

1. IDENTIFICATION

Product Name	Zinc sulphate, heptahydrate
Other Names	No Data Available
Uses	Fertiliser additive and animal health product.
Chemical Family	No Data Available
Chemical Formula	ZnSO ₄ .7H ₂ O
Chemical Name	Sulfuric acid, zinc salt (1:1), heptahydrate
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Suite 13A.03, Menara Summit Persiaran Kewajipan USJ1 47600 UEP Subang Jaya Selangor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Australia – Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
National Poison Centre	Malaysia	+60-4-6536-999
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION**Poisons Schedule (Aust)**

Schedule 6

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Acute Toxicity (Oral) - Category 4
 Serious Eye Damage/Irritation - Category 1
 Acute Hazard To The Aquatic Environment - Category 1
 Long-term Hazard To The Aquatic Environment - Category 1



Signal Word Danger

Hazard Statements

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements	Prevention	P280	Wear eye protection/face protection.
		P273	Avoid release to the environment.
		P270	Do not eat, drink or smoke when using this product.
		P264	Wash hands thoroughly after handling.
		Response	P305 + P351 + P338 + P310
P391	Collect spillage.		
P330	Rinse mouth.		
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.		
	Disposal	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Zinc sulphate, heptahydrate	ZnSO ₄ .7H ₂ O	7446-20-0	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do NOT induce vomiting. For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue flushing until advised to stop by a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor, or for at least 15 minutes.
Skin	IF ON SKIN (or hair): Remove and isolate contaminated clothing and shoes. Immediately flush skin and hair with running water (and soap, if available) for at least 15 minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. *Most important symptoms and effects, both acute and delayed: Harmful if swallowed. Causes serious eye damage.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	Move containers from fire area if you can do it without risk. Cool containers with water spray until well after fire is out. Dike fire-control water for later disposal.
Flammability Conditions	Non-combustible material.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), water spray or foam for extinction.
Fire and Explosion Hazard	Decomposes on heating, emitting toxic fumes.
Hazardous Products of Combustion	Fire may produce irritating and/or toxic gases, including oxides of Sulfur, Zinc oxides.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may cause pollution. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

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General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material - Slippery when spilt. Avoid accidents, clean up immediately! Avoid generating dust. Avoid breathing dusts or mists and contact with eyes, skin and clothing.
Clean Up Procedures	Carefully shovel or sweep up spilled material and place in suitable container.
Containment	Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas.
Decontamination	No information available.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses. If contamination of sewers or waterways has occurred advise local emergency services.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised & unprotected personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid generating dust. Avoid breathing dusts or mists and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid release to the environment - Collect spillage (see SECTION 6).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep containers closed when not in use - check regularly for spills. Protect from moisture (hygroscopic). Store away from foodstuffs and incompatible materials (see SECTION 10).
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards: - Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m ³ (measured as inhalable dust). - New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m ³ ; TWA = 3 mg/m ³ (respirable dust).
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	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.
Personal Protection Equipment	- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical goggles. - Hand protection: Handle with gloves. Recommended: Impervious gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline powder or granules
Odour	Odourless

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Colour	White
pH	4 - 6 (50 g/L @ 20 °C)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	>500 °C (Decomposes)
Melting Point	100 °C
Freezing Point	No Data Available
Solubility	Soluble in water
Specific Gravity	1.96 - 1.97
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible material.
Reactions That Release Gases or Vapours	Decomposes on heating, emitting toxic fumes, including oxides of Sulfur, Zinc oxides.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	No information available.
Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Avoid generating dust. Protect from moisture (hygroscopic).

Materials to Avoid	Incompatible/reactive with acids, strong reducing agents.
Hazardous Decomposition Products	Decomposes on heating, emitting toxic fumes, including oxides of Sulfur, Zinc oxides.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<p>Information on toxicological effects:</p> <ul style="list-style-type: none"> - Acute toxicity: Harmful if swallowed. - Skin corrosion/irritation: Zinc sulfate (CAS No. 7733-02-0) produced no skin irritation in studies that were performed in accordance with OECD TG 404. - Eye damage/irritation: Causes serious eye damage. - Respiratory/skin sensitisation: Zinc sulfate heptahydrate is not a skin sensitiser. - Germ cell mutagenicity: Soluble zinc salts are not mutagenic to germ cells. - Carcinogenicity: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP. - Reproductive toxicity: Studies in rats provide evidence that high doses of zinc adversely affect spermatogenesis in males and impair fertility in females. The very high concentrations of zinc compounds (equivalent to ≥ 1000 mg/kg bw zinc sulfate heptahydrate), required to produce these adverse effects do not satisfy the criteria for classification. - STOT (single exposure): No information available. - STOT (repeated exposure): Zinc sulfate heptahydrate is not considered to cause serious damage to health from repeated exposure. - Aspiration toxicity: No information available. <p>Information on likely routes of exposure:</p> <ul style="list-style-type: none"> - Ingestion: Harmful if swallowed. Swallowing can result in nausea, vomiting, diarrhoea, and gastrointestinal irritation. - Eye contact: Causes serious eye damage. Contamination of eyes can result in permanent injury. - Skin contact: Contact with skin may result in irritation. - Inhalation: Breathing in dust may result in respiratory irritation. <p>Chronic effects: No information available.</p>
Acute	
Ingestion	<p>Acute toxicity (Oral):</p> <ul style="list-style-type: none"> - LD50, Rat: 1,260 mg/kg
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	No information available.
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Very toxic to aquatic life with long lasting effects - Avoid release to the environment.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations.
Special Precautions for Land Fill	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	Zinc sulphate, heptahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	AU01
Comments	Not regulated as DG when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate, heptahydrate)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate, heptahydrate)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III
Special Provision	No Data Available

Land Transport (Timor-Leste)

Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate, heptahydrate)
Class	9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s)	No Data Available
EPG	47 Low To Moderate Hazard Substances
UN Number	3077
Hazchem	2Z
Pack Group	III

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Special Provision No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate, heptahydrate)
Class 9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s) No Data Available
ERG 171 Substances (Low to Moderate Hazard)
UN Number 3077
Hazchem 2Z
Pack Group III
Special Provision No Data Available

Sea Transport

IMDG Code

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate, heptahydrate)
Class 9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s) No Data Available
UN Number 3077
Hazchem 2Z
Pack Group III
Special Provision No Data Available
EMS F-A, S-F
Marine Pollutant Yes

Air Transport

IATA DGR

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulphate, heptahydrate)
Class 9 Miscellaneous Dangerous Goods and Articles
Subsidiary Risk(s) No Data Available
UN Number 3077
Hazchem 2Z
Pack Group III
Special Provision No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information ZINC SULFATE
Poisons Schedule (Aust) Schedule 6

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Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR002503 - Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020

National/Regional Inventories

Australia (AIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Listed
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (List of Classified Substances)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Listed
Taiwan (TCSI)	Listed
USA (TSCA)	Not Determined
Mexico (INSQ)	Not Determined

16. OTHER INFORMATION

Related Product Codes

ZISULF1001, ZISULF1005, ZISULF2150, ZISULF2155, ZISULP0300, ZISULP0301, ZISULP0600, ZISULP0601, ZISULP0602, ZISULP0603, ZISULP0604, ZISULP0605, ZISULP0701, ZISULP0702, ZISULP0703, ZISULP0704, ZISULP0800, ZISULP1051, ZISULP1052, ZISULP1500, ZISULP1501, ZISULP1502, ZISULP1503, ZISULP1504, ZISULP1505, ZISULP1506, ZISULP1507, ZISULP1508, ZISULP1509, ZISULP1510, ZISULP1511, ZISULP1700, ZISULP1701, ZISULP1702, ZISULP1750, ZISULP1802, ZISULP1820, ZISULP1821, ZISULP1822, ZISULP1823, ZISULP1825, ZISULP1900, ZISULP2000, ZISULP2001, ZISULP2002, ZISULP2003, ZISULP2004, ZISULP2005, ZISULP2006, ZISULP2007, ZISULP2008, ZISULP2009, ZISULP2010, ZISULP2011, ZISULP2012, ZISULP2013, ZISULP2014, ZISULP2015, ZISULP2016, ZISULP2017, ZISULP2018, ZISULP2019, ZISULP2020, ZISULP2021, ZISULP2022, ZISULP2023, ZISULP2024, ZISULP2025, ZISULP2026, ZISULP2027, ZISULP2028, ZISULP2029, ZISULP2030, ZISULP2031, ZISULP2032, ZISULP2033, ZISULP2034, ZISULP2035, ZISULP2053, ZISULP2100, ZISULP2101, ZISULP2102, ZISULP2103, ZISULP2110, ZISULP2120, ZISULP2200, ZISULP2201, ZISULP2202, ZISULP2203, ZISULP2204, ZISULP2205, ZISULP2206, ZISULP2300, ZISULP2301, ZISULP2302, ZISULP2303, ZISULP2304, ZISULP2305, ZISULP2306, ZISULP2400, ZISULP2600, ZISULP2601, ZISULP2900, ZISULP3100, ZISULP3101, ZISULP3300, ZISULP3301, ZISULP3302, ZISULP3303, ZISULP3400, ZISULP3700, ZISULP3701, ZISULP4400, ZISULP4401, ZISULP4402, ZISULP4500, ZISULP4501, ZISULP4502, ZISULP4503, ZISULP4600, ZISULP4601, ZISULP4602, ZISULP4800, ZISULP4801, ZISULP5201, ZISULP5500, ZISULP5501, ZISULP5800, ZISULP6000, ZISULP6001, ZISULP6002, ZISULP6003, ZISULP6004, ZISULP6005, ZISULP6006, ZISULP6007, ZISULP6010, ZISULP6011, ZISULP6012, ZISULP6015, ZISULP6020, ZISULP6400, ZISULP6600, ZISULP6601, ZISULP6602, ZISULP6620, ZISULP6800, ZISULP6801, ZISULP6810, ZISULP7000, ZISULP7001, ZISULP7002, ZISULP7003, ZISULP7004, ZISULP7005, ZISULP7006, ZISULP7010, ZISULP7015, ZISULP7050, ZISULP7060, ZISULP7080, ZISULP7085, ZISULP7090, ZISULP7095, ZISULP7200, ZISULP7201, ZISULP7202, ZISULP8800, ZISULP8801, ZISULP8802, ZISULP8810, ZISULP8820, ZISULP8821, ZISULP8830, ZISULP9000, ZISULP9001, ZISULP9002, ZISULP9100, ZISULP9200, ZISULP9201, ZISULP9300, ZISULP9301, ZISULP9400, ZISULP9401, ZISULP9600, ZISULP9601,

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ZISULP9602, ZISULP9603, ZISULP9604, ZISULP9700, ZISULP9800, ZISULP9801, ZISULP9802, ZISULP9803, ZISULP9960

Revision

5

Revision Date

28 Sep 2022

Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO₂ Carbon Dioxide

COD Chemical Oxygen Demand

deg C (°C) Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Fahrenheit

g Grams

g/cm³ Grams per Cubic Centimetre

g/l Grams per Litre

HSNO Hazardous Substance and New Organism

IDLH Immediately Dangerous to Life and Health

immiscible Liquids are insoluble in each other.

inHg Inch of Mercury

inH₂O Inch of Water

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

lb Pound

LC₅₀ LC stands for lethal concentration. LC₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD₅₀ LD stands for Lethal Dose. LD₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight

