Safety Data Sheet ZINC SULFATE 1-3% w/v

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SECTION 1: Identification

GHS Product identifier

Product name	ZINC SULFATE 1-3% w/v

Recommended use of the chemical and restrictions on use

Laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, oral, Cat. 4
- Hazardous to the aquatic environment, short-term (acute), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1
- Serious eye damage/eye irritation, Cat. 2A

GHS label elements, including precautionary statements

Pictograms

Signal word	**Warning**
Hazard statement(s)	
H302	Harmful if swallowed
H319	Causes serious eye irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
Precautionary statement(s)	
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physcian 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.
P330	Rinse mouth.
P337+P313	If eye irritation persists: Get medical advice/attention.
P391	Collect spillage.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Components

Component	Concentration
Zinc sulfate Heptahydrate (CAS no.: 7446-20-0)	**>= 1 - < 3 % (weight)**
CLASSIFICATIONS: Acute toxicity, oral, Cat. 4; Hazardous to the aquatic environment, long-term (chronic), Cat. 1; Hazardous to the aquatic environment, short-term (acute), Cat. 1; Serious eye damage/eye irritation, Cat. 1. HAZARDS: 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.	
Water (CAS no.: 7732-18-5; EC no.: 231-791-2)	**97 - 99 % (weight)**
CLASSIFICATIONS: No data available. HAZARDS: No data available.	

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	Maintain evewash fountain and safety shower in work area.
If inhaled	It inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
In case of skin contact	Wash skin with water using soap if available. If persistent irritation occurs, obtain medical attention.
In case of eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open.

	Obtain medical attention immediately.
If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.

Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
Treat symptomatically based on judgement of doctor and individual reactions of the patient.
For advice, contact the National Poisons Information Centre (Phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Small fire: Use dry chemical, CO2, water spray or foam.
Large fire: Use water spray, fog or foam.
If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after the fire is out.

Specific hazards arising from the chemical
Specific hazards arising from the chemical: May burn but do not ignite readily. Runoff may pollute waterways. Fire may produce irritating, poisonous and/or corrosive gases.

Special protective actions for fire-fighters
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. For personal protection see section 8.

Methods and materials for containment and cleaning up
Do NOT touch or walk through spilled material. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas.

SECTION 7: Handling and storage

Precautions for safe handling
Avoid generation or accumulation of dusts. Avoid prolonged or repeated contact with skin and eyes .
Wash hands and face thoroughly after working with material. Use with adequate ventilation. In case of insufficient ventilation. wear suitable respirator equipment.

Conditions for safe storage, including any incompatibilities
Keep containers closed at all times. Store in a cool,dry place. Store in well ventilated area. Store away from heat. Keep dry - reacts with water; may lead to drum rupture.

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls
In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hand Protection: Normally not required but if in doubt ensure hand protection should complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection
Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

Respiratory protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear to slightly opaque liquid.
Color	No data available.
Odor	Odourless.
Odor threshold	No data available.
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.
Explosive properties	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Oxidizing properties	No data available.
pH	No data available.
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Soluble.
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	No data available.
Evaporation rate	No data available.
Density and/or relative density	No data available.
Relative vapor density	No data available.

Particle characteristics
No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
Astringent, metallic taste.

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Reacts with water to form sulfuric acid.

Conditions to avoid
Exposure to moisture. Strong heating. Incompatibles.

Incompatible materials
Water, lead, calcium, strontium salts, borax, alkali carbonates and hydroxides, silver proteins, strong oxidizing agents and tannins.

Hazardous decomposition products
Oxides of sulfur and zinc.

Water: In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Oral: LD50 (rat): 2150 mg/kg (zinc sulphate heptahydrate)

Ingestion: Harmful if swallowed. May cause severe irritation and burns of the mouth, throat and digestive system. Symptoms may include vomiting, diarrhea, burning sensation, coughing, wheezing, shortness of breath, headaches, nausea, inflammation of mucous membranes, stomach pain, cold sweats, leg cramps. Ingestion of material in large doses may cause metallic fume fever.

Inhalation: May be harmful if inhaled. Inhalation of mist may cause irritation to the mucous membranes of the respiratory tract. Symptoms may cause coughing, shortness of breath, chills, nausea, fever and tightness of the chest. Inhalation may lead to the formation of respiratory odemas.

// ----- From the Suggestion report (13/02/2023, 7:58 AM) ----- //
The ATE (oral) of the mixture is: 1000 mg/kg bw

In a study carried out using OECD Test Guideline (TG) 423, zinc sulfate heptahydrate had an LD50 between 1000 to 2000 mg/kg bw in rats of both sexes. Reported signs of toxicity include hunched posture, lethargy, ataxia, piloerection, splayed gait, laboured respiration, emaciation, red-brown staining around the eyes and diarrhea (EU RAR, 2004; REACH).

Skin corrosion/irritation
May be harmful if absorbed through the skin. May cause irritation, redness, itching and pain. Over exposure may cause dermantitis.

Serious eye damage/irritation
Eye contact with material may cause redness, pain, severe irritation and possible mechanical harm. Risk of serious damage to eyes.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Based on available data, classification data are not met

Carcinogenicity
No evidence of carcinogenic properties.

Reproductive toxicity
No data available

Specific target organ toxicity (STOT) - single exposure
Based on available data, classification data are not met

Specific target organ toxicity (STOT) - repeated exposure
Based on available data, classification data are not met

Aspiration hazard
Not expected to be an aspiration hazard.

Additional information
Chronic Effects: May cause minor, reversible health effects on the lungs. Prolonged or repeated exposure of dust via inhalation or ingestion may lead to an increased pulse rate without blood pressure decrease, blood pressure decrease, acute pulmonary edema/bronchitis/pneumonia with bluish skin, metal fume fever with symptoms including metallic taste, marked thirst, coughing, weakness, muscular pain and nausea followed by fever and chills. Further damage may be caused to cardiovascular system, kidneys, and pancreas. These conditions typically disappears after exposure to material ceases. Prolonged or repeated skin contact can cause severe dermantitis (oxide pox). Repeated eye contact can cause eye effects.

Zinc sulfate Heptahydrate: dog LDLo intravenous 66mg/kg (66mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1419, 1935.
dog LDLo subcutaneous 78mg/kg (78mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1419, 1935.
guinea pig LDLo subcutaneous 590mg/kg (590mg/kg) BEHAVIORAL: SOMNOLENCE (GENERAL DEPRESSED ACTIVITY)

BEHAVIORAL: COMA

GASTROINTESTINAL: "HYPERMOTILITY, DIARRHEA" British Medical Journal. Vol. 2, Pg. 217, 1913.
man LDLo unreported 221mg/kg (221mg/kg) "Poisoning; Toxicology, Symptoms, Treatments," 2nd ed., Arena, J.M., Springfield, IL, C.C. Thomas, 1970Vol. 2, Pg. 73, 1970.
mouse LD50 intraperitoneal 75mg/kg (75mg/kg) Agents and Actions, A Swiss Journal of Pharmacology. Vol. 16, Pg. 580, 1985. Link to PubMed
mouse LD50 oral 200mg/kg (200mg/kg) Weisheng Dulixue Zazhi. Journal of Health Toxicology. Vol. 5, Pg. 98, 1991.
rabbit LDLo intravenous 44mg/kg (44mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1419, 1935.
rabbit LDLo oral 1914mg/kg (1914mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1419, 1935.
rat LD50 intraperitoneal 200mg/kg (200mg/kg) Bulletin de la Societe de Pharmacie de Bordeaux. Vol. 116, Pg. 47, 1977.
rat LD50 oral 1260mg/kg (1260mg/kg) BEHAVIORAL: SLEEP

BEHAVIORAL: ATAXIA

LUNGS, THORAX, OR RESPIRATION: RESPIRATORY STIMULATION Weisheng Dulixue Zazhi. Journal of Health Toxicology. Vol. 5, Pg. 98, 1991.
rat LDLo intravenous 49mg/kg (49mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1419, 1935.
rat LDLo subcutaneous 330mg/kg (330mg/kg) "Abdernalden's Handbuch der Biologischen Arbeitsmethoden." Vol. 4, Pg. 1419, 1935.

SECTION 12: Ecological information

Toxicity
Acute Toxicity - Fish: LC50 (Onchorhynchus mykiss): 0.43 mg/l/96 h (anhydrous substance)
Toxic to aquatic life. 96-hour LC50 (fish): 1 - 10 mg/L.

Persistence and degradability
No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

Results of PBT and vPvB assessment
No data available.

Endocrine disrupting properties
No data available.

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
UN Number: 3082
Class: 9
Packing Group: III
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS ZINC SULFATE)

Hazchem emergency action code (EAC)
•3Z

IMDG
UN Number: 3082
Class: 9
Packing Group: III

EMS Number:
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS ZINC SULFATE)

IATA
UN Number: 3082
Class: 9
Packing Group: III
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS ZINC SULFATE)

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP
Poison Schedule: S6

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.