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: NaBH₃CN
Synonyms: borate(1-), (cyano-C)trihydro-, sodium, (beta-4)-; borate(1-), (cyano-C)trihydro-, sodium, (T-4)-; cyanoborohydride de sodium / natriumtrihydriocyanoborat / Natriumtrihydropyridocyanoborato / sodium (cyano-C)trihydroborate(1-) / sodium borocyanohydride / sodium cyanoborohydride / sodium cyanohydridoborate / sodium cyanotrihydridoborate / sodium cyanotrihydroborate / sodium trihydridocyanoborate

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 (Int'l)

<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)</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)</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)</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
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<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service 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</td>
<td>Avonley Road SE14 5ER London</td>
<td>0870 243 2241</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</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 H301
Acute toxicity (dermal), Category 3 H311
Acute toxicity (inhal.), Category 3 H331
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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) : GHS02 GHS05 GHS06

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.
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 and protective clothing/eye protection/face protection.
P301+P303+P330 - 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</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>Water-react. 1, H260 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1B, H314</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable
sodium cyanoborohydride
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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. 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 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".

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:


### 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. Avoid contact of substance with water. 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.

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:


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
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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.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>VOC content</td>
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<tr>
<td>Other properties</td>
<td>Hygroscopic.</td>
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</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

Acute toxicity (oral): Oral: Toxic if swallowed.
Acute toxicity (dermal): Dermal: Toxic in contact with skin.
Acute toxicity (inhalation): 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


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.
Biochemical oxygen demand (BOD): 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.
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<table>
<thead>
<tr>
<th>European List of Waste (LoW) code</th>
<th>Description</th>
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<tbody>
<tr>
<td>15 01 10*</td>
<td>packaging containing residues of or contaminated by dangerous substances</td>
</tr>
<tr>
<td>16 03 03*</td>
<td>inorganic wastes containing dangerous substances</td>
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</table>

## 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

### 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
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<table>
<thead>
<tr>
<th>Packing group (IMDG)</th>
<th>III</th>
</tr>
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<tbody>
<tr>
<td>Packing group (IATA)</td>
<td>I</td>
</tr>
<tr>
<td>Packing group (ADN)</td>
<td>I</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

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
  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

VOC content : Not applicable (inorganic)
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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

<table>
<thead>
<tr>
<th>Full text of H- and EUH-statements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 3 (Dermal)</td>
</tr>
<tr>
<td>Acute Tox. 3 (Inhalation)</td>
</tr>
<tr>
<td>Acute Tox. 3 (Oral)</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
</tr>
<tr>
<td>Water-react. 1</td>
</tr>
<tr>
<td>H260</td>
</tr>
<tr>
<td>H301</td>
</tr>
<tr>
<td>H311</td>
</tr>
<tr>
<td>H314</td>
</tr>
<tr>
<td>H331</td>
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</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.