

Safety Data Sheet **SULFUR**

SDS no. XD9YEGVH • Version 1.0 • Date of issue: 2024-08-14

SECTION 1: Identification

GHS Product identifier

Product name SULFUR

Other means of identification

Product Product Code

SULFUR Roll ST053

Brimstone

Flowers of sulfur

SULFUR LR SL006

Recommended use of the chemical and restrictions on use

Sulfuric acid manufacture, paper and pulp manufacture, carbon disulfide, rubber vulcanization, detergents, petroleum refining, dyes and chemicals, drugs and pharmaceuticals, explosives, insecticides, rodent repellents, soil conditioner, fungicide, coating for controlled-release fertilisers, nucleating agent for photographic film, cement sealant, binder and asphalt extender in road paving, base material for low-temperature mortars, and laboratory reagent.

Additional information: Sulfur is not subject to the provisions of the Australian Dangerous Goods Code entry Sulfur UN 1350 when it has been formed to a specific shape (e.g. prills, granules, pellets, pastilles or flakes). Sulfur is not subject to the provisions of the International Maritime Dangerous Goods Code entry Sulfur UN 1350 when it has been formed to a specific shape (e.g. prills, granules, pellets, pastilles or flakes).

Supplier's details

Name ChemSupply Australia Pty Ltd

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Australia

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Emergency phone number

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

SECTION 2: Hazard identification

Classification of the substance or mixture

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GHS classification in accordance with: UN GHS revision 7

- Skin corrosion/irritation, Cat. 2
- Flammable solids, Cat. 2

GHS label elements, including precautionary statements

Pictograms



Signal word

Warning

Hazard statement(s)

H228
H315

Flammable solid
Causes skin irritation

Precautionary statement(s)

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
No smoking.

P240

Ground and bond container and receiving equipment.

P241

Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P264

Wash hands thoroughly after handling.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352

IF ON SKIN: Wash with plenty of water/soap

P332+P313

If skin irritation occurs: Get medical advice/attention.

P362+P364

Take off contaminated clothing and wash it before reuse.

P370+P378

In case of fire: Use agents recommended in Section 5 of SDS for extinction

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 32.06

Components

Component	CAS no.	Concentration
Sulfur (EC no.: 231-722-6; Index no.: 016-094-00-1)	7704-34-9	100 % (weight)
CLASSIFICATIONS: Skin corrosion/irritation, Cat. 2. HAZARDS: H315 - Causes skin irritation.		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice

For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor (at once).

If inhaled

If 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.

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In case of skin contact	Wash with plenty of soap and water. Remove contaminated clothing and wash before re-use. If rapid recovery does not occur, 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. If rapid recovery does not occur, obtain medical attention
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

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 fire is out.

Specific hazards arising from the chemical

Hazards from Combustion Products: Librates toxic fumes in fire (sulfur oxides, hydrogen sulfide gas).

May be ignited by friction, heat, sparks or flame. Vapours, dust, borings or turnings may form combustible mixtures with air. May burn fiercely. May re-ignite after fire is extinguished. Fire may produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Runoff may pollute waterways. May be transported in a molten form. Solids may melt and flow when heated or involved in a fire.

Special protective actions for fire-fighters

Wear SCBA and chemical splash suit. Structural firefighter's uniform may provide limited protection.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

Wear protective clothing specified for normal operations (see Section 8)

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks or flames) within at least 15m. Do not touch or walk through spilled material.

Prevent entry into waterways, drains or confined areas. Obtain expert advice on use of water as spilled material may be water-reactive.

Prevent dust cloud. Use clean non-sparking tools to collect absorbed material and place it into loosely-covered metal or plastic containers for later disposal. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

SECTION 7: Handling and storage

Precautions for safe handling

Avoid generation or accumulation of dusts. Avoid prolonged or repeated contact with skin, eyes and clothing . Take precautionary measures against static discharges. Use in well ventilated areas away from all ignition sources. In case of insufficient ventilation, wear suitable respiratory equipment.

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Conditions for safe storage, including any incompatibilities

Store away from sources of heat or ignition. Store away from combustible materials. Store in well ventilated area. Store in a cool dry place out of direct sunlight. Avoid contact with incompatible materials that support combustion such as strong oxidising agents. Keep containers securely sealed and protected against physical damage.

A bulk cargo of sulfur has a liability to dust discharge during cleaning. Explosion may be avoided by preventing the atmosphere becoming dust-laden by adequate ventilation or by hosing-down instead of sweeping.

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

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.

Body protection

Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection

Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Solid
Appearance	Yellow powder, granules, flakes, discs, pastilles or roll.
Color	No data available.
Odor	Pure sulfur is odorless, but traces of hydrocarbon impurity may impart an oily and/or rotten egg odor.
Odor threshold	No data available.
Melting point/freezing point	113-119 °C
Boiling point or initial boiling point and boiling range	444 - 445 °C
Flammability	Flammable solid category 2.
Lower and upper explosion limit/flammability limit	Explosion Limit - Upper: 40 % vol Explosion Limit - Lower: 1 % vol
Flash point	160°C closed cup.
Explosive properties	Sulfur is a poor conductor of electricity causing charges of static electricity to build up during transport or processing.

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Auto-ignition temperature
Decomposition temperature
Oxidizing properties
pH
Kinematic viscosity
Solubility

Static discharge may lead to ignition of sulfur dust. ; Sulfur may cause an explosion upon contact with ammonia, ammonia nitrate, ammonium perchlorate, tetraphenyllead, stannic iodide with sodium, sodium, phosphorus, iodine pentaoxide, potassium perchlorate. Combination of finely divided sulfur and finely divided bromates (also chlorates or iodates) of barium, calcium, magnesium, potassium, sodium or zinc will explode with heat, percussion and sometimes, light friction.

235 °C

No data available.

No data available.

No data available.

No data available.

Solubility in Water: Insoluble. Solubility in Organic Solvents: Soluble in toluene, carbon disulfide, carbon tetrachloride and benzene. Slightly soluble in acetone, ether, alcohol.

No data available.

< 0.01 hPa (20 °C)

No data available.

Specific Gravity: 1.96 - 2.07

8.9

No data available.

Partition coefficient n-octanol/water (log value)

Vapor pressure

Evaporation rate

Density and/or relative density

Relative vapor density

Particle characteristics

Supplemental information regarding physical hazard classes

No data available.

Further safety characteristics (supplemental)

Other Information: Refractive index: 2.038

SECTION 10: Stability and reactivity

Reactivity

Stable under normal conditions of storage and handling.

Chemical stability

Stable under normal use conditions.

Possibility of hazardous reactions

Risk of dust explosion.

Can react violently with halogens, carbides, halogenates, halogenites, zinc, uranium, tin, sodium, lithium, nickel, palladium, gadolinium, phosphorus, potassium, indium, calcium, boron, aluminium, ammonia, ammonium nitrate, ammonium perchlorate, chlorine dioxide, potassium permanganate, silver nitrate, silver oxide and sodium hydride.

Forms explosive and sensitive mixtures with most oxidising substances such as chlorates, nitrates, perchlorates or permanganates.

[22] Hazardous Polymerization: Will not occur.

[3V] Other Information: Transitions temperature, between alpha and beta crystalline forms, is ~ 95 °C. The conversion is slow.

Conditions to avoid

Exposure to moisture. Heat, flames, ignition sources and incompatibles.

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Incompatible materials

Alkali metals, alkaline earth metals, metals, metallic oxides, non metals, nonmetallic oxides, fluorine, halogen-halogen compounds, oxidizing agents, peroxi compounds, nitrites, hydrides, nitrides, carbides, sulfides, lithium silicide, silicon compounds, carbon disulfide, ethers, acetylidene, organic nitro compounds; with mineral acids and oxidizing agent (formed could be: sulfuric acid); violent reactions possible with: chlorates, nitrates, perchlorates and permanganates.

Hazardous decomposition products

Sulfur oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Ingestion: May be harmful if ingestion. May cause gastrointestinal tract irritation with symptoms including nausea, vomiting and diarrhea. Poorly absorbed. Ingestion of large amounts may cause sore throat, headache, nausea and possible unconsciousness in severe cases. May be converted to toxic hydrogen sulfide in the intestines. Excessive amounts that are ingested may affect the central nervous system, behaviour and kidneys.

Inhalation: May be harmful if inhaled. Inhalation of dusts causes irritation to the mucous membranes and upper respiratory tract. Inhalation of sulfur causes irritation to the mucous membranes of the respiratory tract (nose, throat and lungs), causing coughing, sneezing, wheezing and laboured breathing. Inflammation of the respiratory tract may result in bronchitis, pulmonary edema, pneumonia, asthma. However, this reaction is potentially reversible and leaves no scar tissue.

Skin corrosion/irritation

May cause irritation, rash and dermatitis.

Serious eye damage/irritation

Contact causes irritation to the eyes. Symptoms include of tearing, redness, pain, burning, scratchy discomfort and blurred vision. Prolonged or repeated exposure may lead to possible eye damage.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

Summary of evaluation of the CMR properties

No data available.

Specific target organ toxicity (STOT) - single exposure

No data available.

Specific target organ toxicity (STOT) - repeated exposure

No data available.

Aspiration hazard

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No data available.

Additional information

Chronic Effects: Chronic exposure may lead to irritation of mucous membranes, chronic bronchitis, emphysema and bronchial asthma.
May cause possible skin sensitization and permanent eye damage (clouding of lens and chronic irritation).

SECTION 12: Ecological information

Toxicity

Acute Toxicity - Fish: LC50 (Br. rerio): 866 mg/l/96 h.

Acute Toxicity - Daphnia: EC50 (Daphnia magna): > 10000 mg/l/24 h.

Acute Toxicity - Bacteria: EC50 (activated sludge): 1900 mg/l/3 h.

Acute Toxicity - Other Organisms: EC50 (Protozoa, Tetrahymen pyriformis): 0.16 mg/l/24 h.

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: 1350

Class: 4.1

Packing Group: III

Proper Shipping Name: SULFUR

Hazchem emergency action code (EAC)

1[Z]

IMDG

UN Number: 1350

Class: 4.1

Packing Group: III

EMS Number:

Proper Shipping Name: SULFUR

IATA

UN Number: 1350

Class: 4.1

Packing Group: III

Proper Shipping Name: SULFUR

SECTION 15: Regulatory information

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

Australia SUSMP

Poison Schedule: NS

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.

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia

National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th, Ed.'

Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.

Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.

Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants, December 2019

Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au

IATA, Dangerous Goods Regulations (DGR)

IMO, International Maritime Dangerous Goods Code (IMDG)