Sodium Cyanoborohydride

Size: 0.5g
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Substance
Substance name: sodium cyanoborohydride
EC-No.: 247-317-2
CAS-No.: 25895-60-7
Product code: 223S
Type of product: Pure substance
Formula: NaBH3CN
Synonyms: borate(1-), (cyano-C)trihydro-, sodium, (beta-4)- / borate(1-), (cyano-C)trihydro-, sodium, (T-4)- / sodium (cyano-C)trihydroborate(1-) / sodium borocyanohydride / sodium cyanohydridoborate / sodium cyanotrihydridoborate / sodium cyanotrihydroborate
Product group: Raw material
BIG No.: 31989

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

1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number
Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Belfast Centre) Royal Victoria Hospital</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Birmingham Centre) City Hospital</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Cardiff Centre) Gwenny Ward, Llandough Hospital</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital Trust</td>
<td>Averley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Substances and Mixtures which, in contact with water, emit flammable gases, Category 1
Acute toxicity (oral), Category 3
sodium cyanoborohydride

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

急性毒性（皮肤），类别3 H311
急性毒性（吸入），类别3 H331
皮肤刺激/眼刺激，类别1B H314

Full text of H-statements: see section 16

2.2. 标签元素

标签根据《EC》第1272/2008号[CLP]：

危险符号（CLP）

GHS02, GHS05, GHS06

CLP信号词

：危险

危险声明（CLP）

H260 - 在接触水中释放可燃性气体，可能自行点燃。H301+H311+H331 - 若吞服，接触皮肤或若吸入。
H314 - 造成严重的皮肤烧伤和眼损伤。

预防措施声明（CLP）

P223 - 不允许接触水。
P231+P232 - 在惰性气体下，处理和存储容器。保护从水分。
P260 - 不要吸入烟/雾/气/蒸气/喷雾。
P264 - 洗手，前臂和脸彻底。
P270 - 不要吃，喝或吸烟。
P271 - 在使用本产品时，不要吸入。
P260 - 不要吸入烟/雾/气/蒸气/喷雾。
P280 - 佩戴防护手套/防护服装/防护眼睛/防护面罩。
P301+P310 - 若吞服：立即拨打中毒中心或医生。
P301+P330+P331 - 若吞服：漱口。不要诱导呕吐。
P302+P335+P334 - 若皮肤：冲刷掉粒子，用冷水。
P302+P352 - 若皮肤：冲刷掉粒子，用冷水。
P304+P340 - 若吸入：立即打电话给中毒中心或医生。
P305+P351+P338 - 若在眼睛：冲洗小心几次。继续冲洗。
P310 - 立即致电中毒中心或医生。
P312 - 邮件到中毒中心。
P313+P314 - 在火：使用其他水来熄灭。
P370+P378 - 若在火：使用其他方法来熄灭。
P370+P378 - 若在火：使用其他方法来熄灭。
P402+P404 - 存放于干燥处。存放于有良好通风的地方。
P403+P223 - 存放在一个通风良好的地方。保持容器紧闭。
P405 - 倒入危险废物收集点。
P501 - 废弃于有毒废物收集点。根据当地，区域，国家和/或国际规则。

2.3. 其他危险

无额外信息

3.2. 混合物

不适用

SECTION 3: Composition/information on ingredients

3.1. 物质

物质类型：单组分

<table>
<thead>
<tr>
<th>名称</th>
<th>产品标识</th>
<th>%</th>
<th>根据《EC》第1272/2008号[CLP]的分类</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium cyanoborohydride</td>
<td>(CAS-No.) 25895-60-7 (EC-No.) 247-317-2</td>
<td>100</td>
<td>水解反应, 1, H260, 口服急性毒性, H301, 吸入急性毒性, H311, 呼吸道刺激, H331, 皮肤刺激, H314</td>
</tr>
</tbody>
</table>

全文本H声明：参阅第16节

3.2. 混合物

不适用
sodium cyanoborohydride
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general:

First-aid measures after inhalation:
- Remove the victim into fresh air.

First-aid measures after skin contact:
- Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Remove clothing while washing. Cover wounds with sterile bandage. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact:
- Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist. Do not apply neutralizing agents.

First-aid measures after ingestion:
- Rinse mouth with water. Do not induce vomiting. Do not give activated charcoal. Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Do not give chemical antidote. Call Poison Information Centre (www.big.be/antigif.htm).

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation:

Symptoms/effects after skin contact:
- Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact:
- Visual disturbances. Corrosion of the eye tissue.

Symptoms/effects after ingestion:

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
- Quick-acting ABC powder extinguisher. Class B foam (after consulting specialist).

Unsuitable extinguishing media:

5.2. Special extinguishing media arising from the substance or mixture

Fire hazard:
- DIRECT FIRE HAZARD: Non-flammable. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Heating increases the fire hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard:
- DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark. Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Advice for firefighters

Precautionary measures fire:
- Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions:
- When cooling/extinguishing: no water in the substance. Do not move the load if exposed to heat. Dilute toxic gases with water spray.

Protection during firefighting:
- Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment:

Emergency procedures:

Measures in case of dust release:
sodium cyanoborohydride
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions
Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up
For containment: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Hazardous reaction: measure explosive gas-air mixture. Powdered form: no compressed air for pumping over spills.
Methods for cleaning up: Cover spill with inert material, e.g.: dry sand dry lime or soda ash. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Additional hazards when processed: Pulverization rapidly increases toxic concentration.
Precautions for safe handling: Avoid raising dust. Keep away from naked flames/heat. In finely divided state: use spark- /explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Powdered form: no compressed air for pumping over. Avoid contact of substance with water. Keep container tightly closed.

Hygiene measures: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids.
Storage area: Store in a dry area. Keep container in a well-ventilated place. Keep locked up. May be stored under nitrogen. May be stored under argon. Meet the legal requirements. Store at room temperature.
Special rules on packaging: SPECIAL REQUIREMENTS: closing. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials: SUITABLE MATERIAL: glass.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
No additional information available

8.2. Exposure controls
Appropriate engineering controls: Ensure good ventilation of the work station.

Hand protection:
Gloves

Eye protection:
Face shield. In case of dust production: protective goggles

Skin and body protection:
Corrosion-proof clothing. In case of dust production: head/neck protection

Respiratory protection:
Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus

Environmental exposure controls: Avoid release to the environment.
**sodium cyanoborohydride**

**Safety Data Sheet**

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

---

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Solid, Powder.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>62.84 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>White to off-white.</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>241 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>241 °C</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>In contact with water releases flammable gases which may ignite spontaneously.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.2</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in methanol, Soluble in tetrahydrofuran, Soluble in alcohols.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>9.2. Other information</td>
<td></td>
</tr>
<tr>
<td>VOC content</td>
<td>Not applicable (inorganic)</td>
</tr>
<tr>
<td>Other properties</td>
<td>Hygroscopic.</td>
</tr>
</tbody>
</table>

---

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

In contact with water releases flammable gases which may ignite spontaneously.

**10.2. Chemical stability**

Unstable on exposure to moisture.

**10.3. Possibility of hazardous reactions**

In contact with water releases flammable gases which may ignite spontaneously.

**10.4. Conditions to avoid**

Water, humidity.

**10.5. Incompatible materials**

No additional information available

**10.6. Hazardous decomposition products**

Hazardous decomposition products.

---

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Toxic in contact with skin.</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Toxic if inhaled.</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Serious eye damage, category 1, Implicit</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

---

5/11/2017 (Version: 1.1) EN (English) 5/9
sodium cyanoborohydride
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830


### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general: Before neutralisation, the product may represent a danger to aquatic organisms.

Ecology - water: Water pollutant (surface water). No data available on ecotoxicity.

Acute aquatic toxicity: Not classified

Chronic aquatic toxicity: Not classified

#### 12.2. Persistence and degradability

**sodium cyanoborohydride (25895-60-7)**

Biodegradability: not applicable.

Chemical oxygen demand (COD): Not applicable

ThOD: Not applicable

BOD (% of ThOD): Not applicable

#### 12.3. Bioaccumulative potential

**sodium cyanoborohydride (25895-60-7)**

Bioaccumulative potential: No bioaccumulation data available.

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

#### 12.6. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods


Product/Packaging disposal recommendations: Remove to an authorized waste treatment plant. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Specific preliminary treatment.


European List of Waste (LoW) code: 15 01 10* - packaging containing residues of or contaminated by dangerous substances 16 03 03* - inorganic wastes containing dangerous substances

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

| UN-No. (ADR) | Not regulated |
| UN-No. (IMDG) | 3134 |
| UN-No. (IATA) | 3134 |
| UN-No. (ADN) | 3134 |
| UN-No. (RID) | Not regulated |

#### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | Not regulated |
| Proper Shipping Name (IMDG) | FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. |
| Proper Shipping Name (IATA) | Flammable solid, toxic, inorganic, n.o.s. |
| Proper Shipping Name (ADN) | Water-reactive solid, toxic, n.o.s. |
| Proper Shipping Name (RID) | Not regulated |

| Transport document description (IMDG) | UN 3134 FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S., 4.1 (6.1), III |
| Transport document description (IATA) | UN 3134 Flammable solid, toxic, inorganic, n.o.s., 4.3, I |
| Transport document description (ADN) | UN 3134 Water-reactive solid, toxic, n.o.s., 4.3 (6.1), I |
sodium cyanoborohydride
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR) : Not regulated

IMDG
Transport hazard class(es) (IMDG) : 4.1 (6.1)
Danger labels (IMDG) : 4.1, 6.1

IATA
Transport hazard class(es) (IATA) : 4.3 (6.1)
Hazard labels (IATA) : 4.3, 6.1

ADN
Transport hazard class(es) (ADN) : 4.3 (6.1)
Danger labels (ADN) : 4.3, 6.1

RID
Transport hazard class(es) (RID) : Not regulated

14.4. Packing group

Packing group (ADR) : Not regulated
Packing group (IMDG) : III
Packing group (IATA) : I
Packing group (ADN) : I
Packing group (RID) : Not regulated

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

Overland transport
Not regulated

Transport by sea
Transport regulations (IMDG) : Subject
Special provisions (IMDG) : 223, 274, 915
Limited quantities (IMDG) : 5 kg
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P002
IBC packing instructions (IMDG) : IBC06
Tank instructions (IMDG) : T1
Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-G
Stowage category (IMDG) : B
Stowage and handling (IMDG) : SW2
sodium cyanoborohydride
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Properties and observations (IMDG)
Toxic if swallowed, by skin contact or by dust inhalation. Should be handled with care to minimize exposure, particularly to dust.

Air transport
Transport regulations (IATA) : Subject to the provisions
PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y443
PCA limited quantity max net quantity (IATA) : 10kg
PCA packing instructions (IATA) : 446
PCA max net quantity (IATA) : 25kg
CAO packing instructions (IATA) : 449
CAO max net quantity (IATA) : 100kg
Special provisions (IATA) : A3
ERG code (IATA) : 3P

Inland waterway transport
Classification code (ADN) : WT2

Rail transport
Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

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

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
sodium cyanoborohydride is not on the REACH Candidate List
sodium cyanoborohydride is not on the REACH Annex XIV List
sodium cyanoborohydride is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

VOC content : Not applicable (inorganic)

15.1.2. National regulations
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Acute Toxic (Dermal)</th>
<th>Acute toxicity (dermal), Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxic (Inhalation)</td>
<td>Acute toxicity (inhal.). Category 3</td>
</tr>
<tr>
<td>Acute Toxic (Oral)</td>
<td>Acute toxicity (oral), Category 3</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation, Category 1B</td>
</tr>
<tr>
<td>Water-react. 1</td>
<td>Substances and Mixtures which, in contact with water, emit flammable gases, Category 1</td>
</tr>
<tr>
<td>H260</td>
<td>In contact with water releases flammable gases which may ignite spontaneously.</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled.</td>
</tr>
</tbody>
</table>

Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.