

Creation Date 21-May-2014

Revision Date 11-Dec-2020

Revision Number 5

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1. Product identifier**

**Product Description:** Sodium cyanoborohydride  
**Cat No. :** 168550000; 168550100; 168550500; 168552500  
**Synonyms** Sodium cyanotrihydroborate  
**CAS-No** 25895-60-7  
**EC-No.** 247-317-2  
**Molecular Formula** C H3 B N Na

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

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

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

**Company** **UK entity/business name**  
 Fisher Scientific UK  
 Bishop Meadow Road, Loughborough,  
 Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
 Acros Organics BVBA  
 Janssen Pharmaceuticaaan 3a  
 2440 Geel, Belgium

**E-mail address** begel.sdsdesk@thermofisher.com

**1.4. Emergency telephone number**

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

**SECTION 2: HAZARDS IDENTIFICATION**

**2.1. Classification of the substance or mixture**

**CLP Classification - Regulation (EC) No 1272/2008**

**Physical hazards**

Flammable solids Category 2 (H228)  
 Substances/mixtures which, in contact with water, emit flammable gases Category 2 (H261)

**Health hazards**

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Acute oral toxicity	Category 2 (H300)
Acute dermal toxicity	Category 2 (H310)
Acute Inhalation Toxicity - Dusts and Mists	Category 2 (H330)
Skin Corrosion/Irritation	Category 1 B (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
<b>Environmental hazards</b>	
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Danger

## Hazard Statements

- H228 - Flammable solid
- H261 - In contact with water releases flammable gases
- H314 - Causes severe skin burns and eye damage
- H410 - Very toxic to aquatic life with long lasting effects
- H300 + H310 + H330 - Fatal if swallowed, in contact with skin or if inhaled
- EUH032 - Contact with acids liberates very toxic gas

## Precautionary Statements

- 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/physician
- P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- P273 - Avoid release to the environment
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

## 2.3. Other hazards

- Decomposes in contact with water
- Toxic to terrestrial vertebrates

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Borate(1-), (cyano-C)trihydro-, sodium,	25895-60-7	EEC No. 247-317-2	>94	Flam. Sol. 2 (H228)

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(T-4)-					Wat. React. 2 (H261) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Acute Tox. 2 (H300) Acute Tox. 2 (H310) Acute Tox. 2 (H330) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) (EUH032)
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Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>General Advice</b>	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
<b>Eye Contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

<b>Notes to Physician</b>	Treat symptomatically.
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## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

#### **Extinguishing media which must not be used for safety reasons**

Water.

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

The product causes burns of eyes, skin and mucous membranes. Do not allow run-off from fire-fighting to enter drains or water courses.

### **Hazardous Combustion Products**

Nitrogen oxides (NOx), Hydrogen cyanide (hydrocyanic acid), Hydrogen, Oxides of boron, Thermal decomposition can lead to release of irritating gases and vapors.

## **5.3. Advice for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate personnel to safe areas. Use personal protective equipment as required. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid dust formation.

### **6.2. Environmental precautions**

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

### **6.3. Methods and material for containment and cleaning up**

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

### **6.4. Reference to other sections**

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

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

Use only under a chemical fume hood. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Wear personal protective equipment/face protection. Do not breathe (dust, vapor, mist, gas). Avoid dust formation.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

### **7.2. Conditions for safe storage, including any incompatibilities**

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

**Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK)**  
**(Germany)**

Class 4.3

### **7.3. Specific end use(s)**

Use in laboratories

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s):

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

**Derived No Effect Level (DNEL)** No information available

<u>Route of exposure</u>	<b>Acute effects (local)</b>	<b>Acute effects (systemic)</b>	<b>Chronic effects (local)</b>	<b>Chronic effects (systemic)</b>
Oral Dermal Inhalation				

**Predicted No Effect Concentration (PNEC)** No information available.

### 8.2. Exposure controls

#### Engineering Measures

Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

<b>Glove material</b>	<b>Breakthrough time</b>	<b>Glove thickness</b>	<b>EU standard</b>	<b>Glove comments</b> (minimum requirement)
Natural rubber	See manufacturers	-	EN 374	
Nitrile rubber	recommendations			
Neoprene				
PVC				

**Skin and body protection** Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

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<b>Respiratory Protection</b>	A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
<b>Large scale/emergency use</b>	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced <b>Recommended Filter type:</b> Particulates filter conforming to EN 143
<b>Small scale/Laboratory use</b>	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. <b>Recommended half mask:-</b> Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted
<b>Environmental exposure controls</b>	Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

<b>Physical State</b>	Powder Solid	
<b>Appearance</b>	White	
<b>Odor</b>	No information available	
<b>Odor Threshold</b>	No data available	
<b>Melting Point/Range</b>	> 242 °C / > 467.6 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flammability (liquid)</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Autoignition Temperature</b>	175 °C / 347 °F	
<b>Decomposition Temperature</b>	242 °C	
<b>pH</b>	8-9	10% aq. solution
<b>Viscosity</b>	Not applicable	Solid
<b>Water Solubility</b>	2120 g/L at 29°C (decomposes slowly)	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Vapor Pressure</b>	No information available	
<b>Density / Specific Gravity</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Particle characteristics</b>	No data available	

### 9.2. Other information

<b>Molecular Formula</b>	C H3 B N Na
<b>Molecular Weight</b>	62.84
<b>Flammable solids</b>	Burning rate or burning time = > 2.2 mm/s or < 45 secs Wetted zone passed - No
<b>Substances/mixtures which, in contact with water, emit flammable gases</b>	Emitted gas ignites spontaneously Gas(es) = Hydrogen
<b>Evaporation Rate</b>	Not applicable - Solid

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## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Yes

### 10.2. Chemical stability

Decomposes slowly on exposure to water, Moisture sensitive.

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization**  
**Hazardous Reactions**

No information available.

No information available.

### 10.4. Conditions to avoid

Incompatible products. Excess heat. Exposure to moist air or water.

### 10.5. Incompatible materials

Acids. Water. Oxidizing agent.

### 10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Hydrogen cyanide (hydrocyanic acid). Hydrogen. Oxides of boron.  
Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

#### (a) acute toxicity;

Oral	Category 2
Dermal	Category 2
Inhalation	Category 2

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

#### (d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

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(i) STOT-repeated exposure;	No data available
Target Organs	No information available.
(j) aspiration hazard;	Not applicable Solid
Other Adverse Effects	The toxicological properties have not been fully investigated.
Symptoms / effects, both acute and delayed	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

## 11.2. Information on other hazards

Endocrine Disrupting Properties	Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.
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## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### Ecotoxicity effects

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. Reacts with water so no ecotoxicity data for the substance is available.

### 12.2. Persistence and degradability

#### Persistence Degradability Degradation in sewage treatment plant

Persistence is unlikely, based on information available, Soluble in water.  
Not relevant for inorganic substances, Decomposes in contact with water.  
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants. No information available. Decomposes in contact with water.

### 12.3. Bioaccumulative potential

Product does not bioaccumulate due to reaction with water; Bioaccumulation is unlikely

### 12.4. Mobility in soil

Decomposes in contact with water The product is water soluble, and may spread in water systems Is not likely mobile in the environment. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

### 12.5. Results of PBT and vPvB assessment

Decomposes in contact with water.

### 12.6. Endocrine disrupting properties

#### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### 12.7. Other adverse effects

#### Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS



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## 13.1. Waste treatment methods

<b>Waste from Residues/Unused Products</b>	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
<b>European Waste Catalogue (EWC)</b>	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
<b>Other Information</b>	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

<b>14.1. UN number</b>	UN3134
<b>14.2. UN proper shipping name</b>	Water-reactive solid, toxic, n.o.s
<b>Technical Shipping Name</b>	Borate(1-), (cyano-C)trihydro-, sodium, (T-4)-
<b>14.3. Transport hazard class(es)</b>	4.3
<b>Subsidiary Hazard Class</b>	6.1
<b>14.4. Packing group</b>	II

### ADR

<b>14.1. UN number</b>	UN3134
<b>14.2. UN proper shipping name</b>	Water-reactive solid, toxic, n.o.s
<b>Technical Shipping Name</b>	Borate(1-), (cyano-C)trihydro-, sodium, (T-4)-
<b>14.3. Transport hazard class(es)</b>	4.3
<b>Subsidiary Hazard Class</b>	6.1
<b>14.4. Packing group</b>	II

### IATA

<b>14.1. UN number</b>	UN3134
<b>14.2. UN proper shipping name</b>	Water-reactive solid, toxic, n.o.s
<b>Technical Shipping Name</b>	Borate(1-), (cyano-C)trihydro-, sodium, (T-4)-
<b>14.3. Transport hazard class(es)</b>	4.3
<b>Subsidiary Hazard Class</b>	6.1
<b>14.4. Packing group</b>	II

**14.5. Environmental hazards** Dangerous for the environment  
Product is a marine pollutant according to the criteria set by IMDG/IMO

**14.6. Special precautions for user** No special precautions required

**14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

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## International Inventories

X = listed, Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (ECL).

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Borate(1-), (cyano-C)trihydro-, sodium, (T-4)-	247-317-2	-		X	-	X	X	-	X	X	KE-05-11 86

## Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

## National Regulations

### WGK Classification

Water endangering class = 3 (self classification)

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

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

H228 - Flammable solid  
H261 - In contact with water releases flammable gases  
H300 - Fatal if swallowed  
H310 - Fatal in contact with skin  
H330 - Fatal if inhaled  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H400 - Very toxic to aquatic life  
H410 - Very toxic to aquatic life with long lasting effects  
EUH032 - Contact with acids liberates very toxic gas

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

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**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** (volatile organic compound)

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

## Training Advice

Chemical incident response training.

**Creation Date** 21-May-2014

**Revision Date** 11-Dec-2020

**Revision Summary** Update to CLP Format.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006  
COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No  
1907/2006**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**