



EPSO Combitop®

Version: 4.1

Revision Date: 19.12.2012

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : EPSO Combitop®

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

Use of the Substance/Mixture : Fertilizer

1.3 Details of the supplier of the safety data sheet

Company : K+S KALI GmbH
Bertha-von-Suttner-Str. 7
34131 Kassel
Germany
Telephone : +49-(0)561-9301-0
Telefax : +49-(0)561-9301-1753
E-mail address : info@kali-gmbh.com

1.4 Emergency telephone number

Giftinformationszentrale Nord, Göttingen, Germany
Telephone: +49 (0)551 19240

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Serious eye damage, Category 1 H318: Causes serious eye damage.
Specific target organ toxicity - repeated exposure, Category 2 H373: May cause damage to organs through prolonged or repeated exposure.
Chronic aquatic toxicity, Category 2 H411: Toxic to aquatic life with long lasting effects.

Classification(67/548/EEC,1999/45/EC)

Irritant R41: Risk of serious damage to eyes.
Harmful R48/20/22: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
Dangerous for the environment R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

Labelling(REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

Hazard statements	: H318 H373 H411	Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.
Precautionary statements	: Prevention: P260 P280 Response: P305 + P351 + P338 P310 P391 Disposal: P501	Do not breathe dust or mist. Wear protective gloves/ protective clothing/ eye protection/ face protection. 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 or doctor/ physician. Collect spillage. Dispose of contents/ container to an approved waste disposal plant.

Labelling according to EC Directives (1999/45/EC)

Hazard pictograms	:		
		Harmful	Dangerous for the environment

R-phrases(s)	: R41 R48/20/22 R51/53	Risk of serious damage to eyes. Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	: S22 S39 S26 S46 S60	Do not breathe dust. Wear eye/face protection. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If swallowed, seek medical advice immediately and show this container or label. This material and its container must be disposed of as hazardous waste.

Hazardous components which must be listed on the label:

7785-87-7 manganese sulphate
7446-19-7 zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate)

2.3 Other hazards



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

3. Composition/information on ingredients

3.2 Mixtures

Chemical nature : Mixture of micro-nutrients

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
manganese sulphate	7785-87-7 232-089-9 01- 2119456624- 35-XXXX	Xn; R48/20/22 N; R51-R53 Xi; R41	Eye Dam. 1; H318 STOT RE 2; H373 Aquatic Chronic 2; H411	11,2
zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate)	7446-19-7 231-793-3 01- 2119474684- XXXX	Xn; R22 Xi; R41 N; R50-R53	Acute Tox. 4; H302 Eye Dam. 1; H318 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	2,4

For the full text of the R-phrases mentioned in this Section, see Section 16.

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. First aid measures

4.1 Description of first aid measures

- General advice : Call a physician if symptoms occur.
Show this safety data sheet to the doctor in attendance.
Wash contaminated clothing before re-use.
- If inhaled : If breathed in, move person into fresh air.
- In case of skin contact : Rinse with water.
- In case of eye contact : Rinse thoroughly with plenty of water, also under the eyelids.
Remove contact lenses.
Obtain medical attention.
- If swallowed : Rinse mouth with water.
Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Ingestion may provoke the following symptoms:
Diarrhoea

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : For specialist advice physicians should contact the Poisons



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

Information Service.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : The product is not flammable.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : none

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Heating or fire can release toxic gas.
Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self contained breathing apparatus for fire fighting if necessary.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Avoid breathing dust.
Ensure adequate ventilation.

6.2 Environmental precautions

Environmental precautions : Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Use mechanical handling equipment.
Use a suitable vacuum cleaner.

6.4 Reference to other sections

For personal protection see section 8.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid dust formation.

Advice on protection against fire and explosion : The product is not flammable.
No special precautions required.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas : Store in original container.



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

and containers Keep in a dry place.

Advice on common storage : Keep away from food, drink and animal feedingstuffs.

German storage class : 13 Non Combustible Solids

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

: Not relevant

8. Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
manganese sulphate (1:1)	7785-87-7	AGW	0,5 mg/m ³	2009-02-16	DE TRGS 900
Further information	:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission). The threshold value is based on the element content of the corresponding metal.			

8.2 Exposure controls

Engineering measures

Local exhaust

Personal protective equipment

Respiratory protection : Effective dust mask.

Hand protection : Protective gloves

Eye protection : Tightly fitting safety goggles

Skin and body protection : Protective suit

Hygiene measures : When using do not eat or drink.
Wash hands before breaks and at the end of workday.

Protective measures : Avoid contact with skin, eyes and clothing.
Provide adequate ventilation.
Do not breathe dust.

Environmental exposure controls

General advice : Do not let product enter drains.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties



EPSO Combitorp[®]

Version: 4.1

Revision Date: 19.12.2012

Appearance	: crystalline
Colour	: white
Odour	: odourless
pH	: ca. 4, at 25 °C, Aqueous solution
Melting point/range	: > 48 °C, Elimination of water of crystallisation
Boiling point/boiling range	: Not applicable
Flash point	: Not applicable
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Vapour pressure	: Not applicable
Density	: Not applicable
Water solubility	: soluble
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: Not applicable
Ignition temperature	: Not applicable
Thermal decomposition	: > 700 °C
Explosive properties	: Not applicable
Oxidizing properties	: Not applicable

9.2 Other information

Burning number	: 1
Bulk density	: ca. 1.050 kg/m ³

10. Stability and reactivity

10.1 Reactivity

Stable

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 Hazardous decomposition products

Hazardous decomposition products : Heating or fire can release toxic gas.
Sulphur oxides



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

11. Toxicological information

11.1 Information on toxicological effects

Product

- Acute oral toxicity : The substance or mixture has no acute oral toxicity, Calculation method, REGULATION (EC) No 1272/2008
- Acute inhalation toxicity : The substance or mixture has no acute inhalation toxicity, Calculation method, REGULATION (EC) No 1272/2008
- Acute dermal toxicity : The substance or mixture has no acute dermal toxicity, Calculation method, REGULATION (EC) No 1272/2008
- Skin corrosion/irritation : Result: No skin irritation, Calculation method, REGULATION (EC) No 1272/2008
- Serious eye damage/eye irritation : Result: Serious eye damage, Calculation method, REGULATION (EC) No 1272/2008
- Respiratory or skin sensitization : Result: Does not cause respiratory sensitization., Calculation method, REGULATION (EC) No 1272/2008
: Result: Does not cause skin sensitization., Calculation method, REGULATION (EC) No 1272/2008
- Carcinogenicity : Contains no ingredient listed as a carcinogen
- Reproductive toxicity : Contains no ingredient listed as toxic to reproduction
- STOT - single exposure : Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.
Remarks: Calculation method, REGULATION (EC) No 1272/2008
- STOT - repeated exposure : Assessment: Causes damage to organs through prolonged or repeated exposure.
Remarks: Calculation method, REGULATION (EC) No 1272/2008

Components:

manganese sulphate :

- Acute oral toxicity : LD50: 2.150 mg/kg, rat, anhydrous substance
- Acute inhalation toxicity : LC50: 4,45 mg/l, 4 h, rat, OECD Test Guideline 403, anhydrous substance
- Acute dermal toxicity : no data available
- Skin corrosion/irritation : rabbit, Result: No skin irritation, OECD Test Guideline 404
- Serious eye damage/eye irritation : rabbit, Result: Serious eye damage, OECD Test Guideline 405
- Respiratory or skin sensitization : Result: Does not cause skin sensitization., Information derived from practical experience.
- Germ cell mutagenicity
- Genotoxicity in vitro : Result: negative, OECD Test Guideline 471
- Genotoxicity in vivo : mouse, Mutagenicity (micronucleus test), Result: negative



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

Assessment	:	Did not show mutagenic effects in animal experiments.
STOT - repeated exposure	:	rat(male), Oral, NOAEL: 200 mg/kg, anhydrous substance
STOT - repeated exposure	:	rat(female), Oral, NOAEL: 230 mg/kg, anhydrous substance
zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate) :		
Acute oral toxicity	:	LD50: 926 mg/kg, mouse, OECD Test Guideline 401, anhydrous substance
Acute dermal toxicity	:	LD50: > 2.000 mg/kg, rabbit, OECD Test Guideline 402, anhydrous substance
Skin corrosion/irritation	:	rabbit, Result: No skin irritation, OECD Test Guideline 404
Serious eye damage/eye irritation	:	rabbit, Result: Risk of serious damage to eyes., OECD Test Guideline 405
Respiratory or skin sensitization	:	mouse, Result: Does not cause skin sensitization.
Germ cell mutagenicity	:	
Genotoxicity in vitro	:	Result: negative, Genetic Toxicology: Saccharomyces cerevisiae Mitotic Recombination Assay.
Genotoxicity in vivo	:	Genetic Toxicology: Micronucleus Test., Result: negative
Assessment	:	Animal testing did not show any mutagenic effects.
STOT - repeated exposure	:	rat, NOAEL: 234 mg/kg, OECD Guideline 408

12. Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	no data available
Toxicity to daphnia and other aquatic invertebrates	:	no data available
Toxicity to algae	:	no data available
Toxicity to bacteria	:	no data available

Components:

manganese sulphate :

Toxicity to fish	:	LC50: 137,2 mg/l, 96 h, Sea Trout, Brown Trout, anhydrous substance
Toxicity to daphnia and other aquatic invertebrates	:	LC50: 8,2 - 37,7 mg/l, 96 h, Other, anhydrous substance
Toxicity to algae	:	EC50: 167,7 mg/l, 72 h, Desmodesmus subspicatus (green algae), OECD Test Guideline 201, anhydrous substance
Toxicity to bacteria	:	> 2.749 mg/l, 3 h, activated sludge, OECD Guideline 209, anhydrous substance



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

Toxicity to fish (Chronic toxicity)	: NOEC: 1,6 mg/l, 120 d, Oncorhynchus mykiss (rainbow trout), anhydrous substance
zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate) :	
Toxicity to fish	: LC50: 0,78 mg/l, 96 h, Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates	: EC50: 1,4 mg/l, 48 h, Daphnia magna (Water flea), OECD Test Guideline 202
Toxicity to algae	: IC50: 0,136 mg/l, 72 h, Pseudokirchneriella subcapitata (green algae), OECD Test Guideline 201, Zinc
Toxicity to bacteria	: EC50: 5,2 mg/l, 3 h, activated sludge, Activated Sludge, Respiration Inhibition Test.
Toxicity to fish (Chronic toxicity)	: NOEC: 0,25 mg/l, 16 d, freshwater trout

12.2 Persistence and degradability

Product:

Biodegradability : Not applicable

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Not applicable

12.4 Mobility in soil

Product:

Physico-chemical removability : Not applicable

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

Product:

Adsorbed organic bound halogens (AOX) : Not applicable

13. Disposal considerations

13.1 Waste treatment methods

Product : Dispose of as special waste in compliance with local and national regulations.

Contaminated packaging : Dispose of as special waste in compliance with local and national regulations.



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

14. Transport information

14.1 Land transport

ADR

Class : 9
Packaging group : III
UN number : 3077
Description of the goods : Environmentally hazardous substance, solid, n.o.s. (manganese sulphate, zinc sulphate)
ADR/RID-Labels : 90
Tunnel restriction code : Not relevant

RID

Class : 9
Packaging group : III
UN number : 3077
Description of the goods : Environmentally hazardous substance, solid, n.o.s. (manganese sulphate, zinc sulphate)
ADR/RID-Labels : 90

14.2 Sea transport

IMDG

Class : 9
Packaging group : III
UN number : 3077
Marine Pollutant : yes
Description of the goods : Environmentally hazardous substance, solid, n.o.s. (manganese sulphate, zinc sulphate)
Sheet : Water Contaminating Substances

14.3 Air transport

IATA-DGR

Packaging group : III
Description of the goods : Environmentally hazardous substance, solid, n.o.s. (manganese sulphate, zinc sulphate)
Sheet : Water Contaminating Substances

14.4 Special precautions for user

Not relevant

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

15. Regulatory information

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

Major Accident Hazard : Falls under the German StörfallV.
Legislation : 9b
Quantity 1: 200.000 kg
Quantity 2: 500.000 kg



EPSO Combitorp®

Version: 4.1

Revision Date: 19.12.2012

Water contaminating class : WGK 2 water endangering
(Germany)

Notification status

REACH : This mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006 (REACH).
This mixture contains no ingredient which is subject to an authorisation according to Regulation (EC) No. 1907/2006 (REACH).

15.2 Chemical Safety Assessment

Not relevant

16. Other information

Full text of R-phrases referred to under sections 2 and 3

R22	Harmful if swallowed.
R41	Risk of serious damage to eyes.
R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R50	Very toxic to aquatic organisms.
R51	Toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.
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.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.