

**EPSO Top®****Safety Data Sheet**

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 8/31/2022 Revision date: 9/20/2024 Supersedes: 8/31/2022 Version: 20.2

SECTION 1: Identification**1.1. Identification**

Product form : Substance
Trade name : EPSO Top®
Chemical name : Magnesium sulfate heptahydrate
CAS-No. : 10034-99-8
Formula : MgSO₄·7H₂O

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Fertilisers

1.3. Supplier

K+S Minerals and Agriculture GmbH
7 Bertha-von Suttner-Str.
Kassel, 34131
Deutschland
T +49 561 9301- 0
info@k-plus-s.com - www.kpluss.com

1.4. Emergency telephone number

Emergency number : For Chemical Emergency Call : for incidents involving hazardous materials [or dangerous goods]
spill, leak, fire, exposure or accident, call CHEMTREC 24hr/day 7days/week
Within USA and Canada: +1 800 424 - 9300
Outside USA and Canada: +1 703 741 - 5970
(collect calls accepted)

SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS US classification**

Not classified

2.2. GHS Label elements, including precautionary statements**GHS US labelling**

No labelling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/information on ingredients**3.1. Substances**

Substance type : Mono-constituent
Name : EPSO Top

CAS-No. : 10034-99-8

Name	Product identifier	%	GHS US classification
Magnesium sulphate hepta hydrate	CAS-No.: 10034-99-8	99	Not classified

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: In all cases of doubt, or when symptoms persist, seek medical attention.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Victim is fully conscious: immediately induce vomiting. Call Poison Information Centre (www.big.be/antigif.html). 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 (acute and delayed)

Potential adverse human health effects and symptoms	: Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Slightly harmful in contact with skin.
Symptoms/effects after eye contact	: Slight irritation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Adapt extinguishing media to the environment for surrounding fires. Water spray. Dry powder. Foam.
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5.2. Specific hazards arising from the chemical

Fire hazard	: DIRECT FIRE HAZARD: Non combustible.
Hazardous decomposition products in case of fire	: Toxic fumes may be released. Metallic oxides.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Firefighting instructions	: Dilute toxic gases with water spray.
Protection during firefighting	: Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137). Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses. Disposal must be done according to official regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves (EN 374). Protective clothing (EN 14605 or EN 13034). Dust cloud production: self-contained breathing apparatus (EN 136 + EN 137).
- Emergency procedures : Ventilate spillage area. Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.

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

Do not allow to enter drains or water courses.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up : Mechanically recover the product. Prevent dust cloud formation. Scoop solid spill into closing containers. 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. Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Keep container tightly closed.
- Hygiene measures : Observe normal hygiene standards. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents.
- Storage area : Store in a well-ventilated place. Store in a cool area. Protect from moisture.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment**Hand protection:**

Protective gloves against chemicals (EN 374). In case of repeated or prolonged contact wear gloves. Nitrile rubber gloves. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer

Eye protection:

Safety glasses (EN 166). In case of dust production: protective goggles (EN 166). Safety glasses

Skin and body protection:

Protective clothing (EN 14605 or EN 13034)

Respiratory protection:

Dust production: dust mask with filter type P1. In case of inadequate ventilation wear respiratory protection. EN 143. Respiratory protection should only be used to control the residual risk during short-term activities if all practically feasible steps to reduce the hazard at the source have been followed, e.g. by restraint and/or local exhaust ventilation. For details on conditions of use and maximum concentrations of use, see DGUV Regulation 112-190 - Use of respiratory protective equipment.

Personal protective equipment symbol(s):**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state	: Solid
Appearance	: Crystalline powder.
Colour	: white
Odour	: none to slight
Odour threshold	: No data available
pH	: ≈ 8
Melting point	: No data available
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: < 0.13 hPa (20 °C)
Relative vapour density at 20°C	: Not applicable
Particle size	: < 1 mm 70 %
Relative density	: 1.7
Density	: 1.7 g/cm³
Molecular mass	: 246.48 g/mol
Solubility	: Soluble in water. Water: ≥ 1000 g/l (20 °C)
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 150 °C
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosive limits	: Not applicable
Explosive properties	: Product is not explosive.
Oxidising properties	: Non oxidizing material according to EC criteria.

9.2. Other information

Minimum ignition energy	: Not applicable
VOC content	: 0 %
Bulk density	: $\approx 980 \text{ kg/m}^3$
Other properties	: 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

Stable under normal conditions.

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 (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)

EPSO Top® (10034-99-8)

LD50 oral rat	> 4000 mg/kg (Rat, Oral)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity), Guideline: other:

Magnesium sulphate hepta hydrate (10034-99-8)

LD50 oral rat	> 4000 mg/kg (Rat, Oral)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OPPTS 870.1200 (Acute Dermal Toxicity), Guideline: other:

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met) pH: ≈ 8
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Magnesium sulphate hepta hydrate (10034-99-8)

pH	6 – 7
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Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)
pH: ≈ 8

Magnesium sulphate hepta hydrate (10034-99-8)

pH	6 – 7
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Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)
Viscosity, kinematic : Not applicable

Magnesium sulphate hepta hydrate (10034-99-8)

Viscosity, kinematic	Not applicable
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Potential adverse human health effects and symptoms : Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Slightly harmful in contact with skin.
Symptoms/effects after eye contact : Slight irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air : Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water : Not harmful to aquatic organisms. Not harmful to fishes. Mild water pollutant (surface water). Not harmful to activated sludge. Not harmful to algae.

EPSO Top® (10034-99-8)

LC50 - Fish [1]	15500 mg/l (96 h, Gambusia affinis, Anhydrous form)
EC50 - Crustacea [1]	1700 mg/l (24 h, Daphnia magna, Anhydrous form)

Magnesium sulphate hepta hydrate (10034-99-8)

LC50 - Fish [1]	15500 mg/l (96 h, Gambusia affinis, Anhydrous form)
EC50 - Crustacea [1]	1700 mg/l (24 h, Daphnia magna, Anhydrous form)
EC50 72h - Algae [1]	2700 mg/l (Scenedesmus subspicatus, Anhydrous form)

12.2. Persistence and degradability

EPSO Top® (10034-99-8)

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

Magnesium sulphate hepta hydrate (10034-99-8)

Persistence and degradability	Biodegradability: not applicable.
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Magnesium sulphate hepta hydrate (10034-99-8)

Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

EPSO Top® (10034-99-8)

Bioaccumulative potential	No bioaccumulation data available.
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Magnesium sulphate hepta hydrate (10034-99-8)

Bioaccumulative potential	No bioaccumulation data available.
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Do not discharge into drains or the environment. Dispose of at authorized waste collection point. Remove waste in accordance with local and/or 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.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Not regulated
Proper Shipping Name (TDG)	: Not regulated
Proper Shipping Name (IMDG)	: Not regulated
Proper Shipping Name (IATA)	: Not regulated

14.3. Transport hazard class(es)

DOT Transport hazard class(es) (DOT)	: Not regulated
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TDG Transport hazard class(es) (TDG)	: Not regulated
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IMDG Transport hazard class(es) (IMDG)	: Not regulated
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IATA

Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

Not regulated

TDG

Not regulated

IMDG

Not regulated

IATA

Not regulated

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Magnesium sulphate hepta hydrate	10034-99-8	Not present	-	

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

EPSO Top® (10034-99-8)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on Thailand Existing Chemicals Inventory (DIW)
Listed on the NCI (Vietnam - National Chemical Inventory)

Magnesium sulphate hepta hydrate (10034-99-8)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on Thailand Existing Chemicals Inventory (DIW)

Listed on the NCI (Vietnam - National Chemical Inventory)

15.3. US State regulations

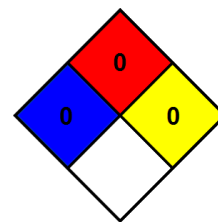
No additional information available

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 9/20/2024

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|--------------------|---|
| NFPA health hazard | : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials. |
| NFPA fire hazard | : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. |
| NFPA reactivity | : 0 - Material that in themselves are normally stable, even under fire conditions. |



Safety Data Sheet (SDS), USA

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.