

MATERIAL SAFETY DATA SHEET

SODIUM HYDROSULFIDE

EMERGENCY PHONE NUMBERS:

CHEMTREC: 1-800-424-9300 (for fire, spill and emergency response information)

CHEMTREC CUSTOMER NUMBER: CCN14937

GREAT FALLS POISON CONTROL CENTER: 1-800-525-5042 (for poisoning)

SPOKANE POISON CONTROL CENTER: 1-800-732-6985 (for poisoning)

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME: Sodium Hydrosulfide
CAS NUMBER: 16721-80-05
FORMULA: NaHS
CHEMICAL FAMILY: Inorganic salt solution



NFPA 704 SYMBOL

SYNONYMS: NASH, Sodium Hydrosulfide, NaHS, Sodium Sulphydrate, Sodium Bisulfide, Sodium Hydrogen Sulfide, Sodium Mercaptan

SECTION 2 - HAZARDOUS INGREDIENTS

| <u>HAZARDOUS COMPONENTS</u> | <u>CAS NO.</u> | <u>VOL%</u> | <u>TLV(8 Hr TWA)</u> | <u>PEL(8 Hr TWA)</u> | <u>STEL</u> | <u>IDLH</u> |
|-----------------------------|----------------|-------------|----------------------|----------------------|-------------|-------------|
| Sodium hydrosulfide | 16721-80-5 | 34-46 | -- | -- | | |
| Water | 7732-18-5 | 54-66 | -- | -- | | |
| Hydrogen Sulfide | 7783-06-4 | -- | 10ppm | 20ppm | 15ppm | 100ppm |

OTHER INGREDIENT INFORMATION:

May contain traces of sulfur.

Exposure to heat or contact with acids will result in release of toxic hydrogen sulfide gas.

SECTION 3 - PHYSICAL DATA

BOILING POINT: 212-269 °F
VAPOR PRESSURE: 17mm Hg@20°C
VAPOR DENSITY (AIR=1): 1.17
SOLUBILITY IN WATER: Completely
ODOR THRESHOLD: 0.05ppm (Hydrogen Sulfide)
APPEARANCE: Yellow, green, to brown liquid
ODOR: Hydrogen Sulfide (rotten egg)
SPECIFIC GRAVITY (WATER=1): 1.15 - 1.31
pH: 11-12 (strongly alkaline)
PHYSICAL HAZARD: Release of Hydrogen Sulfide gas (H₂S)

Sodium Hydrosulfide

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

CLASSIFICATION: CORROSIVE LIQUID

FLASH POINT: N.A.

FLAMMABLE LIMITS: Hydrogen Sulfide LEL = 4.0% UEL = 44.0%

EXTINGUISHING MEDIA: Water, Foam, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES: Extinguish fire using agent suitable for type of surrounding fire. Material itself does not burn or burns with difficulty. Move containers from fire area if possible. Use water to keep fire exposed containers cool. Fight fires from the maximum distance possible.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Exposure to heat will result in release of toxic hydrogen sulfide gas (H₂S), burning H₂S produces sulfur dioxide (SO₂) which is a severe respiratory irritant that can be life threatening.

NFPA FIRE = 2 (moderate)

SECTION 5 - REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID/INCOMPATIBILITY: Strong oxidizers, diazonium salts

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen Sulfide gas (H₂S)

NFPA REACTIVITY = 1 (slight)

SECTION 6 - HEALTH HAZARD DATA

ROUTES OF ENTRY: Inhalation, ingestion, contact

TARGET ORGANS: Eyes, skin, respiratory system, central nervous system.

HEALTH HAZARDS: Because NaHS is corrosive, it presents a hazard to unprotected skin (pain, irritation, redness or full thickness burns) and eyes (can produce severe conjunctival irritation and chemosis, corneal epithelial defects, limbal ischemia, and may result in permanent tissue damage). However, its most serious hazard is its propensity to produce toxic H₂S gas when mixed with an acid or exposed to high heat sources such as a fire. Inhalation of H₂S is irritating to the nose and throat. At higher concentrations, it can produce olfactory fatigue, a buildup of fluid in the lungs (pulmonary edema), severe shortness of breath, and death. Continuous exposure to low concentrations (5 to 10 ppm) of H₂S or brief exposure to higher concentrations (above 50 ppm) deadens the odor detecting nerves in the nose and lessens the ability to smell dangerous concentrations. **The higher the concentration of H₂S, the faster the onset of olfactory fatigue.**

CARCINOGENICITY: Inadequate evidence as a human carcinogen

EMERGENCY AND FIRST AID PROCEDURES:

INGESTION: DO NOT induce vomiting or attempt to neutralize. Dilute immediately with water or milk, no more than 8 ounces in adults. Immediately seek medical attention.

INHALATION: Move victim into fresh air, maintain respirations, assist with artificial respiration if needed, give oxygen if available and trained to do so. Seek emergency medical attention.

EYES: Flush eyes with copious amounts of water for at least 30 minutes. Seek immediate medical attention.

SKIN: Remove contaminated clothing. Wash skin with copious amounts of water for 20 minutes. If irritation persists seek medical attention.

NFPA HEALTH = 3 (high)

Sodium Hydrosulfide

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Do NOT allow NaHS to come in contact with acids. Contain the spill. Do NOT flush to a sewer unless the sewer is designed and engineered to control the H₂S that may be released. Remove sources of ignition so that any H₂S released will not ignite. Provide maximum ventilation. Recover spilled material on adsorbents, such as sand or vermiculite, and place in covered containers for reclamation or disposal. For spills that exceed the 5,000-pound reporting threshold notify NRC at 1-800-424-8802

WASTE DISPOSAL: Dispose in accordance with RCRA regulations. Handling must conform with EPA hazardous waste number D003, and with EPA regulations in storage, transportation, treatment and disposal of waste. Do not put in sewers or any water course.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Control access and supervise product delivery and transfer. Installing local exhaust ventilation on process or storage equipment where personnel exposure is likely and ensuring that such systems are operating properly before starting a process. Installing fixed H₂S monitors with alarms in NaHS storage and offloading areas where concentrations could exceed safe levels. Providing PPE and emergency eyewash and shower facilities where there is a risk of exposure to NaHS. Ensuring that NaHS-containing wastes are not flushed to acid containing sewers without controls to prevent a release of H₂S. Always store NaHS separately from low pH (acidic) materials to avoid inadvertent mixing. All NaHS containers, process piping, and critical process piping valves that may contain NaHS must be clearly labeled with essential hazard information. Warn against exposure of NaHS to excessive heat or storage near open flames or other ignition sources that might generate or ignite flammable H₂S. Ensure that storage containers and process equipment materials are compatible with the alkalinity of NaHS. Do not use copper, zinc, or aluminum. Implement an emergency notification system to inform emergency responders and potentially impacted offsite residents of threatening incidents.

OTHER PRECAUTIONS: Avoid breathing vapors. Vapors may be explosive. Accumulation of hydrogen sulfide may occur in vapor spaces of confined spaces where this product is handled, stored, or used.

SECTION 8 - ENVIRONMENTAL AND SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH\MSHA full face-piece SCBA in pressure-demand or positive-pressure mode if H₂S is present in concentrations exceeding PEL.

VENTILATION: Use in well ventilated area or provide ventilation to limit exposure to acceptable levels.

EYE/SKIN PROTECTION: Rubber gloves, face shields, goggles or safety glasses with side shields, protective coveralls and foot protection.

WORK/HYGIENIC PRACTICES: Remove contaminated clothing immediately. Always wash after handling hazardous chemicals.

NOTICE: This product does not contain chemicals subject to the reporting Requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CERCLA: RQ = 5000 POUNDS or 2270 kg NRC phone is (800) 424-8802

WHMIS : Hazard Classification = E, D1

This notice should be included in all copies or redistribution of this Material Safety Data Sheet.

Sodium Hydrosulfide

SECTION 8 - ENVIRONMENTAL AND SPECIAL PROTECTION INFORMATION (cont.)

Because of the possible presence of toxic gases H₂S and the corrosive nature of the product, wear self-contained breathing apparatus, pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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.

REFER TO DEPARTMENT OF TRANSPORTATION (DOT) EMERGENCY RESPONSE GUIDEBOOK GUIDE 135 and 154 FOR ADDITIONAL EMERGENCY INFORMATION.

SECTION 9 - SHIPPING DATA

DOT

| | |
|--|--|
| Identification #: UN 2922 | Labels are required for non-bulk packages (≤119 gal) |
| Shipping name: Corrosive liquid, toxic, N.O.S. (Sodium hydrosulfide, solution) | Placards are required for bulk packages (>119 gal) |
| Hazard class/division: 8, (6.1) | |
| Packing group: II | |
| Label: Corrosive, Toxic | |
| Placard required: Corrosive/2922 | |
| RQ: 5000 pounds | |

IATA

Identification #: UN 2922
Shipping name: Corrosive liquid, toxic, NOS
Hazard class/division: 8, (6.1)
Packing group: II
Non-bulk package Marking: UN 2922, Corrosive liquid, toxic, N.O.S. (Sodium Hydrosulfide, solution),
Label name: Corrosive and Toxic

This information is believed to be accurate and as reliable as information available to us. We make no warranty or guarantee as to its accuracy and assume no liability from its use. Users should determine the suitability of the information for their particular purposes.