

## Material Safety Data Sheet

### Sodium hydrosulfide solution (NaSH)

Revised 4-23-02  
1 of 8 pages

#### Section 1                      Chemical product and company identification

1.1 Product Name.....Sodium hydrosulfide solution  
Chemical family.....Inorganic salt solution  
Synonyms.....NaSH  
Formula.....NaSH

1.2 Manufacturer.....:

Information

1.3 Emergency Contact....801-972-4587 ext 0    *After Hours 801 972-1759*

#### Section 2                      Composition information ingredients

2.1 Chemical ingredients(% by wt.)  
Sodium hydrosulfide....CAS #:16721-80-5      20-45 %  
Water .....CAS #:7732-18-5      55-80 %

(see section 8 for exposure guidelines)

**Section 3 Hazards identification**

NFPA: Health - 3 Flammability - 2 Reactivity - 1

**EMERGENCY OVERVIEW**

**Warning:** Solution is highly alkaline

Contains hydrogen sulfide, a highly toxic gas.

Eye contact will cause marked eye irritation and possibly severe corneal damage.

Skin contact will result in irritation and possible corrosion of the skin.

Ingestion will irritate/burn mouth, throat and gastrointestinal tract. Contact with stomach acid will cause hydrogen sulfide vapors to be released.

Heating or acid will cause hydrogen sulfide gas to evolve.

**3.1 POTENTIAL HEALTH EFFECTS**

**EYE:** Contact with eyes will cause marked eye irritation and possibly severe corneal damage.

**SKIN:** Contact with the skin will cause skin irritation or burning sensation.  
Prolonged skin contact will result in corrosion of the skin.

**SKIN ABSORPTION:** Absorption is unlikely to occur.

**INGESTION:** Ingestion will result in severe burning and corrosion of the mouth, throat and the gastrointestinal tract. If ingested material contacts stomach acid, highly toxic hydrogen sulfide gas will be evolved.

**INHALATION:** Product solution and vapors contain highly toxic hydrogen sulfide gas. Exposure to this gas causes headaches, nausea, dizziness, and vomiting. Continued exposure can lead to loss of consciousness and death.

**CHRONIC EFFECTS/CARCINOGENICITY:** Not listed as carcinogen by NTP, IARC or OSHA.

**Section 4** FIRST AID MEASURES

- 4.1 EYES: Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure through flushing of the eye. Obtain immediate medical attention.
- 4.2 SKIN: Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain immediate medical attention.
- 4.3 INGESTION: DO NOT INDUCE VOMITING. If victim is conscious, immediately give 2 to 4 glasses of water. If vomiting does occur, repeat fluid administration. Obtain immediate medical attention.
- 4.4 INHALATION: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start Mouth-to-mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain immediate medical attention.

**Section 5** FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Flash point: Not flammable      Method used: N/A

5.2 FLAMMABLE LIMITS: Hydrogen sulfide LFL: 4%      UFL: 44%

5.3 EXTINGUISHING MEDIA: Water spray or foam or as appropriate for combustibles involved in fire.

5.4 FIRE & EXPLOSIVE HAZARDS: Solution is non-flammable. However if these solutions are exposed to heat or acids, hydrogen sulfide will be released and form explosive mixtures with air (see above).

Keep containers/storage vessels in fire area cooled with water spray. Heating may cause the release of hydrogen sulfide vapors.

5.5 FIRE FIGHTING EQUIPMENT: Because of the possible presence of toxic gases and the corrosive nature of the product, wear self-contained breathing apparatus, pressure demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

**Section 6**                      **ACCIDENTAL RELEASE MEASURES.**

**6.1 SMALL RELEASES:** Confine and absorb small releases on sand earth or other inert absorbent. Oxidize residual reactive sulfides with weak (3-5 %) hydrogen peroxide solution.

**6.2 LARGE RELEASE:** Wear proper protective equipment. Confine area to qualified personnel. Shut off release if safe to do so. Dike spill area to prevent runoff into sewers, drains (potential explosive mixtures of hydrogen sulfide in confined spaces) or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (see above).

Section 7 HANDLING AND STORAGE

7.1 HANDLING: Wear proper protective equipment ( see section 8). Avoid breathing product vapors. Avoid contact with skin and eyes. Use only in ventilated area. Dilute product only in enclosed containers. Wash thoroughly after handling.

7.2 STORAGE: Store in well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures [ 80 F (27 C)]. (See section 10.4 for materials of construction).

Section 8 EXPOSURE CONTROLS PERSONAL PROTECTION

8.1 RESPIRATORY PROTECTION: If working near open container or storage vessel opening or open tank, truck dome cover, wear self-contained breathing apparatus, pressure demand, MSHA/NIOSH (approved or equivalent).

8.2 SKIN PROTECTION: Neoprene rubber gloves, chemical suit and boots should be worn to prevent contact with the liquid. Wash contaminated clothing prior to reuse. Contaminated leather shoes cannot be cleaned and should be discarded.

8.3 EYE PROTECTION: Chemical goggles and full face shield. DO NOT WEAR CONTACT LENSES.

8.4 EXPOSURE GUIDELINES:

	OSHA		ACGIH	
	TWA	STEL	TLV	STEL
Hydrogen sulfide	20 ppm (ceiling)		10 ppm (ceiling)	

8.5 ENGINEERING CONTROLS: Use adequate exhaust ventilation to prevent inhalation of product vapors. Where feasible scrub process or storage vessel vapors with caustic solution. Maintain eyewash/safety shower in areas where chemical is handled.

**Section 9** PHYSICAL & CHEMICAL PROPERTIES

- 9.1 APPEARANCE: Yellow to dark green liquid.  
9.2 ODOR: Strong hydrogen sulfide (rotten egg) odor.  
9.3 BOILING POINT: 253 F (122.8 C) - 269 F (131.7 C)  
9.4 VAPOR PRESSURE: 17 mm Hg @ 68 F (20 c)  
9.5 VAPOR DENSITY: (Air = 10) 1.17  
9.6 SOLUBILITY IN WATER: COMPLETE  
9.7 SPECIFIC GRAVITY: 1.1 to 3.5 (9.0 to 11.0 lbs/gal)  
9.8 FREEZE POINT: 0 F (1.1 C) - 20%  
56 F (13.3 C) - 45 %  
9.9 PH: 10.4 to 13.0  
9.10 VOLATILE: Not applicable

**Section 10** STABILITY & REACTIVITY

- 10.1 STABILITY: This is a stable material.
- 10.2 HAZARDOUS POLYMERIZATION: Will not occur.
- 10.3 HAZARDOUS DECOMPOSITION PRODUCTS: Heating this product will evolve hydrogen sulfide. Fire conditions will also cause the production of sulfur dioxide. Hydrogen sulfide (4-44 %) may form flammable mixtures with air.
- 10.4 INCOMPATIBILITY: Acids will cause the release of highly toxic hydrogen sulfide. Sodium hydrosulfide solution is not compatible with copper, zinc, aluminum or their alloys (i.e. bronze, brass, galvanized metals ect.). Corrosive to steel above 150 F (65.5 C). These materials of construction should not be used in handling systems or storage containers for this product. ( See section 7.2 storage ).

**Section 11** TOXICOLOGICAL INFORMATION

- 11.1 ORAL: data not available.
- 11.2 DERMAL: Data not available.
- 11.3 INHALATION: INH-RAT LC<sub>50</sub>: 444 ppm (hydrogen sulfide).
- 11.4 CHRONIC/CARCINOGENICITY: No evidence available.

Section 11 TOXICOLOGICAL INFORMATION (cont.)

11.5 TERATOLOGY: Data not available.

11.6 REPRODUCTION: Data not available.

11.7 MUTAGENICITY: Data not available

Section 12 ECOLOGICAL INFORMATION

Static acute 96 hour - LC 50 for mosquito fish is 206 mg/L (T<sub>m</sub>-fresh water).

Section 13 DISPOSAL CONSIDERATIONS

If released to the environment for other than its intended purpose, this product contains Some reactive sulfides which may be in sufficient quantity to meet the definition of a D003 hazardous waste.

Section 14 TRANSPORT INFORMATION

- 14.1 DOT SHIPPING NAME: Sodium hydrosulfide, solution (Domestic only)  
Corrosive liquids, toxic, n.o.s. (International)
- 14.2 DOT HAZARD CLASS: 8
- 14.3 UN/NA NUMBER: NA2922 ( Domestic )  
UN2922 ( International )  
UN2949 ( over water )
- 14.4 PACKING GROUP: II
- 14.5 DOT PLACARD: Corrosive
- 14.6 DOT LABEL(S): Corrosive  
Toxic
- 14.7 IMO SHIPPING NAME: Sodium hydrosulfide solution.
- 14.8 RQ (REPORTABLE QUANTITY): 5,000 lbs (2268 Kg) 100% basis
- 14.9 RR STCC NUMBER: 28-123-33

**Section 15 REGULATORY INFORMATION**

- 15.1 OSHA: This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200
- 15.2 SARA TITLE III: (a) EHS ( Extremely Hazardous Substance) List: no  
 (b) Section 311/312 (tier I,II ) Categories:  
     Immediate (acute) yes  
     Fire yes  
     Sudden release no  
     Reactivity yes  
     Delayed (chronic) no  
 (c) Section 313 (Toxic Release Report-Form R) no  
 (d) TPQ ( Threshold Planning Quantity): no
- 15.3 CERCLA/SUPERFUND: RQ ( Reportable Quantity) 5,000 lbs
- 15.4 TSCA ( Toxic Substance Control Act ) Inventory list: yes
- 15.5 RCRA ( Resource Conservation and Recovery Act) Status: 2003  
 ( See section 13 ).
- 15.6 WHMIS ( Canada) Hazard classification: E,D1
- 15.7 DOT Hazardous Material: (See Section 14 ). Yes
- 15.8 CAA Hazardous Air Pollutant (HAP). No

**Section 16 OTHER INFORMATION**

The entire MSDS was reformatted to comply to ANSI Standard Z400.1-1993

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