

Material Safety Data Sheet

Sodium sulfide

Section 1 - Chemical Product Information

MSDS Name: Sodium sulfide

FORMULA: Na₂S

APPEARANCE: Dark red and yellow color crystal, flake form

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
27610-45-3	Sodium sulfide	60-63	unlisted
7732-18-5	Water of crystallization	37-40	231-791-2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow flakes.

Danger! Causes eye and skin burns. Causes digestive and respiratory tract burns. Harmful if swallowed. Decomposed even by weak acids, evolving hydrogen sulfide, H₂S, a flammable, poisonous gas with the odor of rotten eggs. Prolonged exposure may cause pulmonary edema. May cause cardiac disturbances. May cause central nervous system effects. Hygroscopic (absorbs moisture from the air). Very toxic to aquatic organisms.

Target Organs: Central nervous system, respiratory system, cardiovascular system, eyes, skin.

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Potential Health Effects

Eye: Causes eye burns. May cause irreversible eye injury. May cause blindness. May cause chemical conjunctivitis and corneal damage.

Skin: Harmful if absorbed through the skin. Causes skin burns.

Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause dizziness, drowsiness, confusion, weakness, irregular breathing, and unconsciousness. Contact with stomach acids can liberate toxic hydrogen sulfide gas.

Inhalation: Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause systemic effects.

Chronic: Effects may be delayed.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use foam, dry chemical, or carbon dioxide.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

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Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

Storage: Store in a cool, dry place. Do not store in direct sunlight. Store in a tightly closed container. Keep away from strong acids. Corrosives area. Keep refrigerated.

(Store below 4 癈/39 癈.) Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sodium sulfide hydrate	none listed	none listed	none listed

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Water of crystallization	none listed	none listed	none listed
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OSHA Vacated PELs: Sodium sulfide hydrate: No OSHA Vacated PELs are listed for this chemical. Water of crystallization: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Flakes

Appearance: yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point:Not available.

Decomposition Temperature:Not available.

Solubility: Soluble.

Specific Gravity/Density:Not available.

Molecular Formula:Na₂S.xH₂O

Molecular Weight:78.04

Section 10 - Stability and Reactivity

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Chemical Stability: Air sensitive. Sensitive to light. Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid: Incompatible materials, light, exposure to air, exposure to moist air or water.

Incompatibilities with Other Materials: Moisture, acids, carbon, oxidizing agents, diazonium salts, metals.

Hazardous Decomposition Products: Oxides of sulfur, hydrogen sulfide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 27610-45-3 unlisted.

CAS# 7732-18-5: ZC0110000

LD50/LC50:

Not available.

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

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Carcinogenicity:

CAS# 27610-45-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

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Ecotoxicity: Bacteria: Phytobacterium phosphoreum: EC50 = 4.29 mg/L; 15 minutes; Microtox test

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	SODIUM SULFIDE, HYDRATED	SODIUM SULFIDE HYDRATED
Hazard Class:	8	8
UN Number:	UN1849	UN1849
Packing Group:	II	II
Additional Info:		LOAD SEPARATE FROM ACIDS

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 27610-45-3 is not listed on the TSCA inventory. It is for research and development use only.

CAS# 7732-18-5 is listed on the TSCA inventory.

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Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 27610-45-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

C N

Risk Phrases:

R 31 Contact with acids liberates toxic gas.

R 34 Causes burns.

R 50 Very toxic to aquatic organisms.

Safety Phrases:

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S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 27610-45-3: No information available.

CAS# 7732-18-5: No information available.

Canada - DSL/NDSL

CAS# 7732-18-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B6, D1B, E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997

Revision #10 Date: 8/28/2007