

## Material Safety Data Sheet.

### 1. IDENTIFICATION

**Product Identifier:** Zinc Sulfate Monohydrate  
**Other Means of Identification:**  
**Synonyms:** Sulfuric acid, zinc salt (1:1), monohydrate; Zinc Vitriol; Sulfate de zinc (French)  
**Chemical Formula:**  $ZnSO_4 \cdot H_2O$   
**Chemical Family:** N/A  
**CAS Number:** 7446-19-7  
**EC number:** 231-793-3  
**Recommended Use:** Laboratory chemicals, Synthesis of substances, Ingredients for pharmaceutical.  
**Restrictions on Use:** Not known  
**Initial Supplier Identifier:** Gurvey & Berry Co. Inc.  
310 Judson Street, Unit #15  
Toronto, ON, Canada, M8Z 5T6  
Tel: (416) 259-5700 Fax: (416) 259-5417  
E-mail: [msds@gurveyberry.com](mailto:msds@gurveyberry.com)  
**Emergency Telephone number:** Canutec +1 (613)-966-6666 - 24 hours

### 2. HAZARD IDENTIFICATION

GHS Classification in accordance with Hazardous Products Regulations (HPR) OR/2015-17)

Hazard class	Hazard class and category	Hazard statement
Acute toxicity oral	4	H302
Eye damage/ irritation	1	H318
Specific target organ toxicity (single exposure)	1	H370
Hazardous to the aquatic environment - Short-term (acute) hazard	1	H400
Hazardous to the aquatic environment - Long-term (chronic) hazard	1	H410



Pictograms:

Signal words:

**Warning! Danger!**

### **Hazard statements**

- H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H370 Causes damage to the respiratory system, heart, kidneys, liver.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

### **Precautionary statements – prevention.**

- P260 Do not breathe dust or fumes.  
P264 Wash hands, skin, and contaminated clothing thoroughly after handling.  
P270 Do not eat, drink, or smoke when using this product.  
P280 Wear protective gloves/clothing and eye/face protection.  
P273 Avoid release to the environment.

### **Precautionary statements – response**

- P301 + P317+P330 IF SWALLOWED: Rinse mouth. Get medical help.  
P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P317 Get medical help.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P332+P317 If skin irritation occurs: Get medical help.  
P308 + P316 IF exposed or concerned: Get emergency medical help immediately.  
P391 Collect spillage.

### **Precautionary statements - storage**

- P405 Store locked up.

### **Precautionary statements - disposal**

- P501 Dispose of contents/container to an approved disposal plant and in accordance with local, provincial, federal regulations.

### **Hazards not otherwise classified (HNOC) or not covered by GHS.**

May cause skin irritation.

Suspected of causing genetic defects.

May damage fertility or unborn child

## **3. COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Chemical Name</b>	<b>CAS No.</b>	<b>Concentration</b>	<b>Common name / Synonyms</b>
Zinc Sulfate	7446-19-7	99-100.5%	See section 1

## 4. FIRST-AID MEASURES

### First aid measures by route of exposure:

<b>General:</b>	Avoid breathing dust Wash hands, skin, and contaminated clothing thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/clothing and eye/face protection.
<b>After Ingestion:</b>	Rinse mouth. Get medical help.
<b>After Inhalation:</b>	Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell.
<b>After Eye Contact:</b>	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not allow victim to rub eyes or keep them closed.
<b>After Skin Contact:</b>	Wash with plenty of water. If skin irritation occurs: Get medical help.

### Most Important Symptoms and Effects, Acute and Delayed:

#### Symptoms/effects after inhalation of dust:

Dry/sore throat. Coughing. Headache. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. It can also cause nausea, vomiting, dizziness, metallic taste in the mouth.

**Symptoms/effects after skin contact:** Causes skin irritations. Redness and pain.

**Symptoms/effects after eye contact:** Causes eye burns. Causes redness and pain, tearing, swelling. May cause permanent corneal damage and cloudiness.

**Symptoms/effects after ingestion:** Ingestion may cause strong stomach cramps, abdominal pain, nausea, vomiting, diarrhea.

#### Medical Conditions Aggravated By Exposure:

Gastrointestinal system diseases, lung diseases, kidney conditions.

**Immediate medical attention and special treatment if necessary:** no data available

## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media:

In case of fire use water mist, dry chemical, chemical foam, alcohol-resistant foam, or carbon dioxide.

**Unsuitable Extinguishing Media:** Do not use water jet.

**Special Hazards Arising from the Product:**

Zinc Oxide and Sulfur Oxides, other toxic compounds.

**Special Protective Equipment and Precautions for Fire-Fighters:**

As in any fire, wear a self-contained breathing apparatus and full protective gear.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Unprotected exposure to high levels of fumes can cause metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, and nausea followed by fever and chills.

**Further information.** Prevent fire extinguishing water from contaminating surface water or the ground water system.

<b>6. ACCIDENTAL RELEASE MEASURES</b>
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**Personal precautions, protective equipment, and emergency procedures:**

Communicate hazard.

Evacuate unprotected personnel to safe areas.

Wear personal protective equipment. (see section 8).

Remove all sources of ignition.

Ensure adequate ventilation. Avoid breathing dust.

Prevent further spill if safe to do so.

Wash hands thoroughly with mild soap and water after handling this material.

**Methods and materials for containment and cleaning up**

**Small spill**

Wear Personal protective equipment (see section 8).

Prevent further spillage if safe to do so.

Avoid generation of dusts. Use dust suppressant agent.

Sweep up and shovel into designated, labeled, closed waste containers for disposal.

Dispose of containers in accordance with local, regional, and federal authority requirement.

**Large spill.**

Assess if you can handle the spill.

**Local authorities should be advised if significant spillages cannot be contained.**

This material is classified as water pollutant under the Clean Water Act and its release to the environment should be prevented.

Get advice from emergency services if necessary.

Wear Personal protective equipment (see section 8).

Prevent further spillage if safe to do so.

Avoid generation of dusts.

If feasible, shovel into designated, labeled, closed waste containers for disposal.

Or absorb in vermiculite, dry sand, or earth and place into containers.

Cover drains. Finish cleaning by spreading water on the contaminated surface.  
 Collect wastewater and dispose with a licensed disposal company.  
 Dispose of containers in accordance with local, regional, and federal authority requirement.

**Environmental precautions**

This material is harmful to aquatic life.

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION**

**Reference to other sections**

See section 1 for emergency contact.  
 See section 8 for information on appropriate personal protective equipment.  
 See section 13 for disposal.

**7. HANDLING AND STORAGE**

**Precautions for Safe Handling:** Always wear personal protective equipment (see section 8)  
 Avoid contact with eyes, skin, and clothing.  
 Don't taste or swallow.  
 Avoid ingestion and inhalation.  
 Use with adequate ventilation.  
 For precautionary statements see also section 2.2

Wash hands and skin thoroughly after handling.  
 Do not eat, drink, or smoke in the area.

**Conditions for Safe Storage:** Store locked up. Keep container tightly closed in a dry, cool, and well-ventilated place. Protect from heat and sunlight. Keep away from ignition sources. Strong hygroscopic property.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control Parameters**

Chemical Name	ACGIH® TLV®		OSHA PEL	
	TWA	STEL	TWA	STEL
Zinc sulfate	N/A	N/A	N/A	N/A

**Appropriate Engineering Controls:** Local and/or general exhaust ventilation is required.  
 Eyewash station and safety shower required.

**Personal Protection Measures (e.g. personal protective equipment):**

**Eye/face protection** Tightly fitting safety goggles for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN (EU).

**Skin and body protection**

Full body protective clothing, boots, gloves. Handle with gloves compatible with this material. Gloves must be inspected prior to use.

**Respiratory protection**

If operations generate dust, use local ventilation or other appropriate Engineering controls to keep exposure contaminants below the exposure limit. Be sure to use an approved /certified respirator with N95 cartridges.

For spills and/or emergencies of unknown concentrations, an approved self-contained breathing apparatus operated in the pressure demand mode is required.

**Control of environmental exposure**

Do not let product enter drains or ground.  
This material is harmful to aquatic life.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form:	Solid, powder
Color:	White
Molecular Weight:	179.45
Odour:	Odorless
Odour Threshold:	no data available
pH:	5.5 (1g – 20ml)
Melting Point/freezing point:	no data available
Initial boiling point/boiling range:	no data available
Flash Point:	no data available
Evaporation Rate:	no data available
Flammability (solid; gas):	Not flammable
Upper flammability or explosive limits	no data available
Lower flammability or explosive limits	no data available
Vapor Pressure (mmHg):	no data available
Vapor Density (air=1):	no data available
Relative Density (water=1):	no data available
Solubility in Water:	Soluble
Solubility in Other Agents:	Soluble in Glycerol, not soluble in Ethanol.
Partition coefficient (n-octanol/water)	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
Viscosity	no data available
Other information:	

**10. STABILITY AND REACTIVITY**

<b>Reactivity:</b>	No data available.
<b>Chemical stability:</b>	Stable under recommended storage conditions.
<b>Possibility of hazardous reactions:</b>	Will not polymerize.

**Conditions to avoid:** Exposure to moisture, sunlight, and heating.  
**Incompatible materials:** Strong oxidizing agents. Strong bases (such as Sodium Hydroxide and Potassium Hydroxide). Zn Sulfate reacts violently with phosphorus and finely divided aluminum and magnesium.

**Hazardous decomposition products:** formed under fire conditions – Zinc oxide, Sulfur oxide, other toxic compounds.

**Other decomposition products** No data available

**In the event of fire:** see section 5

## 11. TOXICOLOGICAL INFORMATION

### Likely Routes of Exposure

**Inhalation:** Yes

**Skin contact:** Yes

**Eye contact:** Yes

**Ingestion:** Yes

This toxicological data is presented for Zn Sulfate Anhydrous. CAS # 7733-02-0  
RTECS # ZH5260000

### Acute Toxicity Oral LD50:

LD50 Oral, Rodent - Rat - 1710 mg/kg

LD50 Dermal, Rat - male and female - > 2,000 mg/kg (OECD Test Guideline 402)

*Remarks: The LD50 dermal value is given for Zinc Sulphate Anhydrous*

LC50 - No data available.

### Skin corrosion/irritation:

Skin - Rabbit

Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

*Remarks: The value is given for Zinc Sulphate Anhydrous*

### Serious Eye Damage/irritation:

Standard Draize test (eye) rodent -rabbit 420 ug – Moderate  
Risk of permanent corneal clouding, conjunctivitis.

### Respiratory and/or Skin

**Sensitization:** No data available

**Aspiration Toxicity:** No data available

### STOT (Specific Target Organ Toxicity) – Single Exposure:

Inhalation of dust – may affect lungs, cardiovascular system, kidney, liver, and cause metabolic disturbances.

**STOT (Specific Target Organ Toxicity) - Repeated Exposure:**

With repeated exposure can be harmful to pancreas, adrenal glands, blood.

**Carcinogenicity:**

IARC Not listed

ACGIH® Not listed

OSHA Not listed

**Reproductive Toxicity:** May cause reproductive defects. Insufficient data for classification.

**Germ Cell Mutagenicity:** May cause mutagenic defects. Insufficient data for classification.

**Interactive Effects** No data available

**Additional Information:** Toxic to aquatic life.

<b>12. ECOLOGICAL INFORMATION</b>
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**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION**

**Ecotoxicity:** This product has high water solubility, and its Zinc contents are directly bio-available.  
Harmful to aquatic life.

**Toxicity to fish**

LC50 - Pimephales promelas (fathead minnow) - 0.330 mg/l - 96 h

Remarks: The value is given in analogy to Zinc Sulphate

LC50 Cutthroat Trout (*Oncorhynchus clarki*) - 0.151mg•ZnSO4/L (EHC221, 2002)

**Persistence and degradability:** No data available

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**Other adverse effects:** Bactericidal effect.  
Hazard for drinking water supplies.

This material is harmful to aquatic life: toxic to fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters. Do not discharge this product into sewer systems without previously notifying the sewage treatment plant authority.

<b>13. DISPOSAL CONSIDERATIONS</b>
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**Wastes of Residues:**

Package product wastes.  
Close and label the waste receptacles and any unclean empty containers.

This product is toxic to fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters. Do not discharge this product into sewer systems without previously notifying the sewage treatment plant authority.

Dispose of according to local, provincial, and federal regulations, with a licensed disposal company.

**Contaminated Packaging:**

Do not reuse containers. Dispose of as unused product.

**14. TRANSPORT INFORMATION**

Not dangerous goods for transport. Keep separated from foodstuffs.

**15. REGULATORY INFORMATION**

CANADA DSL/NDSL: Zinc sulfate Anhydrous CAS #7733-02-0 is listed on the DSL.

**16. OTHER INFORMATION**

This information is based upon knowledge currently available.

More detailed information on the physical and chemical properties can be requested from the supplier. To the best of our knowledge, the information contained herein is accurate and complete. However, this should not be construed to imply any warranty or guarantee. Gurvey & Berry Co. Inc. shall not be held liable for any damage resulting from handling or from contact with the above chemical.

Created On: December 5, 2005

Last Revised: 22 March 2021

Printed On: 13 July 2021

This document will only be updated as needed.

N/A = not available.

N/D = not determined.