hazard and precautionary statements**Hazard statements**

Eye Dam. 1 H318 Causes serious eye damage.

STOT RE 2 H373 May cause damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P314 Get medical advice/attention if you feel unwell.

P391 Collect spillage.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

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P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Training advice

No specific training for workers. General good industrial hygiene and safety practices.

Disclaimer

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event Tracegrow Oy be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Tracegrow Oy has been advised of the possibility of such damages.