

MATERIAL SAFETY DATA SHEET**SODIUM SULPHIDE**

PRODUCT CODE NUMBER(S): 8340-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: Sodium sulphide, Sodium sulphide hydrated, Sodium monosulphide, Disodium monosulphide, Disodium sulphide

Chemical Family: Inorganic sulphide

Chemical Formula: Na₂S·9H₂O

Product Use: Laboratory reagent

Manufacturer's Name and Address:

Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9

Telephone No: (905) 877-0101

Fax No: (905) 877-6666

Emergency Telephone No: CANUTEC (613) 996-6666

HAZARDOUS INGREDIENTS OF MATERIALS

| Ingredients | % | TLV Units | CAS No. |
|-----------------|----|---------------------------------|-----------|
| Sodium sulphide | 98 | 10 ppm (as H ₂ S) | 1313-84-4 |

PHYSICAL DATA

Physical State: Solid

Odour and Appearance: White to slightly yellow deliquescent crystals or granules or amorphous, yellow-pink solid. Odour of hydrogen sulphide.

Odour Threshold (ppm): 0.13 ppm (hydrogen sulphide); poor warning properties; at or above 100 ppm paralyses sense of smell.

Vapour Pressure (mm Hg): Not applicable

Vapour Density (Air = 1): Not applicable

Evaporation Rate: Not applicable

Boiling Point (degrees C): Decomposes at 920°C

Melting Point (degrees C): ~50°C (loses water at 120°C)

pH: Strongly alkaline in aqueous solution

Specific Gravity: 1.427 at 16°C

Coefficient of Water/Oil distribution: Not applicable

SHIPPING DESCRIPTION

UN: 1849

T.D.G. Class: 8

Pkg. Group: II

REACTIVITY DATA

Chemical Stability: Moderately stable. Extremely hygroscopic, absorbs moisture from air to become wet solid or solution. Discolours to yellow, then brownish-black, on exposure to light and air. Releases hydrogen sulphide slowly, more rapidly if heated.

Incompatibility with other substances: Reacts with acids to release toxic and flammable hydrogen sulphide. Reacts violently with, oxidizers, forming sulphur dioxide. Reacts ex-

plosively with diazonium salts, N,N-dichloromethylamine. Reaction with carbon releases heat. Corrosive to zinc, aluminum, copper.

Reactivity: Avoid exposure to heat, light, air. Becomes unstable at elevated temperatures and pressures. Reacts non-violently with water.

Hazardous Decomposition Products: H₂S, SO_x

FIRE AND EXPLOSION DATA

Flammability: Sodium sulphide can burn but is not readily ignited. Finely dispersed particles can explode. Releases highly flammable hydrogen sulphide gas and therefore is a dangerous fire and explosion risk.

Extinguishing Media: Water, CO₂, foam, dry chemical. Use water as a spray or fog to cool containers, disperse vapours, and flush material away from ignition source. Fight fire from a distance, from upwind direction. Firefighters must wear NIOSH/MSHA approved full face-piece, positive-pressure self-contained breathing apparatus and encapsulating chemical splash suit (Bunker Gear is not adequate).

Flash Point (Method Used): Not applicable

Autoignition Temperature: 260°C (H₂S)

Upper Flammable Limit (% by volume): 44.0 (H₂S)

Lower Flammable Limit (% by volume): 4 (H₂S)

Hazardous Combustion Products: SO_x, hydrogen sulphide gas, finely divided sodium sulphide explosive mixtures and Na₂O

Sensitivity to Impact: None identified

Sensitivity to Static discharge: Solid may be sensitive under certain conditions, when ignited by an electrostatic or other high-voltage spark, or other ignition source. However, does not readily form dust. Gases released during reactions or decomposition may be ignited by static discharge.

TOXICOLOGICAL PROPERTIES AND HEALTH DATA**Toxicological Data:**

LD₅₀: (ipr, mouse) 53 mg/kg

LC₅₀: Not available

Effects of Acute Exposure to Product:

Inhaled: Toxic. Inhalation of dust causes sore throat, coughing, shortness of breath. Higher concentrations or prolonged exposures may cause nausea, vomiting, dizziness, pulmonary edema and death. Can react with moisture in air to release toxic hydrogen sulphide gas. 50 ppm H₂S causes dryness and irritation of the nose and throat, runny nose, cough, shortness of breath. 200-250 ppm H₂S can cause severe irritation, headache, nausea, vomiting, dizziness, eventual pulmonary edema, and death. Concentrations above 500 ppm can cause rapid unconsciousness and death; non-fatal exposures can cause memory loss, nerve damage, facial paralysis.

In contact with skin: Corrosive. Causes severe irritation or burns to the skin.

CODE: 8340-1

In contact with eyes: Corrosive. Causes severe irritation, pain, intense tearing, blurred vision, slow-healing burns, and possible blindness. Exposure to <10 ppm hydrogen sulphide can cause tearing, burning; exposure >50 ppm can cause pain, blurred vision, which can be permanent.

Ingested: Corrosive. Ingestion can cause burns to the mouth, throat and stomach, nausea, vomiting, diarrhea, in severe cases, intestinal perforation and death. Releases hydrogen sulphide on contact with acid in stomach, with symptoms as in "Inhaled".

Effects of Chronic Exposure to Product:

Prolonged or repeated skin exposure may cause allergic dermatitis.

Carcinogenicity: No evidence of carcinogenicity

Teratogenicity: No information available

Reproductive Effects: No information available

Mutagenicity: No information available

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Non-sparking, grounded, corrosion-resistant ventilation system, separate from other ventilation systems.

Respiratory Protection: Dust mask. Use only in fumehood. NIOSH approved respirator for concentrations above TLV. For higher or unknown concentrations, as in fire or spill conditions, positive-pressure, full face-piece self-contained breathing apparatus.

Eye Protection: Chemical safety goggles or face shield.

Skin Protection: Wear protective neoprene or PVC gloves. Other body-covering clothing, sleeves, coveralls, boots, sufficient to prevent contact.

Other Personal Protective Equipment: Safety shower and eye-wash fountain in work area.

Leak and Spill Procedure: Evacuate area. Shut off all sources of ignition. Cleanup personnel must be trained in the handling of hazardous materials, and must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. DO NOT TOUCH SPILLED MATERIAL. Stop leak if safe to do so. Absorb on inert absorbent, transfer to container and transport to safe area. Contaminated absorbent material may pose the same hazards as the spilled product; treat with caution. Tip into a large volume of water and leave until decomposed. Arrange removal by disposal company. Wash site of spillage thoroughly with water and detergent.

Waste Disposal: Follow all federal, provincial and local regulations for disposal.

Handling Procedures and Equipment: TOXIC, CORROSIVE. Workers using this chemical must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Use the smallest amount possible for the purpose, in designated areas with adequate ventilation. Follow routine safe handling and good housekeeping procedures. Keep away from heat, flame hot surfaces, sparks, flames, and all sources of ignition, and from all combustible or incompatible materials. Use non-sparking tools. Post "No smoking" signs. Avoid generating dust. Avoid inhalation of dust or vapours. Avoid all contact. Keep containers closed when not in use and when empty.

Storage Requirements: Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight, and away from incompatible or combustible materials and all

sources of ignition. Storage area should be constructed of corrosion and fire-resistant materials. Keep containers tightly closed when not in use and when empty. Protect from damage and inspect periodically for bulging or leaks. May develop pressure on long standing; open drums carefully, and if venting is required, it must be performed by trained personnel; contact manufacturer if drums are swollen.

FIRST AID MEASURES

Specific Measures:

Eyes: IMMEDIATELY flush eyes with gently running water for at least twenty (20) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid contact with material during first aid procedures. GET MEDICAL ATTENTION IMMEDIATELY.

Skin: Remove contaminated clothing under running water (including shoes, watches, belts, and rings). IMMEDIATELY flush the exposed area with large amounts of running water for at least twenty (20) minutes. Wear protective gloves to avoid contact with material. Get medical attention immediately. Discard contaminated clothing and shoes.

Inhalation: IMMEDIATELY remove to fresh air (caution must be used by rescuers to avoid exposure to the contaminating fumes). Get medical attention and give oxygen for any breathing difficulty. If breathing has stopped give artificial respiration. If breathing and pulse are absent, give CPR. Care should be taken to avoid contact with corrosive residue during first aid procedures; use a shield if possible, or at least wipe mouth area thoroughly before contact is established. IMMEDIATELY CONTACT A PHYSICIAN. Stay with casualty until medical help arrives. Onset of pulmonary edema may be delayed; if victim feels unwell during the next 48 hours, get medical attention immediately.

Ingestion: DO NOT induce vomiting. If victim is alert and NOT convulsing, rinse mouth thoroughly with water, and give 2 to 4 glasses of water to drink to dilute. Get medical attention immediately. If spontaneous vomiting occurs, rinse mouth and repeat administration of water.

REFERENCES USED

CCINFO disc: Cheminfo, MSDS's

Budavari: The Merck Index, 12th ed., 1997

Sax: Dangerous Properties of Industrial Chemicals, 5th ed., 1979

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: February 20, 1990

Revision: September 2010

MSDS: 8340-1

Proposed WHMIS Designation: E

Prepared by: Caledon Laboratories Ltd. (905) 877-0101
Caledon Laboratories Ltd. believes the information contained herein is reliable and accurate. Caledon makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such information is solely for your consideration, investigation, and verification.