



SAFETY DATA SHEET

ZINC SULPHATE HEPTAHYDRATE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CAS NUMBER: 7446-20-0
PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S
(zinc sulphate heptahydrate)
UN NUMBER: 3077

PRODUCT USE: Animal health treatments and trace element source in fertilisers.

SUPPLIER: Interchem Agencies Limited
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Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

Hazardous Substance according to the criteria of the New Zealand Hazardous Substances and New Organisms legislation and GHS 7th Edition. Dangerous Good.

HAZARD LABELLING DANGER



See Section 14 for DG labelling.

HAZARD CLASSIFICATION AND STATEMENTS

GHS

Serious eye damage - Category 1
Acute toxicity: Oral - Category 4
Specific target organ toxicity (repeated exposure) - Category 2
Aquatic toxicity (Acute) - Category 1
Aquatic toxicity (Chronic) - Category 1
Hazardous to terrestrial vertebrates

HSNO

8.3A
6.1D (oral)
6.9B
9.1A
9.1A
9.3C

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Causes serious eye damage.
Harmful if swallowed.
May cause damage to organs through prolonged or repeated oral exposure.
Very toxic to aquatic life with long lasting effects.
Harmful to terrestrial vertebrates.

PRECAUTIONARY STATEMENTS

PREVENTION

Keep out of reach of children.
Read label before use.
Wear protective gloves, protective clothing eye protection and face protection.
Wash hands and exposed skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Do not breathe dust.

RESPONSE

If medical advice is needed, have product container or label at hand.
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 or doctor/physician.
IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
Collect spillage.

DISPOSAL

Dispose of contents and packaging in accordance with relevant legislation.
See Section 13 of this SDS Document for more information.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%	HAZARDOUS
zinc sulphate heptahydrate	7446-20-0	>96	Yes

SYNONYMS: Sulfuric acid, zinc salt (1:1), heptahydrate; Zinc vitriol (heptahydrate); White vitriol (heptahydrate); zinc sulfate heptahydrate

Section 4 - FIRST AID MEASURES

In an emergency call an ambulance (111). If in doubt, call the POISON CENTRE 0800764766 or a doctor.

Primary routes of exposure through skin contact, eye contact and inhalation of dusts.

MAIN SYMPTOMS CAUSED BY EXPOSURE

Burning pain and serious irritation to eyes. Inhalation of dusts can cause cough and difficulty breathing. Ingestion can lead to nausea and vomiting.

SWALLOWED

If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
Observe the patient carefully.
Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
Seek medical advice.

EYE

Wash out immediately with fresh running water for several minutes.

Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

Seek medical attention immediately for assessment of the eye.

Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

Remove contaminated clothing including footwear.

Flush skin and hair with running water (and soap if available).

Seek medical attention in event of irritation.

INHALED

If dust is inhaled, remove from contaminated area.

Encourage patient to blow nose to ensure clear passage of breathing.

If irritation or discomfort persists, seek medical attention.

NOTES TO PHYSICIAN

Treat symptomatically based on individual reactions of patient and judgement of doctor.

NOTE: In an emergency dial 111, for advice contact a Poison Centre (0800-764-766).

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions: water, water spray, dry powder, foam, carbon dioxide (CO₂).

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

Clear fire area of all non-emergency personnel.

Stay upwind. Eliminate ignition sources.

Wear breathing apparatus plus protective gloves.

Prevent spillage from entering drains or water courses.

Use firefighting procedures suitable for surrounding area.

DO NOT approach containers suspected to be hot.

Cool fire exposed containers with water spray from a protected location.

If safe to do so, remove containers from path of fire.

Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

Non-combustible solid.

HAZARDS FROM COMBUSTION PRODUCTS

Combustion products include zinc oxides.

Irritating and toxic gases will be emitted in the event of a fire.

PERSONAL PROTECTIVE EQUIPMENT

Firefighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots and gloves). Limit exposure duration to 1 BA set 30 mins.

HAZCHEM CODE

2Z

Section 6 - ACCIDENTAL RELEASE MEASURES

Only fully trained personnel should be involved in handling chemicals.

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Personal Protective Equipment advice is contained in Section 8 of the SDS.

MINOR SPILLS

Environmental hazard - contain spillage.
Clean up all spills immediately.
Avoid contact with skin and eyes.
Control personal contact by using protective equipment.
Use dry clean up procedures and avoid generating dust.
Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

Environmental hazard - contain spillage.
Moderate hazard.
Alert Emergency Services and tell them location and nature of hazard.
Control personal contact by wearing protective clothing including chemical safety goggles.
Prevent, by any means available, spillage from entering drains or water courses.
Recover product wherever possible.
Use dry clean up procedures and avoid generating dust.
Collect residues and place in sealed plastic bags or other containers for disposal.
If contamination of drains or waterways occurs, advise Emergency Services.

EMERGENCY RESPONSE PLANNING GUIDELINES (AIHA 2016)

No ERPGs have been set for this substance by the American Industrial Hygiene Association.

PROTECTIVE ACTION CRITERIA (PAC) - Revision 29

Chemical (CAS Number)	PAC-1	PAC-2	PAC-3	Units
Zinc sulfate heptahydrate (7446-20-0)	27	170	1000	mg/m ³

PAC-1: Mild, transient health effects.

PAC-2: Irreversible or other serious health effects that could impair the ability to take protective action.

PAC-3: Life-threatening health effects.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Operators should be trained in procedures for safe use of this material.
Avoid all personal contact, including inhalation.
Wear protective clothing, including chemical safety goggles to control exposure.
Use in a well-ventilated area.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Keep containers securely sealed when not in use.
Avoid physical damage to containers.
Always wash hands with soap and water after handling.
Work clothes should be laundered separately. Launder contaminated clothing before re-use.
Use good occupational work practice.
Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE PACKAGING

Original packaging.
Polyethylene or polypropylene bags.
Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

Store away from food product and animal feedstuffs.

STORAGE REQUIREMENTS

Store in original packaging.
Keep containers tightly sealed to prevent contamination.

Store in a cool, dry, well-ventilated area, out of direct sunlight.
Store away from incompatible materials and foodstuffs.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	Measurement	Limit
New Zealand WES 2020	total dust	time weighted average (TWA)	10 mg/m ³
New Zealand WES 2020	respirable dust	time weighted average (TWA)	3 mg/m ³
No exposure standard has been established for this product by WorkSafe New Zealand or Safe Work Australia. Exposure limit set by the German MAK for zinc and its organic compounds: 0.1 mg zinc /m ³ (respirable fraction)/2mg zinc/m ³ (inhalable fraction).			

ENGINEERING CONTROLS

VENTILATION SYSTEM

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Refer to the 'Local exhaust ventilation' guide found on the WorkSafe New Zealand website.

PERSONAL PROTECTION EQUIPMENT (PPE)

PERSONAL RESPIRATOR

An approved P2 or P3 particulate respirator should be worn when using this product in dusty conditions. For more information see Australian/New Zealand Standard, AS/NZS 1715:2009 and AS/NZS 1716:2012. If in doubt, seek expert occupational hygiene advice.

SKIN PROTECTION

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Refer to AS/NZS 2161.1:2000 Occupational Protective Gloves - Selection, use and maintenance. Dispose of contaminated gloves after use.

EYE PROTECTION

Use approved chemical safety goggles and a full face shield where splashing is possible. Refer to Personal eye protection Part 1: Eye and face protectors for occupational applications, Australian/New Zealand Standard: AS/NZS 1337.1:2010. Maintain eye wash fountain in work area.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

White crystalline powder or granule.

PROPERTY	VALUE
State:	Solid
Odour:	Odourless
Molecular Weight:	287.556
Melting Range (°C):	100
Boiling Range (°C):	Not available
Solubility in water (g/L, 20°C):	965
pH (5% solution, 20°C):	4.0-4.6
Relative density (g/cm ³):	Not available
Bulk Density (g/cm ³):	1.98
Volatile Component (%vol):	Negligible
Relative Vapor Density (air=1):	Not available
Vapour Pressure (kPa):	Not available

Autoignition Temp (°C):	Not available
Flash Point (°C):	Not applicable
Lower Explosive Limit (%):	Not applicable
Upper Explosive Limit (%):	Not applicable
Decomposition Temp (°C):	~680*
Viscosity:	Not applicable
Evaporation Rate:	Not applicable

*Loses water of crystallization: at 39°C forms zinc sulphate hexahydrate, at 70°C forms zinc sulphate monohydrate, at 240°C loses all water crystallization, forming zinc sulphate.

Section 10 - CHEMICAL STABILITY AND REACTIVITY

CHEMICAL STABILITY

Product is stable under normal conditions of use, storage and temperature.

CONDITIONS TO AVOID

Avoid excessive heat, direct sunlight, static discharges, moisture, and temperature extremes.

INCOMPATIBLE MATERIALS

Incompatible with strong oxidizing agents.

HAZARDOUS DECOMPOSITION

Thermal decomposition can lead to release of Zinc oxides and Sulphur oxides.

HAZARDOUS REACTIONS

Hazardous polymerization will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

ACUTE HEALTH EFFECTS

SWALLOWED

The material is highly discomforting to the gastro-intestinal tract and may be harmful if swallowed. This material may cause damage to kidneys and liver through prolonged or repeated exposure.

EYE

This material is corrosive to eyes and may cause permanent damage. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

May cause transient irritation. A solution of the material in moisture on the skin, or perspiration, may increase irritant effects. Open cuts, abraded or irritated skin should not be exposed to this material. The material may accentuate any pre-existing skin condition.

INHALED

The dust may be irritating to the upper respiratory tract. Symptoms include coughing, pain, and shortness of breath. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

Repeated inhalation exposure can lead to metal fume fever, including impairment of the respiratory tract. Chronic exposure to zinc by ingestion can lead to damage of the kidneys and liver. Long term exposure can affect the stomach and intestine, the respiratory system, and the pancreas. It can cause issues with the uptake of the trace element Copper in the diet.

TOXICITY AND IRRITATION DATA

TOXICITY

Acute Oral Toxicity, Rat, LD₅₀: 1000-2000 mg/kg

Acute Dermal Toxicity, Rabbit, LD₅₀: >2000 mg/kg (Zinc Sulphate)

Acute Inhalation Toxicity, LC₅₀: No data available.

IRRITATION/ CORROSION

Eyes: Serious eye damage. OECD test guideline 405.

Skin: Not irritating to skin. OECD test guideline 404.

Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

Mutagenic effects: Not available.

Reproductive or developmental effects: Not available.

Aspiration hazard: Not available.

Sensitisation (respiratory/contact): Not available.

Specific target organ toxicity: Harmful to the blood and hematopoietic system.

Section 12 - ECOLOGICAL INFORMATION

ECOTOXICITY

Very toxic in the aquatic environment with long lasting effects and harmful to terrestrial vertebrates.

ECOTOXICITY DATA

Fish, (*Cottus bairdii*), 96h LC₅₀: 439µg Zn/L

Crustacean, (*Daphnia magna*), 48h EC₅₀: 1220 µg Zn/L

Algae, EC₅₀: No data available.

Chronic: Causes long term adverse effects in the aquatic environment.

Persistence and Degradability: Not rapidly degradable.

Mobility: Soluble in water.

Bioaccumulation: No data available.

BOD and COD: No data available.

Products of Biodegradation: No data available.

Toxicity of the Products of Biodegradation: No data available.

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal of Hazardous Substances is subject to the Resource Management Act and Council By-Laws in addition to HSNO requirements. Do not dispose with household rubbish.

PRODUCT

Recycle wherever possible. Special hazard may exist - specialist advice may be required.

Consult a Waste Management Company or authorized landfill for disposal options.

The product may be treated so that it is no longer hazardous by a means other than dilution. This includes incineration at an approved site, burial in a landfill or treatment at a sewage facility.

A class 9.1 substance that is or contains a component that is bioaccumulative and not rapidly degradable must be treated before discharge into the environment to reduce the percentage by volume of the substance in the discharge to 1% or any lesser percentage that may be set by the Authority after consideration of the ecotoxicity of the substance and the extent to which the substance is bioaccumulative.

PACKAGING

Recycle wherever possible. Special hazard may exist - specialist advice may be required.

Packaging should be rendered incapable of containing any material.

Puncture containers to prevent re-use and bury at an authorised landfill.

Empty containers may be decontaminated. The residual contents of the package must be diluted to below the thresholds for the respective hazard and the diluted residue is 1% or less of the volume of the package. Alternatively, consult an approved Waste Management company for disposal options or dispose of at an approved waste disposal facility.

Observe all label safeguards until containers are cleaned and destroyed.

Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Section 14 - TRANSPORT INFORMATION



UN Number:	3077
Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.
Technical name:	zinc sulphate heptahydrate
DG Class:	9
Subrisk:	n/a
Packing Group:	III
Label required:	MISCELLANEOUS, ENVIRONMENTALLY HAZARDOUS
Hazchem code:	ZZ
Marine Pollutant:	Yes
EMS Number:	F-A, S-F

Section 15 - REGULATORY INFORMATION

REGULATIONS

Classified as hazardous according to the criteria of the New Zealand Hazardous Substances and New Organisms Act.

This product has been assigned to the following Group Standard by Interchem Agencies Limited: Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020.

EPA Approval number: HSR002503.

When used as an animal health treatment product, the product has been assigned to:

Active Ingredients for Use in the Manufacture of Agricultural Compounds Group Standard 2020

EPA Approval number: HSR100756

Certified handler, tracking and location compliance certification regulations do not apply.

For full HSNO controls and Health and Safety at Work regulations for this substance refer to the New Zealand EPA's Approved Hazardous Substances with Controls website.

Zinc Sulphate Heptahydrate (CAS 7446-20-0) is found on the following inventories:

NZIoC, AIIC, TSCA, DSL, EINECS

Section 16 - OTHER INFORMATION

NEW ZEALAND POISON CENTRE 0800 POISON (0800 764 766)

NZ EMERGENCY SERVICES: 111

Interpretation and Abbreviations

ACGIH - American Conference of Governmental Industrial Hygienists.

ACVM - Agricultural Chemicals and Veterinary Medicines.

AIIC - Australian Inventory of Industrial Chemicals.

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AOX - Absorbable organic halogens.
APF - Assigned Protection Factor.
BOD - Biochemical Oxygen Demand.
China IECSC - Inventory of Existing Chemical Substances Produced or Imported in China.
COD - Chemical Oxygen Demand.
DSL - Canadian Domestic Substances List.
EINECS - European Inventory of Existing Commercial Chemical Substances.
ENCS - Japanese Existing and New Chemical substances.
ERPG - Emergency Response Planning Guidelines.
GHS - Globally Harmonized System of Classification and Labelling of Chemicals.
IARC - International Agency for Research on Cancer.
ISHL - Japanese Industrial Safety and Health Law List of Chemicals.
Koc - soil organic carbon-water partition coefficient
Kow - octanol/water partition coefficient
LOEL - Lowest Observed Effect Level.
LD_{Lo} - Lethal Dose Low (the lowest dosage per unit of bodyweight of a substance known to have resulted in fatality in a particular animal species).
NOAA - National Oceanic and Atmospheric Administration.
NOEC - No Observed Effect Concentration.
NTP - National Toxicology Program.
NZ CCID - New Zealand Chemical Classification and Information Database.
NZIoC - New Zealand Inventory of Chemicals.
OECD HPV - The Organisation for Economic Co-operation and Development High Production Volume Chemicals.
PEL - Permissible exposure limit.
PPE - Personal Protective Equipment.
Prop 65 - California Proposition 65 List of Chemicals.
RTECS - Registry of Toxic Effects of Chemical substances.
SCAPA - Subcommittee on Consequence Assessment and Protective Actions.
STEL - Short term exposure limit.
TOC - Total Organic Carbon.
TSCA - US Toxic Substances Control Act Existing Chemicals.
TWA - The time-weighted average airborne concentration over an eight-hour working day, for a five-day working week over an entire working life.
VOC - Volatile Organic Compounds.

Sources of key data used to compile the datasheet:

Manufacturers SDS
NZ EPA CCID
GESTIS Substance database
NICNAS review of Zinc Sulphate
IPCS info card
SIDS initial assessment report
European Risk Assessment Report volume 46

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Date of Preparation/Review: 2022.02.01

Amendments: 5 yearly review. Updated approval to applicable group standards.

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End of SDS