

SODIUM BOROHYDRIDE

Material Safety Data Sheet

Mallinckrodt Chemical Inc.

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Emergency Telephone Number
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Effective Date: 02-26-87 Supersedes 02-25-86

PRODUCT IDENTIFICATION:

Synonyms: Sodium tetrahydroborate

Formula CAS No.: 16940-66-2

Molecular Weight: 37.83

Hazardous Ingredients:

Chemical Formula: NaBH₄

Sodium Borohydride.

PRECAUTIONARY MEASURES

WARNING! FLAMMABLE SOLID. HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE EYE IRRITATION AND SKIN IRRITATION. DANGEROUS WHEN WET.

Do not breathe dust.

Avoid contact with eyes, skin and clothing.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

Keep away from heat, sparks and flame.

EMERGENCY FIRST AID

In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. In case of contact, immediately flush skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, call a physician immediately.
SEE SECTION 5.

Physical Data

SECTION 1

Appearance: White to gray-white microcrystalline powder or lumps.

Odor: No information found.

Solubility: Reacts with hot water; soluble in water

Boiling Point: None. Decomposes slowly Vapor Density (Air=1): No information
@ 400 C (752 F) found.Melting Point: 36 C (97 F) Vapor Pressure (mm Hg): No information
found.Specific Gravity: 1.074 Evaporation Rate: No information
found.

Fire and Explosion

SECTION 2

Information-----
Fire:

Supports combustion. Flammable solid. Can ignite in air from an open flame, continuing to burn as hydrogen is evolved.

Explosion: An explosion can occur by spontaneous ignition of the gases released from a saturated solution of sodium borohydride in dimethylformamide at 17 C.

Fire Extinguishing Media: Dry chemical or pulverized dolomite. DO NOT USE CARBON DIOXIDE, HALOCARBON or Wet Chemical Extinguishers.

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.

Reactivity Data

SECTION 3

Stability:

Hygroscopic. Stable in dry air to 300 C; decomposes slowly in moist air or in vacuum at 400 C.

Hazardous Decomposition
Products:

Hydrogen gas.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Reacts with water to evolve hydrogen and sodium hydroxide. Heat decomposes it to release hydrogen gas. May react slowly or vigorously with acids or certain transition metal catalysts to liberate hydrogen. Incompatible with oxidizing agents, sulfuric acid, ruthenium salts and palladium.

Leak/Spill Disposal Information

SECTION 4

Notify safety personnel of spills. Remove sources of heat or ignition. Provide explosion-proof ventilation. Clean up personnel need protection against contact with or inhalation of sodium borohydride. Collect solid for recovery or disposal, avoiding dust generation and using non-sparking tools. Liquid spills should be absorbed with sand or dolomite and picked up for disposal. Do not flush powder or solutions to sewer or watercourse. Disposal: Sodium borohydride can be decomposed by carefully adding diluted acetic acid or acetone to a water dispersion of the scrap. (Provide venting for hydrogen emission.) The residues are borates.

Ensure compliance with local, state and federal regulations.

Health Hazard Information

SECTION 5

A. Exposure/Health Effects

Information on the human health effects from exposure to this substance is limited.

Inhalation: Inhalation of dust is irritating to the mucous membrane and upper respiratory tract.

Ingestion: Harmful if swallowed. Human health effects unknown.

Skin Contact: Severe irritation on skin burns can result from contact with wet material or contact by moist skin.

Eye Contact: Corrosive to the eyes.

Chronic Exposure: No information found.

Aggravation of
Pre-existing Conditions: No information found.

B. FIRST AID

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion: If swallowed, call a physician immediately.

Skin Exposure: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Exposure: Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY (RTECS, 1986)

No LD50/LC50 information found relating to normal routes of occupational exposure.

Occupational Control Measures SECTION 6

Airborne Exposure Limits: None established.

Ventilation System: A local exhaust system which captures the contaminant at its source is recommended to prevent dispersion of the contaminant into the workroom air.

Personal Respirators (NIOSH Approved) For conditions of use where exposure to the dust is apparent, a dust/mist respirator may be worn. For emergencies, a self-contained breathing apparatus may be necessary.

Skin Protection: Wear protective gloves and clean body-covering clothing.

Eye Protection: Use chemical safety goggles. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

Storage and Special Information SECTION 7

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances.

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 OR405

Addendum to Material Safety Data Sheet

REGULATORY STATUS

Hazard Categories for SARA
Section 311/312 Reporting

	Acute ----- X	Chronic -----	Fire ----- X	Pressure -----	Reactive -----	
Product or Components of Product: -----	SARA EHS Sec. 302 RQ TPQ ---		SARA Sec. 313 Chemicals Name Chemical List Category -----		CERCLA Sec. 103 RQ lbs	RCRA Sec. 261.33 -----
SODIUM BOROHYDRIDE (16940-66-2)	No	No	No	No	No	No

SARA Section 302 EHS RQ:
Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ:
Threshold Planning Quantity of Extremely Hazardous substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS.

SARA Section 313 Chemicals:
Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.

CERCLA Sec. 103:
Comprehensive Environmental Response, Compensation and Liability Act (Superfund) Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4

RCRA:
Resource Conservation and Recovery Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

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