Zinc Sulfate, Heptahydrate, ACS

Safety Data Sheet

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SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	Zinc Sulfate, Heptahydrate, ACS
CAS No	:	7446-20-0
Product code	:	LC27220
Formula	:	ZnSO4.7H2O
Synonyms	:	white vitriol / zinc sulphate, heptahydrate / zincvitriol, heptahydrate

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

Use of the substance/mixture	:	Chemical raw material Fungicide Preservative
Restrictions on use	:	Not for food, drug or household use

1.3. Details of the supplier of the safety data sheet

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral) Category 4	H302
Hazardous to the aquatic environment - Acute Hazard Category 1	H400

Full text of H statements : see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS07 GHS09

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) :
H302 - Harmful if swallowed
H400 - Very toxic to aquatic life

Precautionary statements (GHS-US) :
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - If swallowed, rinse mouth
P391 - Collect spillage
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Zinc Sulfate, Heptahydrate, ACS (Main constituent)	(CAS No) 7446-20-0	100	Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400

Full text of hazard classes and H-statements : 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 labored 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. Doctor: administration of corticoid spray. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Rinse with water. Soap may be used. 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. Take victim to an ophthalmologist. Do not apply neutralizing agents.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Doctor: gastric lavage.

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 : Corrosion of the eye tissue. Visual disturbances. Inflammation/damage of the eye tissue.

Symptoms/injuries after ingestion : AFTER ABSORPTION OF LARGE QUANTITIES: Gastrointestinal complaints. Nausea. Vomiting. Abdominal pain. Blood in stool. Decreased renal function. Change in the 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

No additional information available

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. Violent exothermic reaction 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.

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

Protective equipment	:	Equip cleanup crew with proper protection. Do not breathe dust.
Emergency procedures	:	Stop release. Ventilate area.

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.
Hygiene measures	:	Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible products	:	Strong bases.
Incompatible materials	:	Heat sources.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: (strong) bases.
Storage area	:	Store at ambient temperature. Keep out of direct sunlight. Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: wood. glass. plastics. cardboard.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls	:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

Personal protective equipment	:	Dust production: dust mask with filter type P3. Gloves. Protective clothing.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Crystalline solid. Powder. Grains.
Color	:	Colourless or white
Odor	:	Odorless
Odor threshold	:	No data available
pH	:	4.5
Melting point	:	100 °C
Freezing point	:	No data available
Boiling point	:	Not applicable
Flash point	:	Not applicable
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	2
Specific gravity / density	:	1970 kg/m³
Molecular mass	:	287.56 g/mol
Solubility	:	Soluble in water. Soluble in methanol. Soluble in glycerol. Water: 170 g/100ml
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	> 500 °C
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

VOC content	:	Not applicable
Other properties	:	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. Violent exothermic reaction with (strong) bases.

10.2. Chemical stability

No data available.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

High temperature. Incompatible materials. Moisture.

10.5. Incompatible materials

Strong bases.

10.6. Hazardous decomposition products

Sulfur compounds.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact

Acute toxicity : Oral: Harmful if swallowed.

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
LD50 oral rat	1260 mg/kg (Rat)
ATE US (oral)	1260.000 mg/kg body weight

Skin corrosion/irritation : Not classified
pH: 4.5

Serious eye damage/irritation : Not classified
pH: 4.5

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 : Corrosion of the eye tissue. Visual disturbances. Inflammation/damage of the eye tissue.

Symptoms/injuries after ingestion : AFTER ABSORPTION OF LARGE QUANTITIES: Gastrointestinal complaints. Nausea. Vomiting. Abdominal pain. Blood in stool. Decreased renal function. Change in the 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). 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.

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
LC50 fish 2	4.6 ppm (LC50; 96 h; Salmo gairdneri)
EC50 Daphnia 2	0.56 mg/l (EC50; 48 h)
Threshold limit algae 1	.05 - .36,EC50; 72 h

12.2. Persistence and degradability

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
BCF fish 1	59 - 242 (BCF)
BCF fish 2	59 - 242 (BCF)
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. Can be considered as non hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA

Zinc Sulfate, Heptahydrate, ACS (7446-20-0)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 12/20/2016

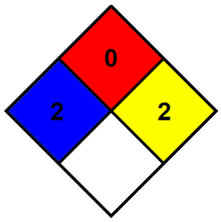
Full text of H-phrases: see section 16:

H302	Harmful if swallowed
H400	Very toxic to aquatic life

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.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Personal protection : E

E - Safety glasses, Gloves, Dust respirator

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