

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

1.1. Product identifier

Product form	: Substance
Substance name	: Magnesium Sulfate Heptahydrate, Magasul
IUPAC name	: Magnesium (II) sulfate, heptahydrate
EC-No.	: 231-298-2
CAS-No.	: 10034-99-8
REACH registration No	: 01-2119486789-11
Type of product	: Fertilizer
Formula	: $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
BIG No	: 10637

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

1.2.1. Relevant identified uses

Main use category	: Professional use
Industrial/Professional use spec	: Fertilizer
Use of the substance/mixture	: Agriculture, forestry, fishery
Function or use category	: Fertilisers

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Anorel NV
 Lintsesteenweg 632
 2540 Hove
 T +3234880233
anorel@anorel.net - www.anorel.net

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals- 24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
Israel	Israel Poison Information Center Rambam Health Care Campus	6 Ha'Aliya Street 31096 Haifa	+972 4 854 1900	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD Msida	+356 2545 6504	
United Kingdom	National Poisons Information Service (Cardiff Centre) Gwenwyn Ward, Llandough Hospital	Penarth CF64 2XX Cardiff	0344 892 0111	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%
Magnesium Sulfate Heptahydrate	(CAS-No.) 10034-99-8 (EC-No.) 231-298-2 (REACH-no) 01-2119486789-11	100

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or a doctor.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Consult an ophtalmologist if irritation persists. Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth. Drink plenty of water as a precaution. Do not induce vomiting. Consult a doctor/medical service if you feel unwell. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation	: Slight irritation. Coughing.
Symptoms/effects after skin contact	: Insufficient data available.
Symptoms/effects after eye contact	: May cause slight irritation.
Symptoms/effects after ingestion	: Diarrhea.
Chronic symptoms	: None known.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire. Water spray. Dry powder. Foam.
Unsuitable extinguishing media	: Carbon dioxide (CO2). Halons.

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Non combustible.
Explosion hazard	: Not applicable.
Hazardous decomposition products in case of fire	: Carbon dioxide. Oxidation will release sulfur oxides.

5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: consider evacuation. Exposure to fire/heat: keep upwind. Exposure to heat: have neighbourhood close doors and windows.
Firefighting instructions	: Dilute toxic gases with water spray.
Protection during firefighting	: [In case of inadequate ventilation] wear respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Use appropriate ventilation. Avoid all eye and skin contact and do not breathe vapour and mist. Avoid raising dust.
------------------	---

6.1.1. For non-emergency personnel

Protective equipment	: Gloves. Protective clothing. See Heading 8.
Emergency procedures	: Ventilate spillage area. Mark the danger area. Avoid dust formation. No naked flames. Wash contaminated clothes.
Measures in case of dust release	: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
----------------------	---

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Stop leak if safe to do so.

6.3. Methods and material for containment and cleaning up

For containment	: Collect spillage. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	: Mechanically recover the product. Minimise generation of dust. Shovel or sweep up and put in a closed container for disposal. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
Other information	: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Ensure good ventilation of the work station. Wear personal protective equipment. Ensure adequate ventilation. Wear personal protective equipment. Comply with applicable regulations. Thoroughly clean/dry the installation before use. Observe normal hygiene standards. Keep container tight closed. Avoid dust formation. Keep away from naked flames/heat.
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tight closed. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection.

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store in a closed container. Store in a dry place. Store in a well-ventilated place. Keep cool.
Heat and ignition sources	: Keep away from ignition sources. Heat sources.
Information on mixed storage	: Keep away from : Water. oxidizing materials. combustible materials.
Storage area	: Meet the legal requirements. Store in a well-ventilated place. Store in a dry area. Keep out of direct sunlight. May be stored under inert gas.
Special rules on packaging	: Meet the legal requirements. Hermetical. dry. Secure fragile packagings in solid containers. watertight. correctly labelled.
Packaging materials	: Synthetic material.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Magnesium Sulfate Heptahydrate (10034-99-8)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	21.3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	37.6 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	12.8 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	11.1 mg/m³
Long-term - systemic effects, dermal	12.8 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	≈ 0.68 mg/l
PNEC aqua (marine water)	0.068 mg/l
PNEC aqua (intermittent, freshwater)	6.8 mg/l
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Materials for protective clothing:

Butyl rubber gloves. Good resistance:

Hand protection:

In case of repeated or prolonged contact wear gloves. Nitrile rubber gloves. Permeation time: minimum >480min long term exposure; material / thickness [mm]:

Eye protection:

In case of dust production: protective goggles. Safety glasses

Skin and body protection:

Long sleeved protective clothing

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

Respiratory protection:

Dust production: dust mask with filter type P2

Personal protective equipment symbol(s):



Environmental exposure controls:

Avoid release to the environment.

Other information:

Use good personal hygiene practices. Regular cleaning of equipment and work area.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline powder.
Molecular mass	: 246.48 g/mol
Colour	: Colourless. White.
Odour	: odourless.
Odour threshold	: No data available
pH	: 7 (5.5 – 8.5) (5 %)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 1127 °C
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: 1124 °C
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: 0.13 hPa
Relative vapour density at 20 °C	: Not applicable
Relative density	: No data available
Density	: 1670 kg/m ³
Solubility	: Soluble in water. Soluble in glycerol. Water: 71 g/100ml Ether: 1.2 g/100ml
Partition coefficient n-octanol/water (Log Pow)	: < 1
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not explosive.
Oxidising properties	: Not oxidising.
Explosive limits	: Not applicable

9.2. Other information

VOC content	: 0 %
Other properties	: Hygroscopic. Substance has neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Hygroscopic.

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Magnesium Sulfate Heptahydrate (10034-99-8)

LD50 oral rat	> 2000 mg/kg bodyweight (OECD 425: Acute Oral Toxicity: Up-and-Down Procedure, Rat, Male / female, Experimental value, Oral)
LD50 dermal rat	> 2000 mg/kg (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)

Skin corrosion/irritation	: Not classified pH: 7 (5.5 – 8.5) (5 %)
Serious eye damage/irritation	: Not classified pH: 7 (5.5 – 8.5) (5 %)
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: In the event of exposure to high concentrations : May cause irritation to the respiratory tract
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified

Magnesium Sulfate Heptahydrate (10034-99-8)

NOAEL (chronic, oral, animal/male, 2 years)	284 mg/kg bodyweight
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

Magnesium Sulfate Heptahydrate (10034-99-8)

NOAEL (oral, rat, 90 days)	256 mg/kg bodyweight/day
NOAEL (subchronic, oral, animal/male, 90 days)	1500 mg/kg bodyweight
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg).

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Ecology - water	: Mild water pollutant (surface water). Not harmful to fish. Not harmful to algae. Not harmful to aquatic organisms.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

Magnesium Sulfate Heptahydrate (10034-99-8)

LC50 fish 1	14000 mg/l 48h; Leuciscus idus; ANHYDROUS FORM
EC50 Daphnia 1	1700 mg/l (24 h, Daphnia magna)
EC50 72h algae (1)	2700 mg/l (Scenedesmus subspicatus, Biomass)
Threshold limit other aquatic organisms 1	27.4 g/l 0.5h; Photobacterium phosphoreum (Anhydrous form))
Threshold limit algae 2	220 mg/l (72 h; Scenedesmus subspicatus; anhydrous form)

12.2. Persistence and degradability

Magnesium Sulfate Heptahydrate (10034-99-8)

Persistence and degradability	Biodegradability. Not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Magnesium Sulfate Heptahydrate (10034-99-8)

Partition coefficient n-octanol/water (Log Pow)	< 1
Bioaccumulative potential	Low bioaccumulation potential.

12.4. Mobility in soil

Magnesium Sulfate Heptahydrate (10034-99-8)

Ecology - soil	soluble in water. Low potential for adsorption.
----------------	---

12.5. Results of PBT and vPvB assessment

Magnesium Sulfate Heptahydrate (10034-99-8)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
-------------------------	---

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

Product/Packaging disposal recommendations	: Remove to an authorized dump. Precipitate/make insoluble. Dispose in a safe manner in accordance with local/national regulations.
Additional information	: Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
European List of Waste (LoW) code	: 06 03 14 - solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
	Not applicable	Not applicable	Not applicable	Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Transport regulations (ADR) : Not subject

Transport by sea

Transport regulations (IMDG) : Not subject

Air transport

Transport regulations (IATA) : Not subject

Inland waterway transport

Transport regulations (ADN) : Not subject

Rail transport

Transport regulations (RID) : Not subject

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Magnesium Sulfate Heptahydrate is not on the REACH Candidate List

Magnesium Sulfate Heptahydrate is not on the REACH Annex XIV List

Magnesium Sulfate Heptahydrate is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Magnesium Sulfate Heptahydrate is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

VOC content : 0 %

15.1.2. National regulations

Germany

Water hazard class (WGK) : WGK 1, Slightly hazardous to water (Classification according to AwSV; ID No. 366)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Borstvoeding

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Vruchtbaarheid

NIET-limitatieve lijst van voor de voortplanting : The substance is not listed

giftige stoffen – Ontwikkeling

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:			
Section	Changed item	Change	Comments
	Supersedes	Added	
	Revision date	Added	
1.1	Product form	Added	
2.2	R-phrases	Removed	
4.1	First-aid measures after eye contact	Modified	
4.1	First-aid measures after ingestion	Modified	
4.2	Chronic symptoms	Added	
5.2	Hazardous decomposition products in case of fire	Modified	
5.3	Protection during firefighting	Modified	
7.1	Precautions for safe handling	Modified	
7.2	Storage conditions	Modified	
9.1	Oxidising properties	Added	
9.1	Explosive properties	Added	
9.1	Melting point	Modified	
9.1	Relative vapour density at 20 °C	Added	
9.1	Boiling point	Removed	
9.1	pH solution	Removed	
9.2	Minimum ignition energy	Removed	
11.1	Potential adverse human health effects and symptoms	Added	
11.1	LD50 dermal rat	Modified	
11.1	LD50 oral rat	Modified	

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

12.1	EC50 72h algae (1)	Added	
12.1	EC50 Daphnia 1	Modified	
12.1	LC50 fish 2	Removed	
12.2	BOD (% of ThOD)	Added	
12.2	Biochemical oxygen demand (BOD)	Removed	
13.1	Additional information	Modified	
13.1	Product/Packaging disposal recommendations	Modified	
14.6	Transport regulations (ADN)	Added	
15.1	WGK remark	Removed	

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

SDS EU (REACH Annex II)

Magnesium Sulfate Heptahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.