

Safety Data Sheet SODIUM SULFIDE

SDS no. BF9GRMT1 • Version 1.0 • Date of issue: 2023-05-21

SECTION 1: Identification

GHS Product identifier

Product name SODIUM SULFIDE

Recommended use of the chemical and restrictions on use

Used in the manufacture of organic chemicals, dyes (sulfur), intermediates, viscose rayon (sulfur removal), leather (depilatory), paper pulp, rubber, heavy water for nuclear reactors, cellophane film, analytical reagent, laboratory reagent, reducing agent (nitro compounds), complexing agents, cosmetics, pharmaceuticals, photographic reagent, flotation agent in ore treatment, hydrometallurgy of gold ores, sulfiding oxidised lead and copper ores preparatory to flotation, sheep dips, engraving, lithography and cotton printing.

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

- Serious eye damage/eye irritation, Cat. 1
- Skin corrosion/irritation, Cat. 1B
- Acute toxicity, dermal, Cat. 4
- Acute toxicity, oral, Cat. 3

GHS label elements, including precautionary statements

Pictograms



Signal word

Danger

Hazard statement(s)

AUH031
H301
H312
H314

Contact with acids liberates toxic gas
Toxic if swallowed
Harmful in contact with skin
Causes severe skin burns and eye damage

Precautionary statement(s)

P260
P280
P301+P310
P301+P330+P331
P303+P361+P353

P304+P340
P305+P351+P338

P310
P362+P364
P501

Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/physician
Take off contaminated clothing and wash it before reuse.
Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 240.187804

Components

Component	Concentration
SODIUM SULPHIDE (CAS no.: 1313-82-2; EC no.: 215-211-5; Index no.: 016-009-00-8)	32 - 62 % (weight)
CLASSIFICATIONS: Acute toxicity, dermal, Cat. 3; Acute toxicity, oral, Cat. 4; Skin corrosion/irritation, Cat. 1B; Hazardous to the aquatic environment, short-term (acute), Cat. 1. HAZARDS: H302 - Harmful if swallowed; H311 - Toxic in contact with skin; H314 - Causes severe skin burns and eye damage; H400 - Very toxic to aquatic life.	
Water (CAS no.: 7732-18-5; EC no.: 231-791-2)	38 - 68 % (weight)
CLASSIFICATIONS: No data available. HAZARDS: No data available.	

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice

First Aid Facilities: An eye wash fountain, safety shower and a general washing facility should be available adjacent to the work area.

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, avoid becoming a casualty. Make patient comfortable, keep warm and at rest until fully recovered. If breathing is difficult (or develops a bluish skin discolouration), supply oxygen by a

qualified person. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Immediately medical attention is required.

In case of skin contact	Immediately remove contaminated clothing and wash affected area with water for at least 15 minutes. Ensure contaminated clothing is washed before re-use. Seek immediate medical advice /attention depending on the severity.
In case of eye contact	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek immediate medical assistance.
If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.
Personal protective equipment for first-aid responders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

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 in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media

Specific Methods: Small fire: Use dry chemical, dry sand or alcohol foam. If safe to do so, move undamaged containers from fire area. Large fire: Use alcohol foam or powder - Do not use water jets. Fight fire from protected position or use unmanned hose holders or monitor nozzles.

Specific hazards arising from the chemical

Irritating, corrosive and highly toxic fumes and gases, including sulfur dioxide and other sulfur oxides (SO₂, SO₃ etc.), hydrogen sulfide gas, and sodium/sodium oxides.

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

Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

Methods and materials for containment and cleaning up

Do NOT touch or walk through this product. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas. Prevent dust cloud. Use clean non-sparking tools to collect material and place it into plastic containers for later disposal.

SECTION 7: Handling and storage

Precautions for safe handling

Avoid ingestion and inhalation of vapours or dusts. Avoid contact with skin and eyes, or clothing. Avoid prolonged or repeated exposure. Minimize dust generation and accumulation. Keep containers tightly closed when not in use. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Wash thoroughly after handling. Ensure a high level of personal hygiene is maintained when using this product. That is; always wash hands before eating, drinking, smoking or using the toilet. Do not eat, drink, or smoke during work. Wear appropriate protective equipment. Do not handle broken packages unless wearing appropriate personal protective equipment. Keep away from incompatibles such as acids, oxidants. Keep away from heat and all sources of ignition.

Conditions for safe storage, including any incompatibilities

Store in corrosives area. Store in tightly closed, labelled containers, in a cool, dry, well-ventilated area away from incompatible substances. Isolate from acids, alkalis, oxidising materials, metals, water, and carbon dioxide. Light and moisture sensitive. Keep away from extremes of temperature, heat and all sources of ignition.

Corrosive to zinc, aluminium, copper and steel.

Keep refrigerated 2 - 8°C.

Recommended Materials: Plastic, glass, stoneware and porcelain containers.

Unsuitable Materials: Aluminium, copper, zinc and steel containers.

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.

Hand Protection: Normally not required but if in doubt ensure hand protection should comply 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

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Basic physical and chemical properties

Physical state	Solid
Appearance	Colourless, white, yellow, yellow-pink, pink, or brick-red, granular lumps, flakes, deliquescent, crystalline solid, or cubic, or amorphous crystals. Discolours upon exposure to air.
Color	No data available.
Odor	Characteristic, repulsive, rotten egg, sulfide odour.
Odor threshold	H ₂ S: Range of acceptable values: 0.001-0.13 ppm (detection). Geometric mean air odour thresholds: 0.0094 ppm (detection); 0.0045 ppm (recognition). Loss of ability to smell H ₂ S begins at 50 ppm; exposures above 100 ppm may rapidly (2-15 minutes) deade
Melting point/freezing point	90 °C.
Boiling point or initial boiling point and boiling range	>160 °C (anhydrous)
Flammability	Not combustible material. Decomposes under the influence of moisture, water and acids, forming toxic and flammable gas (hydrogen sulfide).
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.
Explosive properties	Not explosive. Sodium sulfide dust particles can form an explosive mixture with air. Contact with acids gives off hydrogen sulfide, a toxic and flammable gas that may form explosive mixtures in air. Sealed containers may rupture when heated.
Auto-ignition temperature	>480 °C (anhydrous; the hydrated product does not show auto flammability).
Decomposition temperature	920-950 °C (anhydrous; in air; melting point).
Oxidizing properties	No data available.
pH	13 (100 g/l H ₂ O, 20 °C) (aqueous solutions are strongly alkaline).
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Very soluble (450 g/l (20 °C)). Solubility in Organic Solvents: Slightly soluble in alcohol; insoluble in ether, n-octanol.
Partition coefficient n-octanol/water (log value)	log Pow: -3.5 (anhydrous)
Vapor pressure	No data available.
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 1.43
Relative vapor density	No data available.

Particle characteristics

No data available.

Supplemental information regarding physical hazard classes

No data available.

Further safety characteristics (supplemental)

No data available.

SECTION 10: Stability and reactivity

Reactivity

Stable under normal conditions of storage and handling. Hygroscopic: absorbs moisture or water from the air. Light-sensitive, sensitive to air (discolouration)

Chemical stability

Stable under normal conditions of storage and handling. Hygroscopic: absorbs moisture or water from the air. Light-sensitive, sensitive to air (discolouration).

Possibility of hazardous reactions

Reacts violently with acids to liberate toxic and corrosive hydrogen sulfide gas, which increases fire hazard, and producing corrosive solutions. Reacts violently with oxidants. Reacts violently with carbon; diazonium salts; n,n-dichloromethylamine; 0-nitroaniline diazonium salt; water (anhydrous substance).

Conditions to avoid

Exposure to light, air, or water may affect product quality. Heating, flames, static discharge, high temperatures, humidity and incompatible materials.

Incompatible materials

Aluminium, copper, zinc, and their alloys, acids (formation of hydrogen sulfide), strong oxidising agents, carbon, and diazonium salts.

Hazardous decomposition products

Toxic and corrosive fumes and gases of sulfur oxides (SO₂, SO₃ etc.), hydrogen sulfide gas (H₂S) (toxic, corrosive and flammable) (upon reaction with acids), sodium/sodium oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute Toxicity - Oral: LD₅₀ (rat): 208 mg/kg (anhydrous substance)

Ingestion: Corrosive. Harmful if swallowed. Sodium sulfide is a strong base and ingestion may produce burns to the lips, tongue, oral mucosa, oropharynx, upper airway, oesophagus and occasionally stomach, with severe and permanent tissue damage and severe pain. Burns of the oesophagus and less commonly the stomach may occur after caustic ingestion; the absence of oral mucosal injury does NOT reliably exclude oesophageal burns. The presence of stridor, drooling, vomiting, and/or abdominal pain are associated with serious oesophageal injury in most cases. In severe cases gastrointestinal bleeding or perforated viscus with mediastinitis or peritonitis may develop. Symptoms may include mucosal irritation, burning sensation, coughing, painful conjunctivitis, headache, nausea, spontaneous vomiting, diarrhoea, abdominal pain, dizziness, drowsiness, confusion, weakness, irregular breathing, CNS disorders (shock, narcosis), unconsciousness, collapse and cyanosis. Hypotension and tachycardia are uncommon but may occur with severe gastrointestinal bleeding or extensive gastrointestinal necrosis after ingestion. Metabolic acidosis may develop in patients with severe burns or shock. Damage to oesophagus and stomach may be fatal. In extreme cases, pulmonary oedema and death may result. If ingested, hydrolysis by stomach acids releases toxic hydrogen sulfide gas, which will have severe toxic effects. The symptoms and effects are similar to those under inhalation. Delayed sequelae of caustic ingestion include strictures of the mouth, oesophagus and stomach, obstruction, tracheoesophageal and aortoesophageal fistula formation, and oesophageal carcinoma.

Inhalation: Corrosive. A harmful concentration of airborne particles can be reached quickly when dispersed. Inhalation of dusts will result in respiratory irritation, which may be severe, and possible harmful corrosive effects including lesions of the nasal septum, chemical burns of the respiratory tract and emphysema. May cause systemic effects. Symptoms of exposure may include burning sensation, sore throat, coughing, wheezing, laryngitis, shortness of breath, laboured breathing, headache, nausea, vomiting, painful conjunctivitis, dizziness, drowsiness, stridor, confusion, weakness, heart palpitations, irregular breathing and unconsciousness. In extreme cases, inhalation of alkaline vapours may be fatal as a result of spasm, inflammation, oedema of the larynx and bronchi, respiratory failure, chemical pneumonitis and pulmonary oedema. Evolved hydrogen sulfide gas in low concentrations (50 ppm) can cause dryness and irritation of the nose and throat, runny nose, cough and shortness of breath. Higher concentrations (200 to 250 ppm) cause severe irritation as well as headache, nausea, vomiting and dizziness. Extremely high concentrations (500 ppm) rapidly cause unconsciousness and death. Severe exposures, which do not result in death, may cause long-term symptoms such as memory loss, paralysis of facial muscles or nerve damage.

Skin corrosion/irritation

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Corrosive. Contact with skin can produce serious caustic burns with painful inflammation, redness, itching, severe skin irritation, blisters and possible destruction of tissue. The substance can be absorbed and may be harmful if absorbed into the body through the skin.

Serious eye damage/irritation

Corrosive. Risk of blindness! Causes eye burns. Ocular exposure can produce severe conjunctival irritation and chemosis, corneal epithelial defects, limbal ischemia, irreversible eye injury, permanent visual loss and in severe cases perforation. Alkaline eye exposures produce distortion of cellular membranes, loss of corneal, conjunctival and lens epithelium and loss of endothelium of the cornea and blood vessels. Causes redness, severe pain, blurred vision, inflammation, irritation, stinging, tearing and severe deep burns. Evolved hydrogen sulfide gas can cause inflammation and irritation of the eyes at very low concentrations (sometimes less than 10 ppm).

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

Bacterian mutagenicity: Ames-Test: negative (anhydrous substance).

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

No data available.

Additional information

Highly toxic (50-100 ppm in air) hydrogen sulfide gas may accumulate in confined spaces due to the decomposition of sodium sulfide or from its reaction with acids.

Chronic Effects: Prolonged or repeated skin contact may cause defatting leading to dermatitis. Effects may be delayed. May cause cardiac disturbances. May cause central nervous system, respiratory system, effects. Prolonged exposure to hydrogen sulfide, H₂S, evolved when decomposed even by weak acids, may cause pulmonary oedema.

SECTION 12: Ecological information

Toxicity

Do not allow to enter waters, waste water, or soil!

Highly toxic for aquatic organisms. Toxic effect on fish and plankton. Endangers drinking-water supplies if allowed to enter soil or water. Harmful effect due to pH shift.

SECTION 13: Disposal considerations

Disposal methods

Product disposal

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

Other disposal recommendations

Other Information: Neutralize with a ferric chloride solution and add sodium carbonate prior to disposal.

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

SECTION 14: Transport information

ADG (Road and Rail)

UN Number: 1849

Class: 8

Packing Group: II

Proper Shipping Name: SODIUM SULFIDE, HYDRATED

Environmental Hazards: Highly toxic for aquatic organisms. Toxic effect on fish and plankton. Endangers drinking-water supplies if allowed to enter soil or water. Harmful effect due to pH shift.

Hazchem emergency action code (EAC)

2X

IMDG

UN Number: 1849

Class: 8

Packing Group: II

EMS Number:

Proper Shipping Name: SODIUM SULFIDE, HYDRATED

IATA

UN Number: 1849

Class: 8

Packing Group: II

Proper Shipping Name: SODIUM SULFIDE, HYDRATED

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.

Preparation information

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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)