Material Safety Data Sheet
Sodium Borohydride

Section 1 - Product Identification

Synonyms : SBH; Sodium tetrahydroborate (Powder)
Molecular Weight : 37.83 g/mol
Chemical Formula : $NaBH_4$
Company Identification : Tradeasia International Pte. Limited
Address : 133 Cecil Street # 12-03 Keck Seng Tower, Singapore
Tel: +65-6227 6365
Fax: +65-6225 6286
Email: contact@chemtradeasia.com

Recommended use of the chemical and restrictions on use:
The product is used as a laboratory chemical. Not for food, drug, pesticide or biocidal product use.

Section 2 – Composition/Information on Ingredients

The product contains greater than 98 percent (%) Calcium Phosphate

Chemical Name	EC/CAS No	Purity, %
Sodium Borohydride	241-004-4/16940-66-2	min. 98.0

Section 3 – Hazards Identification

3.1 Classification of the substance or mixture
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
3.2 Label elements
The product needs to be labelled with a danger sign.
3.3 Other hazards
Potential health effects
Eye
Can cause serious eye damage. Causes redness and pain.
Skin
Causes severe skin burns.
Ingestion
Toxic if swallowed
Inhalation
May cause respiratory irritation. May be harmful if inhaled.
Chronic
Prolonged or repeated exposure may cause adverse health effects.

Section 4 – First-Aid Measures

4.1. Description of first aid measures

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages
Eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing
Ingestion
Do not induce vomiting. Rinse mouth with water. Get medical advice and attention if you feel unwell.
4.2. Most important symptoms and effects, both acute and delayed
Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated.
4.3. Indication of any immediate medical attention and special treatment needed
N.A.

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media
CO2, dry chemical, dry sand, alcohol-resistant foam. DO NOT use water
5.2. Specific hazards arising from the chemical
Corrosive Material. Reacts violently with water. Contact with water liberates extremely flammable gases. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.
5.3. Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.
6.2. Environmental precautions
Prevent further leakage or spillage into the environment, if safe to do so.
6.3. Methods and material for containment and cleaning up
Do not expose spill to water. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation

Section 7 – Handling and Storage

7.1. Precautions for safe Handling
Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe vapors/dust. Do not allow contact with water
7.2. Conditions for safe storage, including any incompatibilities
Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from water. Do not store in aluminum containers

Section 8 – Exposure Controls/Personal Protection

8.1. Control parameters

8.2. Appropriate engineering controls

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location

8.3. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN149 must be followed whenever workplace conditions warrant respirator use.

Eyes and hands protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves must satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance: Solid powder
Odour: Odourless
Odour threshold: N.A.
pH: approx. 11
Melting point: 360°C
Boiling point: Decomposes
Flash point: N.A.
Evaporation rate: N.A.
Flammability: N.A.
Upper/lower flammability or explosive limits: Lower: 3.02 vol%
Vapour pressure: N.A.
Vapour density: N.A.
Relative density: 1.074g/cm^3
Solubility in water: Reacts violently with water
Partition coefficient: n-octanol/water: N.A
Auto-ignition temperature: 220°C
Decomposition temperature: 400°C
Viscosity: N.A.
Explosive properties: N.A.

Oxidizing properties: N.A.

Section 10 – Stability and Reactivity

10.1. Reactivity

Reactive hazard. Reacts violently with water

10.2. Chemical stability

Stable under recommended storage conditions

10.3. Possibility of hazardous reactions

Contact with water liberates extremely flammable gases.

10.4. Conditions to avoid:

Incompatible products. Excess heat. Exposure to moist air or water. Exposure to moisture. Temperatures above 60°C.

10.5. Incompatible materials

Strong oxidizing agents, Aldehydes, Ketones, Acids, Aluminium

10.6. Hazardous decomposition products

Oxides of boron, Sodium oxides, Hydrogen, Thermal decomposition can lead to release of irritating gases and vapors

Section 11 – Toxicological Information

Information on toxicological effects

LD50/LC50:

Oral, rat: LD50 = 57 mg/kg

Acute toxicity

N.A

Skin corrosion / irritation

Causes burns by all exposure routes

Serious eye damage/ irritation

N.A.

Respiratory or skin sensitization

N.A.

Germcell mutagenicity

DNA Inhibition: Human, Lymphocyte = 600 mmol/L.; Cytogenetic Analysis: Human, Leukocyte = 50 mmol/L.; DNA Damage: Mouse, Lymphocyte = 628 mmol/L.; Mutation in Mammalian Somatic Cells: Mouse, Lymphocyte = 265 mmol/L

Carcinogenicity

N.A.

Reproductive toxicity

Intraplacental, woman: TDLo = 1400 mg/kg (female 16-week(s) after conception) Fertility - abortion.
Intraplacental, woman: TDLo = 1600 mg/kg (female 16-week(s) after conception) Fertility - abortion.

STOT-single exposure

N.A.

STOT-repeated exposure

N.A.

Aspiration Hazard

N.A.

Potential health effects

RTECS: N.A

Section 12 – Ecological Information

12.1. Toxicity

Do not empty into drains. Reacts with water so no ecotoxicity data for the substance is available

12.2. Persistence and degradability

N.A

12.3. Bioaccumulative potential

N.A

12.4. Mobility in soil

N.A

12.5. Other adverse effects

N.A

Section 13 – Disposal Considerations

13.1. Disposal methods

Product

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Contaminated Packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

Section 14 – Transport Information

14.1. UN number: UN1426

14.2. UN proper shipping name: Sodium Borohydride

14.3. Transport of hazard classes: 4.3

14.4. Packing group: I

14.5. Environmental hazards: N.A.

14.6. Special precautions for user: N.A

14.7. Incompatible materials: N.A.

Section 15 – Regulatory Information

15.1. Safety, health and environmental regulations for the substance/mixture

Notification status:

U.S. EPA TSCA Inventory	On the inventory, or in complicance with the inventory
Canadian DSL	On the inventory, or in complicance with the inventory
EINECS	On the inventory, or in complicance with the inventory
South Korea	On the inventory, or in complicance with the inventory
Japanese MITI	On the inventory, or in complicance with the inventory

Ensure all national/local regulations are observed.

Section 16: Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):
N.A.

16.2. List of abbreviation and acronyms used in this MSDS

SDS: Safety Data Sheets
Index N°: atomic number of the element most characteristic of the properties of the substance
CAS No: Chemical Abstracts Service number
EC No: EINECS Number: European Inventory of Existing Commercial Substances
Repr. Cat. 2: Substance presumed human reproductive toxicant
Acute Oral Cat. 5: Substance which is of relatively low acute oral toxicity.
GHS: Globally Harmonised System of Classification and Labelling
LD_{50}: Median Lethal Dose
LC_{50}: Lethal Concentration, 50%
N.A.: Not Applicable
Japanese MITI: Japanese Ministry of International Trade and Industry
EC_{50}: Half maximal effective concentration
UN: United Nations
U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the autority of the Environmental Protection Agency
Canadian DSL: Canadian Domestic Substances List

16.5. Disclaimer of Liability

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