

# SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by  
UK REACH Regulations SI 2019/758



## HU-MAN 15

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2025
1.5	08.04.2025	50001155	Date of first issue: 19.07.2018

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

**Product name** HU-MAN 15

**Other means of identification**

**Product code** 50001155

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

Use of the Sub- : A fertilizer for use in agriculture  
stance/Mixture

Recommended restrictions : Use as recommended by the label.  
on use

#### 1.3 Details of the supplier of the safety data sheet

**Supplier Address**

FMC Agro Limited  
Rectors Lane, Pentre  
Flintshire  
CH5 2DH  
United Kingdom

Telephone: + 44 1244 537370  
E-mail address: SDS-Info@fmc.com .

#### 1.4 Emergency telephone number

For leak, fire, spill or accident emergencies, call:  
England and Wales: 44-870-8200418 (CHEMTREC)

Medical emergency:  
England and Wales: 111  
Scotland: 84 54 24 2424

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK  
SI 2019/720, and UK SI 2020/1567)**

Serious eye damage, Category 1

H318: Causes serious eye damage.

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Specific target organ toxicity - repeated exposure, Category 2

H373: May cause damage to organs through prolonged or repeated exposure.

Long-term (chronic) aquatic hazard, Category 2

H411: Toxic to aquatic life with long lasting effects.

### 2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)**

Hazard pictograms :



Signal word : Danger

Hazard statements :  
H318 Causes serious eye damage.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P260 Do not breathe mist or vapours.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
P391 Collect spillage.

Hazardous components which must be listed on the label:

Manganese sulfate, monohydrate  
zinc nitrate

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Manganese sulfate, monohydrate	10034-96-5	Eye Dam. 1; H318 STOT RE 2; H373 Aquatic Chronic 2; H411	$\geq 30 - < 50$
zinc nitrate	7779-88-6 231-943-8	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	$\geq 1 - < 2.5$
ethanediol	107-21-1 203-473-3 603-027-00-1	Acute Tox. 4; H302 STOT RE 2; H373 (Kidney)	$\geq 1 - < 10$

For explanation of abbreviations see section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

General advice : Move out of dangerous area.  
Consult a physician.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.

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- |                            |   |   |
|----------------------------|---|---|
| Protection of first-aiders | : | First Aid responders should pay attention to self-protection and use the recommended protective clothing<br>Avoid inhalation, ingestion and contact with skin and eyes.<br>If potential for exposure exists refer to Section 8 for specific personal protective equipment.  |
| If inhaled                 | : | Move to fresh air.<br>If unconscious, place in recovery position and seek medical advice.<br>If symptoms persist, call a physician.   |
| In case of skin contact    | : | Take off all contaminated clothing immediately.<br>Wash contaminated clothing before re-use.<br>Wash off immediately with plenty of water for at least 15 minutes.<br>Get medical attention if irritation develops and persists.  |
| In case of eye contact     | : | Small amounts splashed into eyes can cause irreversible tissue damage and blindness.<br>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>Continue rinsing eyes during transport to hospital.<br>Remove contact lenses.<br>Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist. |
| If swallowed               | : | Keep respiratory tract clear.<br>Do NOT induce vomiting.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.  |

### 4.2 Most important symptoms and effects, both acute and delayed

- |       |   |  |
|-------|---|--|
| Risks | : | Causes serious eye damage.<br>May cause damage to organs through prolonged or repeated exposure. |
|-------|---|--|

### 4.3 Indication of any immediate medical attention and special treatment needed

- |           |   |                        |
|-----------|---|------------------------|
| Treatment | : | Treat symptomatically. |
|-----------|---|------------------------|

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- |                              |   |   |
|------------------------------|---|---|
| Suitable extinguishing media | : | Dry chemical, CO <sub>2</sub> , water spray or regular foam.<br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing     | : | High volume water jet   |

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media	Do not spread spilled material with high-pressure water streams.
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### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	: Fire may produce irritating, corrosive and/or toxic gases. Carbon oxides

### 5.3 Advice for firefighters

Special protective equipment for firefighters	: Firefighters should wear protective clothing and self-contained breathing apparatus.
Further information	: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	: Use personal protective equipment. Ensure adequate ventilation. If it can be safely done, stop the leak. Do not touch or walk through the spilled material. Never return spills in original containers for re-use. Mark the contaminated area with signs and prevent access to unauthorized personnel. Only qualified personnel equipped with suitable protective equipment may intervene. For disposal considerations see section 13.
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### 6.2 Environmental precautions

Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
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### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up	: Neutralize with chalk, alkali solution or ammonia. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.
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### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Advice on safe handling : Do not breathe vapours/dust.  
Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
To avoid spills during handling keep bottle on a metal tray.  
Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Hygiene measures : When using do not eat or drink. When using do not smoke.  
Wash hands before breaks and at the end of workday.

### 7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully re-sealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
- Advice on common storage : Do not store near acids.
- Further information on storage stability : No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

- Specific use(s) : Fertilizers

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Manganese sulphate, monohydrate	10034-96-5	TWA (Inhalable)	0.2 mg/m <sup>3</sup> (Manganese)	GB EH40
		TWA (Respirable)	0.05 mg/m <sup>3</sup>	GB EH40

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		fraction)	(Manganese)	
		TWA (inhalable fraction)	0.2 mg/m3 (Manganese)	2017/164/EU
	Further information: Indicative			
		TWA (Respirable fraction)	0.05 mg/m3 (Manganese)	2017/164/EU
	Further information: Indicative			
ethanediol	107-21-1	TWA (particles)	10 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		TWA (Vapour)	20 ppm 52 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL (Vapour)	40 ppm 104 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		TWA	20 ppm 52 mg/m3	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	40 ppm 104 mg/m3	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			

### Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
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### Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
Manganese sulfate, monohydrate	Fresh water	0.03 mg/l
	Fresh water sediment	0.011 mg/kg
	Marine sediment	0.001 mg/kg
	Soil	25.1 mg/kg
ethanediol	Fresh water	10 mg/l
	Marine water	1 mg/l
	Sewage treatment plant	199.5 mg/l
	Fresh water sediment	37 mg/kg dry weight (d.w.)
	Marine sediment	3.7 mg/kg dry weight (d.w.)
	Soil	1.53 mg/kg dry weight (d.w.)

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### 8.2 Exposure controls

#### Personal protective equipment

Eye/face protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Hand protection		
Material	:	Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.
Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	No personal respiratory protective equipment normally required.
Protective measures	:	Plan first aid action before beginning work with this product. Always have on hand a first-aid kit, together with proper instructions. Wear suitable protective equipment. Ensure that eye flushing systems and safety showers are located close to the working place.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Form	:	liquid
Colour	:	brown
Odour	:	characteristic
Odour Threshold	:	No data available
pH	:	2.1 - 4.0 Concentration: 100 %
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available



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Relative vapour density	:	No data available
Relative density	:	1.38 - 1.40
Solubility(ies)		
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	Non-oxidizing

### 9.2 Other information

Particle size	:	No data available
Particle Size Distribution	:	No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No decomposition if stored and applied as directed.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions	:	No decomposition if stored and applied as directed.
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### 10.4 Conditions to avoid

Conditions to avoid	:	Avoid extreme temperatures
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### 10.5 Incompatible materials

Materials to avoid	:	Avoid strong acids, bases, and oxidizers
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### 10.6 Hazardous decomposition products

Nitrogen oxides (NO<sub>x</sub>)  
Sulphur oxides

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Based on available data, the classification criteria are not met.

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### **Product:**

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

### **Components:**

#### **Manganese sulfate, monohydrate:**

Acute oral toxicity : LD50 (Rat, male and female): 2,150 mg/kg

Acute inhalation toxicity : LC0 (Rat, male and female): > 4.45 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Remarks: no mortality

#### **zinc nitrate:**

Acute oral toxicity : LD50 (Rat, male and female): > 300 mg/kg  
Method: OECD Test Guideline 423  
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, female): 1.975 mg/l  
Exposure time: 0.25 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The component/mixture is minimally toxic after single contact with skin.

#### **ethanediol:**

Acute inhalation toxicity : LC0 (Rat, male and female): > 2.5 mg/l  
Exposure time: 6 h  
Test atmosphere: dust/mist  
Remarks: no mortality

Acute dermal toxicity : LD50 (Mouse, male and female): > 3,500 mg/kg

### **Skin corrosion/irritation**

Based on available data, the classification criteria are not met.

### **Product:**

Assessment : Not classified as irritant

Remarks : Extremely corrosive and destructive to tissue.

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### Components:

#### **Manganese sulfate, monohydrate:**

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

#### **zinc nitrate:**

Assessment	:	Irritating to skin.
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#### **ethanediol:**

Species	:	Rabbit
Result	:	No skin irritation

#### **Serious eye damage/eye irritation**

Causes serious eye damage.

### Product:

Result	:	Risk of serious damage to eyes.
Remarks	:	May cause irreversible eye damage.

### Components:

#### **Manganese sulfate, monohydrate:**

Species	:	Rabbit
Exposure time	:	72 h
Method	:	OECD Test Guideline 405
Result	:	irritating

#### **zinc nitrate:**

Species	:	Chicken eye
Method	:	OECD Test Guideline 438
Result	:	Irreversible effects on the eye

#### **ethanediol:**

Species	:	Rabbit
Result	:	No eye irritation

#### **Respiratory or skin sensitisation**

##### **Skin sensitisation**

Based on available data, the classification criteria are not met.

##### **Respiratory sensitisation**

Based on available data, the classification criteria are not met.

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### **Product:**

Remarks : No data available

### **Components:**

#### **Manganese sulfate, monohydrate:**

Test Type	: Patch test
Exposure routes	: Dermal
Species	: Humans
Result	: Not a skin sensitizer.

#### **zinc nitrate:**

Test Type	: Maximisation Test
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Does not cause skin sensitisation.

#### **ethanediol:**

Test Type	: Maximisation Test
Species	: Guinea pig
Result	: Does not cause skin sensitisation.

### **Germ cell mutagenicity**

Based on available data, the classification criteria are not met.

### **Components:**

#### **Manganese sulfate, monohydrate:**

Genotoxicity in vitro	: Test Type: gene mutation test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative
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Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse (female) Application Route: Oral Method: OECD Test Guideline 474 Result: negative
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#### **zinc nitrate:**

Genotoxicity in vitro	: Test Type: gene mutation test Result: negative Remarks: Based on data from similar materials
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Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse (male and female) Application Route: Intraperitoneal injection Exposure time: 30h
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Result: negative

### ethanediol:

Genotoxicity in vitro : Test Type: reverse mutation assay  
Method: OPPTS 870.5100  
Result: negative

Genotoxicity in vivo : Test Type: dominant lethal test  
Species: Rat  
Application Route: Oral  
Result: negative

### Carcinogenicity

Based on available data, the classification criteria are not met.

### Components:

#### Manganese sulfate, monohydrate:

Species : Mouse, male and female  
Application Route : Ingestion  
Result : negative

#### zinc nitrate:

Species : Mouse, male and female  
Application Route : Oral  
Exposure time : 365 d  
Result : negative  
Remarks : Based on data from similar materials

### ethanediol:

Species : Mouse  
Application Route : Oral  
Exposure time : 24 month(s)  
Result : negative

### Reproductive toxicity

Based on available data, the classification criteria are not met.

### Components:

#### Manganese sulfate, monohydrate:

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Method: OECD Test Guideline 416  
Result: negative

Effects on foetal development : Species: Rat  
Application Route: Inhalation  
Method: OECD Test Guideline 414

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Result: negative

### **zinc nitrate:**

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative

Effects on foetal development : Test Type: reproductive and developmental toxicity study  
Species: Mouse  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

### **STOT - single exposure**

Based on available data, the classification criteria are not met.

#### **Components:**

### **zinc nitrate:**

Assessment : May cause respiratory irritation.

### **STOT - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

#### **Components:**

### **ethanediol:**

Exposure routes : Oral  
Target Organs : Kidney  
Assessment : The substance or mixture is classified as specific target organ  
toxicant, repeated exposure, category 2.

### **Repeated dose toxicity**

#### **Components:**

### **Manganese sulfate, monohydrate:**

Species : Rat, male and female  
NOAEL : 2000 mg/kg  
Application Route : Ingestion  
Exposure time : 13 w

### **zinc nitrate:**

Species : Rat, male and female  
Application Route : Oral - feed  
Method : OECD Test Guideline 408  
Remarks : Based on data from similar materials

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### ethanediol:

Species	: Rat
NOAEL	: 150 mg/kg
Application Route	: Oral
Exposure time	: 12 Months

Species	: Dog
NOAEL	: > 2,200 - < 4,400 mg/kg
Application Route	: Dermal
Exposure time	: 4 Weeks
Method	: OECD Test Guideline 410

### Aspiration toxicity

Based on available data, the classification criteria are not met.

### Further information

#### Product:

Remarks : No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

##### **Manganese sulfate, monohydrate:**

Toxicity to fish	: LC50 (Salmo trutta (brown trout)): 49.9 mg/l Exposure time: 96 h Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates	: LC50 (Crustaceans): 13.7 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	: EC50 (Desmodesmus subspicatus (green algae)): 61 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to microorganisms	: EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: Respiration inhibition Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	: NOEC: 4.496 mg/l Exposure time: 35 d Species: Danio rerio (zebra fish) Method: OECD Test Guideline 210

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.020 mg/l  
Exposure time: 14 d  
Species: *Crassostrea virginica*  
Test Type: static test

### **zinc nitrate:**

Toxicity to fish : LC50 (*Thymallus arcticus*): 0.315 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 2.14 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC10 (*Chlorella pyrenoidosa* (algae)): 0.350 mg/l  
Exposure time: 48 h  
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): 5.2 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC: 0.440 mg/l  
Exposure time: 72 d  
Species: *Oncorhynchus mykiss* (rainbow trout)  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.031 mg/l  
Exposure time: 50 d  
Species: *Daphnia magna* (Water flea)  
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to soil dwelling organisms : NOEC: 199 mg/kg  
Exposure time: 56 d  
Species: *Eisenia fetida* (earthworms)  
Method: OECD Test Guideline 207

### **ethanediol:**

Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): > 72,860 mg/l  
Exposure time: 96 h



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Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	IC50 (Pseudokirchneriella subcapitata (green algae)): 10,940 mg/l Exposure time: 96 h
Toxicity to microorganisms	:	(activated sludge): > 1,995 mg/l Exposure time: 30 min Method: ISO 8192
Toxicity to fish (Chronic toxicity)	:	1,500 mg/l Exposure time: 28 d Species: Menidia peninsulae (tidewater silverside)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	33,911 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)

### 12.2 Persistence and degradability

#### Components:

##### **ethanediol:**

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 90 - 100 % Exposure time: 10 d Method: OECD Test Guideline 301A
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### 12.3 Bioaccumulative potential

#### Components:

##### **zinc nitrate:**

Bioaccumulation	:	Species: Danio rerio (zebra fish) Bioconcentration factor (BCF): 96.05 Remarks: Based on data from similar materials
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##### **ethanediol:**

Partition coefficient: n-octanol/water	:	log Pow: -1.36
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### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment	:	This substance/mixture contains no components considered
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to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

#### **Product:**

Endocrine disrupting potential : This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Harmful to aquatic life.  
Very toxic to aquatic life with long lasting effects.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

## SECTION 14: Transport information

### 14.1 UN number

ADN	: UN 3082
ADR	: UN 3082
RID	: UN 3082
IMDG	: UN 3082
IATA	: UN 3082

### 14.2 UN proper shipping name

ADN	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Manganese Sulfate, Zinc nitrate)
ADR	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

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	N.O.S. (Manganese Sulfate, Zinc nitrate)
<b>RID</b>	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Manganese Sulfate, Zinc nitrate)
<b>IMDG</b>	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Manganese Sulfate, Zinc nitrate)
<b>IATA</b>	: Environmentally hazardous substance, liquid, n.o.s. (Manganese Sulfate, Zinc nitrate)

### 14.3 Transport hazard class(es)

	Class	Subsidiary risks
<b>ADN</b>	: 9	
<b>ADR</b>	: 9	
<b>RID</b>	: 9	
<b>IMDG</b>	: 9	
<b>IATA</b>	: 9	

### 14.4 Packing group

<b>ADN</b>	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
<b>ADR</b>	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
Tunnel restriction code	: (-)
<b>RID</b>	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
<b>IMDG</b>	
Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F
<b>IATA (Cargo)</b>	
Packing instruction (cargo aircraft)	: 964
Packing instruction (LQ)	: Y964

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Packing group : III  
Labels : Miscellaneous

### IATA (Passenger)

Packing instruction (passenger aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

## 14.5 Environmental hazards

### ADN

Environmentally hazardous : yes

### ADR

Environmentally hazardous : yes

### RID

Environmentally hazardous : yes

### IMDG

Marine pollutant : yes

### IATA (Passenger)

Environmentally hazardous : yes

### IATA (Cargo)

Environmentally hazardous : yes

## 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	: Conditions of restriction for the following entries should be considered: Number on list 3  ethanediol (Number on list 3) nitric acid ...% [C ≤ 70 %] (Number on list 3) Alcohols, C11-14-iso-, C13-rich, ethoxylated (Number on list 3)
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UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation : Not applicable

The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain) : Not applicable

Regulation (EU) No 2024/590 on substances that deplete the ozone layer : Not applicable

UK REACH List of substances subject to authorisation (Annex XIV) : Not applicable

E2

Control of Major Accident Hazards Regulations 2015 (COMAH) E2 ENVIRONMENTAL HAZARDS

E1

### Other regulations:

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

### The components of this product are reported in the following inventories:

TCSI	: Not in compliance with the inventory
TSCA	: Product contains substance(s) not listed on TSCA inventory.
AIIC	: Not in compliance with the inventory
DSL	: This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements. Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.
ENCS	: Not in compliance with the inventory
ISHL	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory

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PICCS	: Not in compliance with the inventory
IECSC	: Not in compliance with the inventory
NZIoC	: Not in compliance with the inventory
TECI	: Not in compliance with the inventory

### 15.2 Chemical safety assessment

A chemical safety assessment is not required for this product (mixture).

## SECTION 16: Other information

### Full text of H-Statements

H302	: Harmful if swallowed.
H315	: Causes skin irritation.
H318	: Causes serious eye damage.
H335	: May cause respiratory irritation.
H373	: May cause damage to organs through prolonged or repeated exposure.
H373	: May cause damage to organs through prolonged or repeated exposure if swallowed.
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.

### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Skin Irrit.	: Skin irritation
STOT RE	: Specific target organ toxicity - repeated exposure
STOT SE	: Specific target organ toxicity - single exposure
2000/39/EC	: Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2017/164/EU	: Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
2000/39/EC / TWA	: Limit Value - eight hours
2000/39/EC / STEL	: Short term exposure limit
2017/164/EU / TWA	: Limit Value - eight hours
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	: Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regula-

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tion (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Further information

#### Classification of the mixture:

Eye Dam. 1	H318
STOT RE 2	H373
Aquatic Chronic 2	H411

#### Classification procedure:

Based on product data or assessment
Calculation method
Calculation method

### Disclaimer

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