

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**
Version: **GHS 3.0 en**
Replaces version of: 2022-02-07
Version: (GHS 2)

date of compilation: 2020-09-02
Revision: 2024-03-02

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

1.1 Product identifier

| | |
|---------------------------------|---------------------------------------|
| Identification of the substance | Sodium borodeuteride 98 Atom%D |
| Article number | HN89 |
| CAS number | 15681-89-7 |

1.2 Relevant identified uses of the substance or mixture and uses advised against

| | |
|---------------------------|---|
| Relevant identified uses: | Laboratory chemical Laboratory and analytical use |
| Uses advised against: | Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). Food, drink and animal feedingstuffs. |

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co. KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

| Name | Street | Postal code/city | Telephone | Website |
|--|-----------------|--------------------|-----------|---------|
| NSW Poisons Information Centre Childrens Hospital | Hawkesbury Road | 2145 Westmead, NSW | 131126 | |

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

| Section | Hazard class | Category | Hazard class and category | Hazard statement |
|---------|---|----------|---------------------------|------------------|
| 2.12 | Substance and mixture which, in contact with water, emits flammable gas | 1 | Water-react. 1 | H260 |
| 3.10 | Acute toxicity (oral) | 3 | Acute Tox. 3 | H301 |
| 3.2 | Skin corrosion/irritation | 1C | Skin Corr. 1C | H314 |

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|-----------------------------------|-----------|---------------------------|------------------|
| 3.3 | Serious eye damage/eye irritation | 1 | Eye Dam. 1 | H318 |
| 3.7 | Reproductive toxicity | 1B | Repr. 1B | H360FD |

Supplemental hazard information

| Code | Supplemental hazard information |
|--------|---------------------------------|
| AUH014 | reacts violently with water |

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. In contact with water releases flammable gases which may ignite spontaneously.

2.2 Label elements

Labelling

Signal word

Danger

Pictograms

GHS02, GHS05,
GHS06, GHS08



Hazard statements

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 (if swallowed)

Precautionary statements

Precautionary statements - prevention

P231+P232 Handle and store contents under inert gas. Protect from moisture
P260 Do not breathe dusts or mists
P280 Wear eye protection/face protection

Precautionary statements - response

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P335+P334 IF ON SKIN: Brush off loose particles from skin. Immerse in cool water or wrap in wet bandages
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P370+P378 In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction

For professional users only

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

Supplemental hazard information

AUH014 Reacts violently with water.

2.3 Other hazards

This material is combustible, but will not ignite readily.

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|-------------------|----------------------|
| Name of substance | Sodium borodeuteride |
| Molecular formula | NaBD ₄ |
| Molar mass | 41.86 g/mol |
| CAS No | 15681-89-7 |

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion

Rinse mouth immediately and drink plenty of water. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects). In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

4.2 Most important symptoms and effects, both acute and delayed

Corrosion, Risk of blindness, Gastric perforation, Risk of serious damage to eyes

4.3 Indication of any immediate medical attention and special treatment needed

none

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: HN89

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings!
dry extinguishing powder, D-powder, dry sand

Unsuitable extinguishing media

water

5.2 Special hazards arising from the substance or mixture

Product may release hydrogen gas. Increased storage temperatures will accelerate this process. Water-reactive (in contact with water releases flammable gases).

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe dust.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains. Take up mechanically.

Advice on how to clean up a spill

Take up mechanically. Control of dust. Take up carefully when dry.

Other information relating to spills and releases

Place in appropriate containers for disposal.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: HN89

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Handle and open container with care. Avoid exposure. Avoid dust formation. Clear contaminated areas thoroughly.

Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Advice on general occupational hygiene

When using do not eat or drink. Thorough skin-cleansing after handling the product. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place. Keep container tightly closed. Hygroscopic solid.

Incompatible substances or mixtures

Observe hints for combined storage. Do not allow contact with water.

Evaporative conditions

Keep container tightly closed and in a well-ventilated place.

Protect against external exposure, such as

humidity

Consideration of other advice:

Store locked up.

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection. Wear face protection.

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P3 (filters at least 99,95 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|---|
| Physical state | solid |
| Form | crystalline |
| Colour | white |
| Odour | odourless |
| Melting point/freezing point | >300 °C |
| Boiling point or initial boiling point and boiling range | not determined |
| Flammability | substance which, in contact with water, emits flammable gases (in accordance with GHS criteria) |

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

| | |
|--|-----------------------------|
| Lower and upper explosion limit | not determined |
| Flash point | 69 °C (c.c.) |
| Auto-ignition temperature | not determined |
| Decomposition temperature | not relevant |
| pH (value) | not applicable |
| Kinematic viscosity | not relevant |
| <u>Solubility(ies)</u> | |
| Water solubility | (spontaneous decomposition) |
| <u>Partition coefficient</u> | |
| Partition coefficient n-octanol/water (log value): | not relevant (inorganic) |
| Vapour pressure | not determined |
| <u>Density and/or relative density</u> | |
| Density | not determined |
| Bulk density | ~400 kg/m ³ |
| Particle characteristics | No data available. |
| <u>Other safety parameters</u> | |
| Oxidising properties | none |

9.2 Other information

| | |
|---|-------------------------------------|
| Information with regard to physical hazard classes: | There is no additional information. |
| Other safety characteristics: | There is no additional information. |

SECTION 10: Stability and reactivity

10.1 Reactivity

It's a reactive substance. Reactivity with water.

10.2 Chemical stability

Moisture-sensitive. Hygroscopic solid.

10.3 Possibility of hazardous reactions

Material reacts vigorously with water emitting flammable gases,
Violent reaction with: strong oxidiser, Alcohols, Metal powder, Phenol, Acids, Sulphuric acid, Hydrogen peroxide,
=> Explosive properties

10.4 Conditions to avoid

Protect from moisture.

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

10.5 Incompatible materials

There is no additional information.

Release of flammable materials with

Water

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

Toxic if swallowed.

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

May damage the unborn child (if swallowed). May damage fertility (if swallowed).

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)

• If in eyes

causes burns, Causes serious eye damage, risk of blindness

• If inhaled

cough, irritant effects, Dyspnoea

• If on skin

causes severe burns, causes poorly healing wounds

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

• Other information

Other adverse effects: Cardiovascular system, Cardiac arrhythmias

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H4.3 Substances or wastes which, in contact with water emit ammable gases

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

SECTION 14: Transport information

14.1 UN number

| | |
|----------------|---------|
| UN RTDG | UN 1426 |
| IMDG-Code | UN 1426 |
| ICAO-TI | UN 1426 |

14.2 UN proper shipping name

| | |
|----------------|--------------------|
| UN RTDG | SODIUM BOROHYDRIDE |
| IMDG-Code | SODIUM BOROHYDRIDE |
| ICAO-TI | Sodium borohydride |

14.3 Transport hazard class(es)

| | |
|----------------|-----|
| UN RTDG | 4.3 |
| IMDG-Code | 4.3 |
| ICAO-TI | 4.3 |

14.4 Packing group

| | |
|----------------|---|
| UN RTDG | I |
| IMDG-Code | I |
| ICAO-TI | I |

14.5 Environmental hazards

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user


There is no additional information.

14.7 Transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport information National regulations Additional information(UN RTDG)

| | |
|---|---------------|
| UN number | 1426 |
| Class | 4.3 |
| Packing group | I |
| Danger label(s) | 4.3 |
|  | |
| Special provisions (SP) | - UN RTDG |
| Excepted quantities (EQ) | E0 UN RTDG |
| Limited quantities (LQ) | 0 UN RTDG |



Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

| | |
|---|------------------------------------|
| Emergency Action Code | 4W |
| International Maritime Dangerous Goods Code (IMDG) - Additional information | |
| Proper shipping name | SODIUM BOROHYDRIDE |
| Particulars in the shipper's declaration | UN1426, SODIUM BOROHYDRIDE, 4.3, I |
| Marine pollutant | - |
| Danger label(s) | 4.3 |
|  | |
| Special provisions (SP) | - |
| Excepted quantities (EQ) | E0 |
| Limited quantities (LQ) | 0 |
| EmS | <u>F-G</u> , S-O |
| Stowage category | E |
| International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information | |
| Proper shipping name | Sodium borohydride |
| Particulars in the shipper's declaration | UN1426, Sodium borohydride, 4.3, I |
| Danger label(s) | 4.3 |
|  | |
| Excepted quantities (EQ) | E0 |

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

Substance is listed.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

| Country | Inventory | Status |
|---------|-----------|---------------------|
| AU | AIIC | substance is listed |
| EU | ECSI | substance is listed |
| KR | KECI | substance is listed |
| NZ | NZIoC | substance is listed |
| TW | TCSI | substance is listed |

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

Legend

| | |
|-------|--|
| AIIC | Australian Inventory of Industrial Chemicals |
| ECSI | EC Substance Inventory (EINECS, ELINCS, NLP) |
| KECI | Korea Existing Chemicals Inventory |
| NZIoC | New Zealand Inventory of Chemicals |
| TCSI | Taiwan Chemical Substance Inventory |

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---------------------------|--|-----------------|
| 2.1 | | Supplemental hazard information: change in the listing (table) | yes |
| 2.2 | | Supplemental hazard information | yes |
| 2.2 | | Supplemental hazard information: change in the listing (table) | yes |
| 2.3 | | Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$. | yes |
| 14.8 | | Emergency Action Code: 4W | yes |
| 15.1 | | National inventories: change in the listing (table) | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------|---|
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| ED | Endocrine disruptor |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| NLP | No-Longer Polymer |

Safety data sheet

acc. to Safe Work Australia - Code of Practice



Sodium borodeuteride 98 Atom%D

article number: **HN89**

| Abbr. | Descriptions of used abbreviations |
|---------|---|
| PBT | Persistent, Bioaccumulative and Toxic |
| UN RTDG | UN Recommendations on the Transport of Dangerous Good |
| vPvB | Very Persistent and very Bioaccumulative |

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|--------|---|
| 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. |
| H360FD | May damage fertility. May damage the unborn child (if swallowed). |

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.