

## SAFETY DATA SHEET

Version 8.5  
Revision Date 09/17/2021  
Print Date 05/28/2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Sodium cyanoborodeuteride

Product Number : 190020  
Brand : Aldrich  
CAS-No. : 25895-62-9

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

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable solids (Category 1), H228  
Acute toxicity, Oral (Category 2), H300  
Acute toxicity, Inhalation (Category 2), H330  
Acute toxicity, Dermal (Category 2), H310  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Aldrich - 190020

Page 1 of 10

|                            |                                                                                                                                                                            |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard statement(s)        |                                                                                                                                                                            |
| H228                       | Flammable solid.                                                                                                                                                           |
| H300 + H310 + H330         | Fatal if swallowed, in contact with skin or if inhaled.                                                                                                                    |
| H314                       | Causes severe skin burns and eye damage.                                                                                                                                   |
| Precautionary statement(s) |                                                                                                                                                                            |
| P210                       | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.                                                                                                        |
| P240                       | Ground/bond container and receiving equipment.                                                                                                                             |
| P241                       | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                                                                                                          |
| P260                       | Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.                                                                                                                       |
| P262                       | Do not get in eyes, on skin, or on clothing.                                                                                                                               |
| P264                       | Wash skin thoroughly after handling.                                                                                                                                       |
| P270                       | Do not eat, drink or smoke when using this product.                                                                                                                        |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                                                                            |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                                                              |
| P284                       | Wear respiratory protection.                                                                                                                                               |
| P301 + P310 + P330         | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.                                                                                                       |
| P301 + P330 + P331         | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.                                                                                                                         |
| P302 + P350 + P310         | IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.                                                              |
| P303 + P361 + P353         | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.                                                                       |
| P304 + P340 + P310         | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.                                                       |
| P305 + P351 + P338 + P310  | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P362                       | Take off contaminated clothing and wash before reuse.                                                                                                                      |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                                                                                       |
| P403 + P233                | Store in a well-ventilated place. Keep container tightly closed.                                                                                                           |
| P405                       | Store locked up.                                                                                                                                                           |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.                                                                                                        |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                                                                            |
|------------------|----------------------------------------------------------------------------|
| Synonyms         | : Deuterated sodium cyanoborohydride<br>Deuterated sodium borocyanohydride |
| Formula          | : CD <sub>3</sub> BNNa                                                     |
| Molecular weight | : 65.80 g/mol                                                              |
| CAS-No.          | : 25895-62-9                                                               |
| EC-No.           | : 247-318-8                                                                |

| Component | Classification | Concentration |
|-----------|----------------|---------------|
|-----------|----------------|---------------|

|                                  |                                                                                                    |          |
|----------------------------------|----------------------------------------------------------------------------------------------------|----------|
| <b>Sodium cyanoborodeuteride</b> |                                                                                                    |          |
|                                  | Flam. Sol. 1; Acute Tox. 2;<br>Skin Corr. 1B; Eye Dam.<br>1; H228, H300, H330,<br>H310, H314, H318 | <= 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. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### 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.

#### 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

Water Foam Carbon dioxide (CO2) Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

## **5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

Borane/boron oxides

Sodium oxides

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

## **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 generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. 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.

---

## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **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.

**Storage class**

Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

**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**

| Component                 | CAS-No.    | Value                          | Control parameters             | Basis                                                                                   |
|---------------------------|------------|--------------------------------|--------------------------------|-----------------------------------------------------------------------------------------|
| Sodium cyanoborodeuteride | 25895-62-9 | TWA                            | 5 mg/m <sup>3</sup>            | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|                           | Remarks    | Skin designation               |                                |                                                                                         |
|                           |            | C                              | 5 mg/m <sup>3</sup>            | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|                           |            | Danger of cutaneous absorption |                                |                                                                                         |
|                           |            | C                              | 4.7 ppm<br>5 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits                                                  |
|                           |            | PEL                            | 5 mg/m <sup>3</sup>            | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|                           |            | Skin                           |                                |                                                                                         |

**8.2 Exposure controls****Appropriate engineering controls**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**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

**Body Protection**

Flame retardant antistatic 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.

**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

|                                                 |                                                                                                    |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------|
| a) Appearance                                   | Form: Fine crystals and fragments<br>Color: white                                                  |
| b) Odor                                         | No data available                                                                                  |
| c) Odor Threshold                               | No data available                                                                                  |
| d) pH                                           | No data available                                                                                  |
| e) Melting point/freezing point                 | Melting point/range: > 242 °C (> 468 °F) - lit.<br>Melting point/range: > 242 °C (> 468 °F) - dec. |
| f) Initial boiling point and boiling range      | No data available                                                                                  |
| g) Flash point                                  | ( )No data available                                                                               |
| h) Evaporation rate                             | No data available                                                                                  |
| i) Flammability (solid, gas)                    | The substance or mixture is a flammable solid with the category 1.                                 |
| j) Upper/lower flammability or explosive limits | No data available                                                                                  |
| k) Vapor pressure                               | No data available                                                                                  |
| l) Vapor density                                | No data available                                                                                  |
| m) Density                                      | No data available                                                                                  |
| Relative density                                | No data available                                                                                  |
| n) Water solubility                             | No data available                                                                                  |
| o) Partition coefficient: n-octanol/water       | No data available                                                                                  |
| p) Autoignition temperature                     | No data available                                                                                  |
| q) Decomposition temperature                    | No data available                                                                                  |
| r) Viscosity                                    | No data available                                                                                  |
| s) Explosive properties                         | No data available                                                                                  |
| t) Oxidizing properties                         | No data available                                                                                  |

### 9.2 Other safety information

No data available

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

## 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .  
May decompose on exposure to moist air or water.

## 10.3 Possibility of hazardous reactions

No data available

## 10.4 Conditions to avoid

no information available

## 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

LD50 Oral - 5.1 mg/kg

Oral: No data available

LC50 Inhalation - 4.0 h - 0.051 mg/l

Inhalation: No data available

LD50 Dermal - 51.0 mg/kg

Dermal: No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

## 11.2 Additional Information

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.

---

## SECTION 12: Ecological information

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

---

## SECTION 14: Transport information

### DOT (US)

UN number: 3179    Class: 4.1 (6.1)    Packing group: II  
Proper shipping name: Flammable solid, toxic, inorganic, n.o.s. (Sodium cyanoborodeuteride)  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### IMDG

UN number: 3179    Class: 4.1 (6.1)    Packing group: II    EMS-No: F-A, S-G  
Proper shipping name: FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (Sodium cyanoborodeuteride)



**IATA**

UN number: 3179 Class: 4.1 (6.1) Packing group: II  
Proper shipping name: Flammable solid, toxic, inorganic, n.o.s. (Sodium cyanoborodeuteride)

---

**SECTION 15: Regulatory information****SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

|                           |                       |                             |
|---------------------------|-----------------------|-----------------------------|
| Sodium cyanoborodeuteride | CAS-No.<br>25895-62-9 | Revision Date<br>2015-07-08 |
|---------------------------|-----------------------|-----------------------------|

**New Jersey Right To Know Components**

|                           |                       |                             |
|---------------------------|-----------------------|-----------------------------|
| Sodium cyanoborodeuteride | CAS-No.<br>25895-62-9 | Revision Date<br>2015-07-08 |
|---------------------------|-----------------------|-----------------------------|

---

**SECTION 16: Other information****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. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

Details in analogy to the undeuterated compound.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

