

SAFETY DATA SHEET

1. Identification

Product identifier: Zinc Sulfate, 7-Hydrate

Other means of identification

Product No.: 4372, 4382, 4383, 4384, 8872, 8880

Recommended use and restriction on use

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

	Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200 Radnor, PA 19087
Telephone:	Customer Service: 855-282-6867
Fax:	
Contact Person:	Product Information Compliance
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada (24 hrs/day, 7 days/week)

2. Hazard identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Specific Target Organ Toxicity - Single Exposure	Category 3 ¹

Target Organs

1. Respiratory tract irritation.

Unknown toxicity - Health

Acute toxicity, inhalation, dust or mist	100 %
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Environmental Hazards

Acute hazards to the aquatic environment	Category 1
Chronic hazards to the aquatic environment	Category 1

Unknown toxicity - Environment

Acute hazards to the aquatic environment	0 %
Chronic hazards to the aquatic environment	100 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
May cause respiratory irritation.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Do not eat, drink or smoke when using this product. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Avoid release to the environment.

Response: 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/doctor. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Collect spillage.

Storage: Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	Content in percent (%)*
Zinc Sulfate, Heptahydrate		7446-20-0	99,0 - 100,0%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information:	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion:	Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give liquid to an unconscious person.
Inhalation:	Move to fresh air. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Get medical attention.
Skin Contact:	Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention if irritation persists after washing.

Most important symptoms/effects, acute and delayed

Symptoms: Harmful if swallowed. Causes serious eye damage. May cause skin irritation. Respiratory tract irritation.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Keep unauthorized personnel away. Keep upwind. Put on protective equipment before entering danger area. Ventilate closed spaces before entering them. Avoid inhalation of dust.
Methods and material for containment and cleaning up:	Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.
Notification Procedures:	Inform authorities if large amounts are involved.
Environmental Precautions:	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid release to the environment.

7. Handling and storage

Precautions for safe handling:	Avoid inhalation of dust. Do not taste or swallow. Do not get in eyes and avoid contact with skin and clothing. Do not eat, drink or smoke when using the product. Use personal protective equipment as required. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment.
Conditions for safe storage, including any incompatibilities:	Keep container tightly closed. Store in a dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Appropriate Engineering Controls

No data available.

Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eye/face protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Skin Protection	
Hand Protection:	Chemical resistant gloves
Other:	Wear suitable protective clothing.

Respiratory Protection: In case of inadequate ventilation use suitable respirator. Air-purifying respirator with a high efficiency particulate filter.

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state: Solid
Form: Solid
Color: Colorless, White

Odor: Odorless

Odor threshold: No data available.

pH: No data available.

Melting point/freezing point: 229 °C (Decomposes)

Initial boiling point and boiling range: No data available.

Flash Point: Not applicable

Evaporation rate: No data available.

Flammability (solid, gas): No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%): No data available.

Flammability limit - lower (%): No data available.

Explosive limit - upper (%): No data available.

Explosive limit - lower (%): No data available.

Vapor pressure: No data available.

Vapor density: No data available.

Density: 1,97 g/cm³ (20 °C)

Relative density: 1,97 (20 °C)

Solubility(ies)

Solubility in water: Soluble

Solubility (other): No data available.

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

Molecular weight: 287,54 g/mol (ZnSO₄·7H₂O)

10. Stability and reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical Stability: Material is stable under normal conditions.

Possibility of hazardous reactions: Hazardous polymerization does not occur.

Conditions to avoid: Excessive heat. Water, moisture. Contact with incompatible materials.

Incompatible Materials: Strong oxidizing agents. Inorganic salts.

Hazardous Decomposition Products: Zinc oxide. Oxides of sulfur.

11. Toxicological information

Information on likely routes of exposure

Inhalation: May cause irritation to the respiratory system.

Skin Contact: Causes skin irritation.

Eye contact: Causes serious eye damage.

Ingestion: Harmful if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: LD 50 (Rat): 1.710 mg/kg

Dermal

Product: LD 50 (Rabbit): > 3.500 mg/kg

Inhalation

Product: EC 50 (Hamster, Syrian): 8,0 mg/m3

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: Causes skin irritation.

Serious Eye Damage/Eye Irritation

Product: Causes serious eye damage.

Respiratory or Skin Sensitization

Product: Not a skin nor a respiratory sensitizer.

Carcinogenicity

Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

ACGIH Carcinogen List:

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro
Product: No mutagenic components identified

In vivo
Product: No mutagenic components identified

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: Respiratory tract irritation.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: LC 50 (Rainbow trout,donaldson trout (Oncorhynchus mykiss), 96 h): 0,103 mg/l

Aquatic Invertebrates
Product: EC 50 (Water flea (Ceriodaphnia dubia), 48 h): 0,06 mg/l

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: The product is not readily biodegradable.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: The product is water soluble and may spread in water systems.

Other adverse effects: Expected to be very toxic to aquatic organisms. May cause long-term adverse effects in the environment. Large amounts of the product may affect the acidity (pH-factor) in water with possible risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws. Do not allow to enter drains, sewers or watercourses.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

TDG

UN Number: UN 3077
 UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(ZINC SULPHATE)
 Transport Hazard Class(es)
 Class: 9
 Label(s): 9
 Packing Group: III
 Marine Pollutant: Yes
 Special precautions for user: Not determined.

IMDG

UN Number: UN 3077
 UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(ZINC SULPHATE)
 Transport Hazard Class(es)
 Class: 9
 Label(s): 9
 EmS No.: F-A, S-F
 Packing Group: III
 Marine Pollutant: Yes
 Special precautions for user: Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 Kg or less for solids are not subject to any other provisions of this Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In case of marine pollutants also meeting criteria for inclusion in another hazard class, all provisions of this Code relevant to any additional hazards continue to apply.

IATA

UN Number: UN 3077
 UN Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.(Zinc sulphate)
 Transport Hazard Class(es):
 Class: 9
 Label(s): 9(Miscellaneous)
 Packing Group: III
 Marine Pollutant: Yes

Special precautions for user:	Marine pollutants when transported in single or combination packagings containing a net quantity per single or inner packaging of 5 Kg or less for solids are not subject to any other provisions of the IATA regulations relevant to marine pollutants provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.
Cargo aircraft only:	Allowed.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

15. Regulatory information

Canada Federal Regulations

List of Toxic Substances (CEPA, Schedule 1)

Chemical Identity

Zinc Sulfate,
Heptahydrate

Export Control List (CEPA 1999, Schedule 3)

Not Regulated

National Pollutant Release Inventory (NPRI)

Canada. National Pollutant Release Inventory (NPRI) Substances, Part 5, VOCs with Additional Reporting Requirements

NPRI PT5 Not Regulated

Canada. National Pollutant Release Inventory (NPRI) (Schedule 1, Parts 1-4)

NPRI Zinc Sulfate,
Heptahydrate

Greenhouse Gases

Not Regulated
Not Regulated

Controlled Drugs and Substances Act

CA CDSI	Not Regulated
CA CDSII	Not Regulated
CA CDSIII	Not Regulated
CA CDSIV	Not Regulated
CA CDSV	Not Regulated
CA CDSVII	Not Regulated
CA CDSVIII	Not Regulated

Precursor Control Regulations

Not Regulated

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory

16. Other information

Revision Date: 09.10.2020

Version #: 2.2

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

Further Information: No data available.

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