

Product Safety Summary

Sodium Hydrogen Sulfide, solid (70-72% with crystallization waters < 25%) (CAS No. 16721-80-5)

This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the Material Safety Data Sheet (MSDS) for the chemical substance.

Names

- Sodium hydrogen sulfide (sulphide)
- Sodium hydrosulfide (hydrosulphide)
- Sodium mercaptan
- Sodium sulfhydrate
- Sodium bisulfide
- Sodium mercaptide

Product Overview

Sodium hydrogen sulfide is a yellow, solid flake with a sulfurous (rotten egg) smell. It is used in water treatment, the pulp and paper industry, and in leather processing as a tanning agent or hair remover (from hides). Sodium hydrogen sulfide may be used in the making of colors and dyes. It can also be used in the manufacture of other chemicals, metals or in ore processing (mining) and in waste water, soil and process sludge treatment.

Solvay Chemicals, Inc. does not sell sodium hydrogen sulfide directly to consumers. Consumers are unlikely to be exposed to sodium hydrogen sulfide in any of the consumer product applications listed above and only where the sodium hydrogen sulfide is not transformed or reacted.

Exposure to sodium hydrosulfide can cause severe irritation to the skin, eyes, and respiratory tract. Sodium hydrosulfide may cause sensitization (develop an allergic reaction). Breathing sodium hydrosulfide dusts may aggravate asthma or other pulmonary (breathing) diseases and may cause headaches, dizziness, nausea and vomiting. Ingestion may cause burns in the mouth and danger of perforation (puncturing) of the esophagus (throat) or stomach, nausea, vomiting and diarrhea.



Manufacture of Product

- Solvay Chemicals, Inc. imports the sodium hydrogen sulfide it sells from a Solvay Affiliate in Mexico.
- Solvay manufactures sodium hydrogen sulfide by reacting hydrogen sulfide with sodium sulfide, and purifying to form crystals. The water (H₂O) included in the chemical formula is a water of hydration which helps chemically stabilize the crystal structure.



Product Description

Sodium hydrogen sulfide (NaHS) is manufactured and sold as a yellow, solid flake with a sulfurous (rotten egg) smell. Typical physical properties are provided in Table 1.

Table 1: Typical physical properties of Sodium hydrogen sulfide

Bulk Density	37.5-43.8 lbs/ft ³ (600-700 kg/m ³)
Melting point	126-131° F (52-55° C)
Boiling point	approx. 239° F (115° C)
Solubility in water	500-600 g/L @ 68° F (20° C) with slow decomposition
pH	11.9 (10 g/L @ 68° F (20° C))

Product Uses

Sodium hydrogensulfide is used in many industries; for example, it is used in waste water, soil and process sludge remediation (treatment), the pulp and paper industry, metals processing, and to purify flue (exhaust) gas and in leather production as a tanning agent or hair remover (from hides). It may be used in the making of colors and dyes or in the manufacture of other chemicals.

Exposure Potential

- **Workplace exposure** - Exposures can occur at a sodium hydro sulfide manufacturing facility or a manufacturing, packaging or storage facility that handles sodium hydrogensulfide. Exposure may also occur in the event of a transportation incident. Persons involved in maintenance, sampling and testing activities, or in the loading and unloading of sodium hydrogensulfide containers are at greater risk of exposure. Following good industrial hygiene practices will minimize the likelihood of sodium hydrosulfide exposure; however, persons involved in higher risk activities should always wear proper personal protective equipment such as protective gloves and goggles. In instances where the potential for dusting is high, proper respiratory protection should also be worn.
- **Consumer exposure to products containing sodium hydrogen sulfide** - Solvay Chemicals, Inc. does not sell sodium hydrogensulfide directly to consumers. Consumers are unlikely to be exposed to sodium hydrosulfide in any of the consumer product applications listed above and only where the sodium hydrosulfide is not fully transformed or reacted.
- **Environmental releases** - Spills of sodium hydrogen sulfide should be contained and isolated from waterways and sewers or drains. Spills should be swept up and placed in a compatible container. Dispose of waste or residues in accordance with applicable local, state or federal regulations. Persons attempting to clean up sodium hydrogensulfide spills should wear proper personal protective equipment (See guidelines in the Workplace exposure section of this document or the [Material Safety Data Sheet](#)).
- **Fires** – Sodium hydrogensulfide is flammable or combustible when exposed to heat or flame. Fires that occur in the presence of sodium hydrosulfide should be extinguished using powder or foam. Do NOT use carbon dioxide (CO₂) or water. When sodium hydrogensulfide decomposes (at very high temperatures), it liberates toxic hydrogen



sulfide (H₂S), and sulfur dioxide (SO₂) gases. Sodium hydrosulfide spontaneously ignites if the water content drops to 25% or below.

For additional information concerning sodium hydrogen sulfide emergency response procedures, please consult the [Material Safety Data Sheet](#).

Health Information

Sodium hydrosulfide is not typically found in consumer products. If present in a consumer product, it should pose little a risk of symptoms due to being used in very low concentrations. Sodium hydrosulfide can produce the following adverse health affects:

- **Contact** - Skin exposures can cause symptoms ranging from severe skin irritation or itching to redness and swelling. Eye exposure to sodium hydrosulfide may result in redness, tearing or severe eye irritation and damage.
- **Inhalation** - The inhalation of sodium hydrosulfide dusts can cause nose and throat irritation or coughing. Repeated or prolonged exposures may cause sore throat or nosebleeds. Inhalation may also cause severe respiratory reactions and aggravate asthma or other breathing diseases.
- **Ingestion** - The ingestion of sodium hydrosulfide may cause severe irritation or burns of the mouth and throat, nausea, vomiting and diarrhea. There is danger of perforating (puncturing) the esophagus or stomach.
- **Other Effects** - The International Agency for Research on Cancer (IARC) has not classified sodium sulfide as a carcinogen (cancer causing).

For more information on health effects and routes of exposure, or for information concerning proper first aid measures, please consult the [Material Safety Data Sheet](#).

Environmental Information

Sodium hydrogen sulfide is considered to be harmful to the environment.

For more ecological and environmental information concerning this product, please consult the [Material Safety Data Sheet](#).

Physical Hazard Information

For more information concerning the physical hazards of this product, please consult the [Material Safety Data Sheet](#).

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use and/or disposal of this chemical. These regulations can vary by city, state, country or geographic region. Information may be found by consulting the relevant [Material Safety Data Sheet](#) specific to your country or region.

Additional Information

- Solvay America, Inc. www.solvaynorthamerica.com
- Solvay Chemicals, Inc. www.solvaychemicals.us
- Solvay Chemicals, Inc. Material Safety Data Sheets www.solvaychemicals.us/EN/Literature/LiteratureDocuments.aspx
- Contact Solvay Chemicals, Inc. solvaychemicals.us@solvay.com
- NJ Department of Health & Senior Services Hazardous Substance Fact Sheets <http://web.doh.state.nj.us/rtkhsfs/factsheets.aspx> (Sodium hydrosulfide)
- This summary was prepared in August, 2011.

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