



Safety Data Sheet

Cat. # 786-061

Sodium Cyanoborohydride

Size: 0.5g





sodium cyanoborohydride

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Revision date: 5/11/2017 Version: 1.1

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	: NaBH ₃ CN
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 cyanohydroborate / sodium cyanotrihydroborate / 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)

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

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 H260

Acute toxicity (oral), Category 3 H301

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Acute toxicity (dermal), Category 3	H311
Acute toxicity (inhal.), Category 3	H331
Skin corrosion/irritation, Category 1B	H314
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

In contact with water releases flammable gases which may ignite spontaneously. Toxic in contact with skin. Toxic if inhaled. Toxic if swallowed. Causes severe skin burns and eye damage.

2.2. Label elements

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

Hazard pictograms (CLP)



CLP Signal word

: Danger

Hazard statements (CLP)

: H260 - In contact with water releases flammable gases which may ignite spontaneously.
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled.
H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP)

: P223 - Do not allow contact with water.
P231+P232 - Handle and store contents under inert gas. Protect from moisture.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face 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.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P335+P334 - IF ON SKIN: Brush off loose particles from skin. Immerse in cool water.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER or doctor.
P312 - Call a POISON CENTRE or doctor if you feel unwell.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P330 - Rinse mouth.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use media other than water to extinguish.
P402+P404 - Store in a dry place. Store in a closed container.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
sodium cyanoborohydride	(CAS-No.) 25895-60-7 (EC-No.) 247-317-2	100	Water-react. 1, H260 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1B, H314

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

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SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
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	: Dry/sore throat. Coughing. Nausea. Vomiting. Headache. Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible oedema of the upper respiratory tract. Possible laryngeal spasm/oedema. Risk of pneumonia. Respiratory difficulties.
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	: Burns to the gastric/intestinal mucosa. Shock. Change in the haemogramme/blood composition. Headache. Nausea. Vomiting. Dizziness. Mental confusion. Disturbances of consciousness. Blue/grey discolouration of the skin. Respiratory difficulties.

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	: Quick-acting BC powder extinguisher. Quick-acting CO ₂ extinguisher. Quick-acting class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.

5.2. Special hazards 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".
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

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	: Gloves. Face-shield. Corrosion-proof suit. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit. Reactivity hazard: compressed air/oxygen apparatus. Reactivity hazard: gas-tight suit.
Emergency procedures	: Mark the danger area. Prevent dust cloud formation. No naked flames. Keep containers closed. Avoid ingress of water in the containers. On contact with moisture/water: consider evacuation. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation. Wash contaminated clothes.
Measures in case of dust release	: In case of dust production: keep upwind. In case of dust production: consider evacuation. Dust production: have neighbourhood close doors and windows. In case of dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

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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

Storage conditions : Protect from moisture. Store in a dry place. Store in a closed container. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.

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.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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

9.2. Other information

VOC content	: Not applicable (inorganic)
Other properties	: Hygroscopic.

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

Acute toxicity (oral)	: Toxic if swallowed.
Acute toxicity (dermal)	: Toxic in contact with skin.
Acute toxicity (inhalation)	: Toxic if inhaled.
Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Serious eye damage, category 1, implicit
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

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Potential adverse human health effects and symptoms : Toxic if swallowed. Obstructs oxygen absorption if ingested. Toxic in contact with skin. Causes severe skin burns. Toxic if inhaled. Corrosive to the respiratory tract. Causes serious eye damage.

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)

Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

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Bioaccumulative potential	No bioaccumulation data available.
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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

Waste treatment methods : 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.
Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
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)	: UN 3134
UN-No. (IATA)	: UN 3134
UN-No. (ADN)	: UN 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

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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)

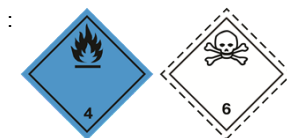
Hazard labels (IATA) : 4.3, 6.1



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

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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.

sodium cyanoborohydride is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

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:	
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Water-react. 1	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.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.

Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)

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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.