

# zinc sulfate, monohydrate

## Safety Data Sheet

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

Date of issue: 05/20/2015

Version: 1.0

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

#### 1.1. Product identifier

Product form	: Substance
Substance name	: zinc sulfate, monohydrate
CAS No	: 7446-19-7
Formula	: ZnSO4.H2O
Synonyms	: Environmentally hazardous substance, solid, n.o.s. / sulfuric acid, zinc salt (1:1), monohydrate / zinc sulfate monohydrate granular TG / zinc sulfate monohydrate powder refined / zinc sulfate monohydrate powder TG / zinc sulfate monohydrate prilled TG / zinc sulphate, monohydrate
BIG no	: 20862

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

Use of the substance/mixture	: Laboratory chemical Chemical intermediate
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#### 1.3. Details of the supplier of the safety data sheet

MarVista Resources  
745 North Ave.  
Corcoran, Ca. 93212 - USA  
T 559-992-4535

#### 1.4. Emergency telephone number

Emergency number	: 24 Hour Emergency HAZMAT Response: (800) 229-5252: EPA National Response Center: (800) 424-8802
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### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Acute Tox. 4 (Oral)	H302
Eye Dam. 1	H318
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: 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

Precautionary statements (GHS-US)

: P264 - Wash Skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P273 - Avoid release to the environment  
P280 - Wear eye protection, protective gloves  
P301+P312 - If swallowed: Call a doctor if you feel unwell  
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 doctor  
P330 - Rinse mouth  
P391 - Collect spillage  
P501 - Dispose of contents/container to an authorized waste collection point

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### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Name	Product identifier	%	Classification (GHS-US)
zinc sulfate, monohydrate (Main constituent)	(CAS No) 7446-19-7	100	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre ( <a href="http://www.big.be/antigif.htm">www.big.be/antigif.htm</a> ). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

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

Symptoms/injuries after inhalation	: AFTER INHALATION OF DUST: Coughing.
Symptoms/injuries after skin contact	: Slight irritation.
Symptoms/injuries after eye contact	: Irritation of the eye tissue. Visual disturbances.
Symptoms/injuries after ingestion	: AFTER ABSORPTION OF HIGH QUANTITIES: Gastrointestinal complaints. Nausea. Vomiting. Abdominal pain. Blood in stool. Decreased renal function. Change in the haemogramme/blood composition. Weakening of the immune system.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Gastrointestinal complaints. Inflammation/damage of the eye tissue.

### 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	: EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Adapt extinguishing media to the environment.
Unsuitable extinguishing media	: No unsuitable extinguishing media known.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Non combustible.
Explosion hazard	: DIRECT EXPLOSION HAZARD. No direct explosion hazard.
Reactivity	: On burning: release of toxic and corrosive gases/vapours (sulphur oxides, zinc oxide) and formation of metallic fumes. Reacts violently with (strong) bases.

### 5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Dilute toxic gases with water spray. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.

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Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

### SECTION 6: Accidental release measures

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

##### 6.1.1. For non-emergency personnel

Protective equipment : Gloves. Safety glasses. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.

Emergency procedures : Mark the danger area. Prevent dust cloud 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

No additional information available

#### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

#### 6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.

Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

#### 6.4. Reference to other sections

No additional information available

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

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

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: (strong) bases. water/moisture.

Storage area : Store at ambient temperature. Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : MATERIAL TO AVOID: lead.

#### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

zinc sulfate, monohydrate (7446-19-7)	
ACGIH	Not applicable
OSHA	Not applicable

#### 8.2. Exposure controls

Materials for protective clothing : GIVE GOOD RESISTANCE: butyl rubber. PVC.

Hand protection : Gloves.

Eye protection : Safety glasses. In case of dust production: protective goggles.

Skin and body protection : Protective clothing.

Respiratory protection : Dust production: dust mask with filter type P3.

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### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid. Powder.
Color	: White
Odor	: Odourless
Odor threshold	: No data available
pH	: 4.0 (5 %)
pH solution	: 5 %
Melting point	: 238 °C
Freezing point	: No data available
Boiling point	: > 500 °C
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: 2.5
Relative vapor density at 20 °C	: No data available
Specific gravity / density	: 2500 kg/m <sup>3</sup>
Molecular mass	: 179.47 g/mol
Solubility	: Soluble in water. Soluble in methanol. Soluble in glycerol. Water: 35 g/100ml
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: > 500 °C
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

#### 9.2. Other information

VOC content	: Not applicable
Other properties	: Hygroscopic. Substance has acid reaction.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (sulphur oxides, zinc oxide) and formation of metallic fumes. Reacts violently with (strong) bases.

#### 10.2. Chemical stability

Hygroscopic.

#### 10.3. Possibility of hazardous reactions

No additional information available

#### 10.4. Conditions to avoid

No additional information available

#### 10.5. Incompatible materials

No additional information available

#### 10.6. Hazardous decomposition products

No additional information available

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### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

<b>zinc sulfate, monohydrate (7446-19-7)</b>	
ATE US (oral)	500.000 mg/kg body weight
Skin corrosion/irritation	: Not classified pH: 4.0 (5 %)
Serious eye damage/irritation	: Causes serious eye damage. pH: 4.0 (5 %)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: AFTER INHALATION OF DUST: Coughing.
Symptoms/injuries after skin contact	: Slight irritation.
Symptoms/injuries after eye contact	: Irritation of the eye tissue. Visual disturbances.
Symptoms/injuries after ingestion	: AFTER ABSORPTION OF HIGH QUANTITIES: Gastrointestinal complaints. Nausea. Vomiting. Abdominal pain. Blood in stool. Decreased renal function. Change in the haemogramme/blood composition. Weakening of the immune system.
Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Gastrointestinal complaints. Inflammation/damage of the eye tissue.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general	: Dangerous for the environment.
Ecology - air	: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	: Severe water pollutant (surface water). Mild water pollutant (surface water). For Flanders: maximum concentration in drinking water: 5.000 mg/l (zinc)(M.B. 28/1/2003). Maximum concentration in drinking water: 250 mg/l (sulfate) (Directive 98/83/EC). Toxic to fishes. Very toxic to invertebrates (Daphnia). Highly toxic to algae. May cause eutrophication at very low concentration. pH shift. Inhibition of activated sludge.

<b>zinc sulfate, monohydrate (7446-19-7)</b>	
LC50 fish 1	1.7 mg/l (96 h; Poecilia reticulata; Anhydrous form)
EC50 Daphnia 1	0.56 mg/l (48 h; Daphnia magna; Anhydrous form)
LC50 fish 2	2.4 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Anhydrous form)
EC50 Daphnia 2	1 mg/l (24 h; Daphnia magna; Anhydrous form)

#### 12.2. Persistence and degradability

<b>zinc sulfate, monohydrate (7446-19-7)</b>	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

#### 12.3. Bioaccumulative potential

<b>zinc sulfate, monohydrate (7446-19-7)</b>	
BCF fish 1	59 - 242 (Cyprinus carpio; Anhydrous form)
BCF fish 2	59 - 242 (Cyprinus carpio; Test duration: 8 weeks)

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### zinc sulfate, monohydrate (7446-19-7)

Bioaccumulative potential : Bioaccumable.

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Precipitate/make insoluble. Remove to an authorized dump (Class I). Treat using the best available techniques before discharge into drains or the aquatic environment.

Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Not regulated for transport

### Additional information

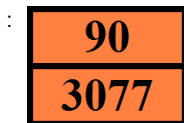
Other information : No supplementary information available.

### ADR

Transport document description : UN 3077, 9, III, (E)  
Packing group (ADR) : III  
Class (ADR) : 9 - Miscellaneous dangerous substances and articles  
Hazard identification number (Kemler No.) : 90  
Classification code (ADR) : M7  
Hazard labels (ADR) : 9 - Miscellaneous dangerous compounds



Orange plates



Tunnel restriction code (ADR) : E

### Transport by sea

UN-No. (IMDG) : 3077  
Class (IMDG) : 9 - Miscellaneous dangerous compounds  
EmS-No. (1) : F-A  
EmS-No. (2) : S-F

### Air transport

UN-No.(IATA) : 3077  
Class (IATA) : 9 - Miscellaneous Dangerous Goods  
Packing group (IATA) : III - Minor Danger

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### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### zinc sulfate, monohydrate (7446-19-7)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

##### CANADA

No additional information available

##### EU-Regulations

No additional information available

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

Acute Tox. 4 (Oral)	H302
Eye Dam. 1	H318
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H-phrases: see section 16

##### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R22  
Xi; R41  
N; R50/53

Full text of R-phrases: see section 16

##### National regulations

No additional information available

#### 15.3. US State regulations

### SECTION 16: Other information

Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation Category 1
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

NFPA health hazard

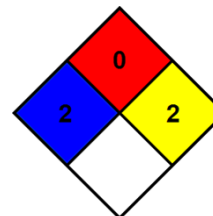
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 2 - Normally unstable and readily undergo violent decomposition but do not detonate. Also: may react violently with water or may form potentially explosive mixtures with water.



SDS US (GHS HazCom 2012)

All information contained in this Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion the information is, as of the date of this Safety Data Sheet, reliable, however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other informations gathered by you, and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee is expressed or implied as to the results to be obtained based upon your use of the information.