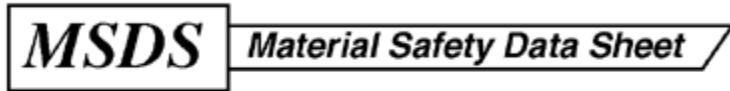


MSDS Number: **S5042** * * * * * *Effective Date: 08/17/06* * * * * * *Supercedes: 11/12/03*



From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

SODIUM SULFIDE

1. Product Identification

Synonyms: Sodium sulfide nonahydrate; Sodium monosulfide

CAS No.: 1313-82-2 (Anhydrous) 1313-84-4 (Nonahydrate)

Molecular Weight: 240.18

Chemical Formula: Na₂S.9H₂O

Product Codes:

J.T. Baker: 3910

Mallinckrodt: 8044

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
-----	-----	-----

Sodium Sulfide	1313-82-2	98 - 100%
Yes		

3. Hazards Identification

Emergency Overview

DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. CORROSIVE.

CAUSES BURNS TO ANY AREA OF CONTACT.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;
PROPER GLOVES

Storage Color Code: White Stripe (Store Separately)

Potential Health Effects

Inhalation:

Hazard is highly toxic (50-100 ppm in air) hydrogen sulfide which may accumulate in confined spaces due to the decomposition of sodium sulfide or from its reaction with acids. Symptoms include painful conjunctivitis, headache, nausea, dizziness, coughing and, in extreme cases, pulmonary edema and possible death.

Ingestion:

Corrosive, toxic. Sodium sulfide is a strong base and can cause severe burns on the mucous membrane. Hydrolysis by gastric fluids releases toxic hydrogen sulfide. The symptoms and effects are similar to those under inhalation, above.

Skin Contact:

Irritant. Contact with skin can produce serious caustic burns with painful inflammation and possible destruction of tissue.

Eye Contact:

Irritant. Inflammation, tearing and pain may be expected. Severe contact can cause destruction of tissue.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:

Eye exposure may result in fundoscopic and retinal changes that usually resolve within 72 hr. All eye exposures should have baseline and follow-up fundoscopic evaluation. If exposure is significant, nitrate-induced methemoglobinemia has been advocated as treatment on the basis that methemoglobin bind the toxic hydrosulfide anion, forming sulfmethemoglobin. Inhaling amyl nitrate or intravenous sodium nitrite is recommended. Do not use thiosulfate.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Contact with acids gives off hydrogen sulfide, a toxic and flammable gas that may form explosive mixtures in air. Sealed containers may rupture when heated.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire exposed containers cool.

6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

Do not contact with acids. Do not handle with bare hands.

7. Handling and Storage

Store in a tightly closed container. Protect from light. Protect container from physical damage. Store in an explosion-proof refrigerator. Isolate from acids and alkalis. Isolate from incompatible substances. Containers of this material may be hazardous when empty

since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For hydrogen sulfide:

-OSHA Permissible Exposure Limit (PEL):

10 ppm, 15 ppm (STEL)

-ACGIH Threshold Limit Value (TLV):

10 ppm, 15 ppm (STEL)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

For Hydrogen Sulfide: If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airtight hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). Acid gas respirator may be used for escape only.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White crystals. Deliquescent.

Odor:

Rotten egg, sulfide odor.

Solubility:

200 g/100 g water.

Density:

1.43

pH:

Aqueous solutions are strongly alkaline.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

Not applicable.

Melting Point:

ca. 50C (ca. 122F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Darkens on exposure to air or light. Sodium hydroxide forms in aqueous solutions. Decomposes under the influence of moisture, water and acids, forming toxic and combustible gas (hydrogen sulfide).

Hazardous Decomposition Products:

Burning may produce sulfur oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acids, oxidants. Aluminum, zinc, carbon and diazonium salts.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

For anhydrous Sodium Sulfide: oral rat, LD50: 208 mg/kg.

-----\Cancer			
Lists\-----			
Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	

Sodium Sulfide (1313-82-2)	No	No	None

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

Dangerous to the environment. Very toxic to aquatic organisms.
96 Hr LC50 *Poecilia reticulata*: 15 mg/L;
48 Hr EC50 *Daphnia magna*: 2.1 mg/L

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: SODIUM SULFIDE, HYDRATED

Hazard Class: 8

UN/NA: UN1849

Packing Group: II

Information reported for product/size: 12KG

International (Water, I.M.O.)

Proper Shipping Name: SODIUM SULFIDE, HYDRATED

Hazard Class: 8

UN/NA: UN1849

Packing Group: II

Information reported for product/size: 12KG

International (Air, I.C.A.O.)

Proper Shipping Name: SODIUM SULFIDE, HYDRATED

Hazard Class: 8

UN/NA: UN1849

Packing Group: II

Information reported for product/size: 12KG

15. Regulatory Information

-----\Chemical Inventory Status - Part
1\-----

Ingredient	TSCA	EC	Japan
Australia			
-----	----	---	-----
Sodium Sulfide (1313-82-2)	Yes	Yes	Yes
Yes			

-----\Chemical Inventory Status - Part
2\-----

Ingredient	Korea	--Canada--	
Phil.	DSL	NDSL	
-----	----	---	----
Sodium Sulfide (1313-82-2)	Yes	Yes	No
No			

-----\Federal, State & International Regulations - Part
1\-----

	-SARA 302-	-----SARA	
313-----			
Ingredient	RQ	TPQ	List
Chemical Catg.			
-----	---	-----	----
Sodium Sulfide (1313-82-2)	No	No	No
			No

-----\Federal, State & International Regulations - Part
2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8 (d)
-----	-----	-----	-----
Sodium Sulfide (1313-82-2)	No	No	No

Chemical Weapons Convention: Yes TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: 2X

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 1 Reactivity: 0

Label Hazard Warning:

DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. CORROSIVE.
CAUSES BURNS TO ANY AREA OF CONTACT.

Label Precautions:

Do not get in eyes.
Avoid breathing gas.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Use only with adequate ventilation.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 3, 12.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)