

SAFETY DATA SHEET



according to Regulation (EC) No 1907/2006 (REACH) as amended

Zinc Sulfate Monohydrate

Creation date	01st June 2021	Version	1.2
Revision date	04th September 2023		

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

- 1.1. Product identifier**
Zinc Sulfate Monohydrate
Substance / mixture: substance
Chemical name: zinc sulfate (hydrous) (mono-, hexa- and hepta hydrate)
CAS number: 7446-19-7
Index number: 030-006-00-9
EC (EINECS) number: 231-793-3
Registration number: 01-2119474684-27-0026
- 1.2. Relevant identified uses of the substance or mixture and uses advised against**
Substance's intended use
Active pharmaceutical substance. Food additive.
Substance uses advised against

- 1.3. Details of the supplier of the safety data sheet**
Manufacturer
Name or trade name: Macco Organiques, s.r.o.
Address: Zahradní 1938/46c, Bruntál 1, 792 01
Czech Republic
Identification number (CRN): 26819210
VAT Reg No: CZ26819210
Phone: +420 555 530 300
E-mail: macco@macco.cz
Competent person responsible for the safety data sheet
Name: Petr Ševčík
E-mail: petr.sevcik@macco.cz
- 1.4. Emergency telephone number**
European emergency number: 112

SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture**
Classification of the substance in accordance with Regulation (EC) No 1272/2008

The substance is classified as dangerous.

Acute Tox. 4, H302
Eye Dam. 1, H318
Aquatic Acute 1, H400
Aquatic Chronic 1, H410

Full text of all classifications and hazard statements is given in the section 16.

Most serious adverse effects on human health and the environment

Causes serious eye damage. Harmful if swallowed. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

- 2.2. Label elements**
Hazard pictogram



Signal word
Danger

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Dangerous substance

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)
(Index: 030-006-00-9; CAS: 7446-19-7)

Hazard statements

H302 Harmful if swallowed.
H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P264 Wash face, hands and exposed parts of the body thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P391 Collect spillage.
P501 Dispose of contents/container to according to applicable regulations.

2.3. Other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

The substance specified below.

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
Index: 030-006-00-9 CAS: 7446-19-7 EC: 231-793-3 Registration number: 01-2119474684-27-0026	substance main component zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)	98-100	Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

If inhaled

Terminate the exposure immediately; move the affected person to fresh air. Protect the person against growing cold. Provide medical treatment if irritation, dyspnoea or other symptoms persist.

If on skin

Remove contaminated clothes. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists.

If in eyes

Do not rub your eyes - it could lead to mechanical damage of the cornea. Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. No neutralization should be performed in any case! Rinsing should be continued for 10-30 minutes from the inner to the outer eye corner to make sure that the other eye is not involved. Depending on the situation, call medical rescue service or ensure medical treatment as promptly as possible. Everyone must be referred for treatment even if affected only a little.

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If swallowed

Rinse out the mouth with water and provide 2-5 dL of water. Provide medical treatment.

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

If inhaled

Inhaling dust can cause corrosion of the breathing system.

If on skin

Not expected. Irritation, itching, redness.

If in eyes

Causes serious eye damage. Temporary feeling of burning and redness.

If swallowed

Corrosion of the digestion system can occur. Nausea, stomach pain, vomiting, diarrhoea.

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

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

5.2. Special hazards arising from the substance or mixture

Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage. At high temperatures, decomposition occurs to form sulfur dioxide.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Prevent contact with skin and eyes.

6.2. Environmental precautions

Do not allow to enter drains. Prevent contamination of the soil and entering surface or ground water. In the event of substantial pollution, contact respective authorities and wastewater treatment plants.

6.3. Methods and material for containment and cleaning up

Place the spilled product mechanically in the properly closed containers and dispose of it according to the section 13.

6.4. Reference to other sections

See the Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Prevent contact with skin and eyes. Do not eat, drink or smoke when using this product. Wash hands and exposed parts of the body thoroughly after handling. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection. Avoid release to the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose.

7.3. Specific end use(s)

not available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Not specified.

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PNEC

zinc sulfate (hydrous) (mono-, hexa- and hepta hydrate)			
Route of exposure	Value	Value determination	Source
Freshwater environment	39.6 µg/l		
Marine water	19.8 µg/l		
Microorganisms in sewage treatment	274.4 µg/l		
Freshwater sediment	403.2 mg/kg of dry substance of sediment		
Sea sediments	445.2 mg/kg of dry substance of sediment		
Soil (agricultural)	228.1 mg/kg of dry substance of soil		

8.2. Exposure controls

Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

Protective goggles or face shield (based on the nature of the work performed).

Skin protection

Hand protection: Protective gloves resistant to the product. When choosing appropriate thickness, material and permeability of the gloves, observe recommendations of their particular manufacturer. Observe other recommendations of the manufacturer. Other protection: protective workwear. Contaminated skin should be washed thoroughly.

Respiratory protection

Use a mask with anti-dust filter when the exposition limits of the substances are exceeded or at the place with insufficient ventilation.

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2. Collect spillage.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	solid
Colour	white
Odour	without fragrance
Melting point/freezing point	cannot be determined - decomposition occurs
Boiling point or initial boiling point and boiling range	cannot be determined - decomposition occurs
Flammability	non-flammable
Lower and upper explosion limit	not applicable
Flash point	not applicable
Auto-ignition temperature	not applicable
Decomposition temperature	280 °C
pH	4-6 (5% solution at 20 °C)
Kinematic viscosity	not applicable
Solubility in water	91.6g / 100g 50°C
Partition coefficient n-octanol/water (log value)	not determined
Vapour pressure	not applicable
Density and/or relative density	
Density	3.195 g/cm ³ at 20 °C
Relative vapour density	not applicable

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Particle characteristics

data not available

Form

solid: crystalline, powder

9.2. Other information

not available

SECTION 10: Stability and reactivity

10.1. Reactivity

The substance is non-flammable.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Unknown.

10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Heat.

10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

10.6. Hazardous decomposition products

Not developed under normal uses. Sulphur oxides.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

No toxicological data is available for the substance.

Acute toxicity

Harmful if swallowed.

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Route of exposure	Parameter	Method	Value	Exposure time	Species	Sex
Oral	LD ₅₀	OECD 401	574 mg/kg bw		Rat	M
Dermal	LD ₅₀	OECD 402	>2223 mg/kg bw	24 hours	Rat	F/M

Skin corrosion/irritation

Based on available data the classification criteria are not met.

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Route of exposure	Result	Method	Exposure time	Species
Skin	Not irritating	OECD 404	4 hours	Rabbit

Serious eye damage/irritation

Causes serious eye damage.

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Route of exposure	Result	Method	Exposure time	Species
Eye	Highly irritating	OECD 405	72 hours	Rabbit

Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Route of exposure	Result	Method	Exposure time	Species	Sex
Skin	Not sensitizing	OECD 406	48 hours	Pig	F

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Germ cell mutagenicity

Based on available data the classification criteria are not met.

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Result	Method	Exposure time	Specific target organ	Species	Sex
Negative	OECD 471			Bacteria (Salmonella typhimurium)	

Carcinogenicity

No data available for the substance. Based on available data the classification criteria are not met.

Reproductive toxicity

No data available for the substance. Based on available data the classification criteria are not met.

Toxicity for specific target organ - single exposure

No data available for the substance. Based on available data the classification criteria are not met.

Toxicity for specific target organ - repeated exposure

No data available for the substance. Based on available data the classification criteria are not met.

Aspiration hazard

No data available for the substance. Based on available data the classification criteria are not met.

11.2. Information on other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 12: Ecological information

12.1. Toxicity

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Acute toxicity

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Parameter	Value	Exposure time	Species	Environment
LC ₅₀	589 µg/l		Fish (Pimephales promelas)	
NOEC	422.6 µg/l		Daphnia (Daphnia magna)	Fresh water
NOEC	160.2 mg/kg	4 hours	Microorganisms (Photobacterium phosphoreum)	Activated sludge

Chronic toxicity

zinc sulfate (hydrous) (mono-, hexa-and hepta hydrate)

Parameter	Value	Exposure time	Species	Environment
NOEC	272 µg/l		Algae (Pseudokirchneriella subcapitata)	Fresh water

12.2. Persistence and degradability

No data available for the substance.

12.3. Bioaccumulative potential

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No data available for the substance.

12.4. Mobility in soil

The following data are available.

zinc sulfate (hydrous) (mono-, hexa- and hepta hydrate)

Parameter	Method	Value	Environment	Temperature
Log Kp	OECD 106	3.24 l/kg		20°C

12.5. Results of PBT and vPvB assessment

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100.

12.7. Other adverse effects

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

Waste type code

06 03 13 solid salts and solutions containing heavy metals *

Packaging waste type code

06 03 00 wastes from the MFSU of salts and their solutions and metallic oxides

(*) - Hazardous waste according to Directive 2008/98/EC on hazardous waste

SECTION 14: Transport information

14.1. UN number or ID number

UN 3077

14.2. UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Sulfate Monohydrate)

14.3. Transport hazard class(es)

9 Miscellaneous dangerous substances and articles

14.4. Packing group

III - substances presenting low danger

14.5. Environmental hazards

not relevant

14.6. Special precautions for user

Reference in the Sections 4 to 8.

14.7. Maritime transport in bulk according to IMO instruments

not relevant

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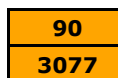
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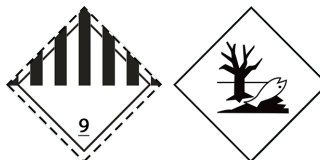
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Additional information

Hazard identification No.
UN number
Classification code
Safety signs



M7
9+ hazardous for the environment



Road transport - ADR

Special provisions 274, 335, 375, 601
Limited quantities 5 kg
Excepted quantities E1

Packaging

Packing instructions P002, IBC08, LP02, R001
Special packing provisions PP12, B3
Mixed packing provisions MP10

Portable tanks and bulk containers

Guidelines T1, BK1, BK2, BK3
Special provisions TP33

ADR tank

Tank code SGAV, LGBV
Vehicles for tank carriage AT
Transport category 3
Tunnel restriction code (-)

Special provision for

packages V13
bulk VC1, VC2
loading, unloading and handling CV13

Railway transport - RID

Special provisions 274, 335, 375, 601
Excepted quantities E1

Packaging

Packing instructions P002, IBC08, LP02, R001
Special packing provisions PP12, B3
Mixed packing provisions MP10

Portable tanks and bulk containers

Guidelines T1, BK1, BK2, BK3
Special provisions TP33

RID Tanks

Tank code SGAV, LGBV
Transport category 0

Special provision for

packages W 13
bulk VC1, VC2
loading, unloading and handling CW 13

Air transport - ICAO/IATA

Packaging instructions for limited amount Y956
Packaging instructions passenger 956
Cargo packaging instructions 956

Marine transport - IMDG

EmS (emergency plan) F-A, S-F

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SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.2. Chemical safety assessment

Chemical safety Report (CSR) has been carried out for the substance.

SECTION 16: Other information

A list of standard risk phrases used in the safety data sheet

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Guidelines for safe handling used in the safety data sheet

P264	Wash face, hands and exposed parts of the body thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P391	Collect spillage.
P501	Dispose of contents/container to according to applicable regulations.

Other important information about human health protection

The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

ADR	European agreement concerning the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures
EC	Identification code for each substance listed in EINECS
EINECS	European Inventory of Existing Commercial Chemical Substances
EmS	Emergency plan
EU	European Union
EuPCS	European Product Categorisation System
IATA	International Air Transport Association
IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC ₅₀	Lethal concentration of a substance in which it can be expected death of 50% of the population
LD ₅₀	Lethal dose of a substance in which it can be expected death of 50% of the population
log Kow	Octanol-water partition coefficient

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NOEC	No observed effect concentration
OEL	Occupational Exposure Limits
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail
UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very Persistent and very Bioaccumulative
Acute Tox.	Acute toxicity
Aquatic Acute	Hazardous to the aquatic environment
Aquatic Chronic	Hazardous to the aquatic environment (chronic)
Eye Dam.	Serious eye damage

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

The changes (which information has been added, deleted or modified)

The version 1.2 replaces the SDS version from 14.07.2022. Changes were made in sections 2, 8, 11, 12 and 15.

More information

Classification procedure - calculation method.

Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.