



Preparing for the New Era of Laboratories

MATERIAL SAFETY DATA SHEET (MSDS)

According to regulation (EU) no.1907/2006

SODIUM BOROHYDRIDE 97% Extrapure

PRODUCT CODE : O-5183

CAS No : 16940-66-2

FORMULA : NaBH_4

UN No : 1426

MATERIAL SAFETY DATA SHEET (SDS/MSDS)

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MSDS Number : 0329

Date : March 17th, 2025

Version : 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1 Product Name** : SODIUM BOROHYDRIDE 97% Extrapure
Synonyms : Sodium tetrahydridoborate
CAS No. : 16940-66-2
HS Code : 2850 0010
Chemical Formula : NaBH₄
Molecular Weight : 37,83 g/mol
Product Code : O-5183
Brand : Labotiq
- 1.2 Manufacturer** : Labotiq
Address : Jl.Terapi Raya AD2-Bumi Menteng Asri Bogor, Jawa Barat Indonesia – 16111
Website : www.labotiq.net
Email : labotiq.id@gmail.com
For information : Phone : (+62-251) 839110, 8311662, Fax : (+62-251) 83135710
Emergency number : +6281316894650
- 1.3 Application** : Laboratory chemicals, Manufacture of substances, General Chemical reagent

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Substances and mixtures which in contact with water emit flammable gases, (Category 1)
 H260: In contact with water releases flammable gases which may ignite spontaneously.

Acute toxicity, (Category 3)
 H301: Toxic if swallowed.

Skin corrosion, (Sub-category 1B)
 H314: Causes severe skin burns and eye damage.

Serious eye damage, (Category 1)
 H318: Causes serious eye damage.

Reproductive toxicity, (Category 1B)
 H360FD: May damage fertility. May damage the unborn child.

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word
 Hazard statement(s)

Danger

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H260	In contact with water releases flammable gases which may ignite spontaneously.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H360FD	May damage fertility. May damage the unborn child.
Precautionary statement(s) P231 + P232	Handle and store contents under inert gas. Protect from moisture.
P260	Do not breathe dust.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard information (EU) EUH014	Reacts violently with water.
Reduced Labeling (<= 125 ml) Pictogram	
Signal Word	Danger
Hazard Statements H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H360FD	May damage fertility. May damage the unborn child.
Precautionary Statements P260	Do not breathe dust.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard information (EU) EUH014	Reacts violently with water.

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2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Sodium tetrahydridoborate
Formula	: NaBH ₄
Molecular weight	: 37,83 g/mol
CAS-No.	: 16940-66-2
EC-No.	: 241-004-4

3.2 Mixture

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
sodium borohydride CAS-No. 16940-66-2 EC-No. 241-004-4	Water-react 1; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Repr. 1B; H260, H301, H314, H318, H360FD Concentration limits: >= 3,4 %: Repr. 1B, H360F;	<=100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

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If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Sand Dry powder Cement

Unsuitable extinguishing media

Water Carbon dioxide (CO₂) Foam

5.2 Special hazards arising from the substance or mixture

Borane/boron oxides, Sodium oxides, Not combustible.

May not get in touch with: Water

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Keep workplace dry. Do not allow product to come into contact with water.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons. Never allow product to get in contact with water during storage.

Air and moisture sensitive. Store under inert gas.

Storage class

Storage class (TRGS 510): 4.3: Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Appropriat engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) 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 have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

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Break through time: 480 min
Material tested: Dermatril® (KCL 740, Size M)

Splash contact

Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740, Size M)

Body Protection

protective clothing

Respiratory protection

required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Form: solid
	Colour: white
Odour	odorless
Odour Threshold	Not applicable
pH	No data available
Melting point/freezingpoint	Melting point/ range: > 300 °C - dec.
Initial boiling point and boiling range	> 400 °C at ca.1.013 hPa - OECD Test Guideline 103
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Lower explosion limit: 3,02 %(V)
Vapour pressure	< 1 hPa at ca.25 °C - OECD Test Guideline 104
Vapour density	No data available
Density	1,07 g/cm ³ at 20 °C
Relative density	No data available
Water solubility	Decomposes in contact with water., Risk of violent reaction.
Partition coefficient: noctanol/water	- Not applicable for inorganic substances
Auto-ignition temperature	> 400 °C at 1.013 hPa - Relative self-ignition temperature for solids
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	Not classified as explosive.
Oxidizing properties	none

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9.2 Other safety information

Relative vapor density 1,3

SECTION 10: Stability and reactivity**10.1 Reactivity**

Reacts violently with water.

10.2 Chemical stability

sensitive to moisture

10.3 Possibility of hazardous reactions

Risk of explosion with:

Water Alcohols (generation of hydrogen) Copper Nickel in finely distributed form. aluminium chloride metallic salts phenol Strong oxidizing agents polymerisable substances hydrogen peroxide Powdered metals acids

Risk of ignition or formation of inflammable gases or vapours with:

carbon/soot Exothermic reaction with: phosphoric acid conc. sulfuric acid Dimethylformamide

10.4 Conditions to avoid

Moisture.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity**

Acute toxicity estimate Oral - 162 mg/kg (Calculation method)

LD50 Oral - Rat - female - 56,57 mg/kg (OECD Test Guideline 425)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute toxicity estimate Oral - 56,57 mg/kg (ATE value derived from LD50/LC50 value)

LC50 Inhalation - Rat - male - 4 h - > 1,3 mg/l - dust/mist

Remarks: (highest concentration to be prepared) (ECHA)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract Acute toxicity estimate Dermal - 230 mg/kg (Calculation method)

LD50 Dermal - Rabbit - male - 4.000 - 8.000 mg/kg

Remarks: (ECHA)

Skin corrosion/irritation

Skin - Rabbit

Result: Corrosive - 4 h (OECD Test Guideline 404)

Remarks: (ECHA)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye damage. - 24 h

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Remarks: (ECHA)

Remarks: Causes serious eye damage. Risk of corneal clouding.

Respiratory or skin sensitisation

- Guinea pig

Result: negative

Remarks: (ECHA)

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Remarks: The value is given in analogy to the following substances: boric acid

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

The value is given in analogy to the following substances: boric acid

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Remarks: The value is given in analogy to the following substances: boric acid

Test Type: Micronucleus test

Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Remarks: The value is given in analogy to the following substances: boric acid

Carcinogenicity

No data available

Reproductive toxicity

May damage the unborn child. May damage fertility.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

No data available

Endocrine disrupting properties

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Product:

Assessment :

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: ED3325000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Decomposition of the substance with tissue moisture.

After absorption:

CNS disorders, Headache

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders. Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish flow-through test

LC50 - Limanda limanda - 74 mg/l - 96 h

Remarks: (ECHA)

The value is given in analogy to the following substances: disodium tetraborate

Toxicity to daphnia and other aquatic invertebrates

static test LC50 - Daphnia magna (Water flea) - 133 mg/l - 48 h

Remarks: (ECHA)

The value is given in analogy to the following substances: boric acid

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

12.6 Other adverse effects

Forms toxic mixtures in water, dilution measures notwithstanding. Discharge into the environment must be avoided.

Endocrine disrupting properties**Product:**

Assessment :

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The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

No data available

SECTION 14: Transport information**14.1 UN number**

ADR/RID: 1426

IMDG: 1426

IATA: 1426

14.2 UN proper shipping name

ADR/RID: SODIUM BOROHYDRIDE

IMDG: SODIUM BOROHYDRIDE

IATA: Sodium borohydride

Passenger Aircraft: Not permitted for transport

14.3 Transport hazard class(es)

ADR/RID: 4.3

IMDG: 4.3

IATA: 4.3

14.4 Packaging group

ADR/RID: I

IMDG: I

IATA: I

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user**Further information**

No data available

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

H2 ACUTE TOXIC

O1 OTHER HAZARDS

O2 OTHER HAZARDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable. Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

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SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H260	In contact with water releases flammable gases which may ignite spontaneously.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H360F	May damage fertility.
EUH014	Reacts violently with water.

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 3

Reactivity: 2

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Labotiq shall not be held liable for any damage resulting from handling or from contact with the above product.

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Revision Date : March 17, 2025