1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Acetone cyanohydrin
Product Number : 00591
Brand : Fluka
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Toxic by inhalation., Highly toxic by ingestion, Highly toxic by skin absorption

Target Organs
Central nervous system, Blood, Heart, Liver, Kidney

GHS Classification
Flammable liquids (Category 4)
Acute toxicity, Oral (Category 2)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H227 Combustible liquid
H300 + H310 Fatal if swallowed or in contact with skin
H330 Fatal if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash hands thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.
P284 Wear respiratory protection.
IF ON SKIN: Gently wash with plenty of soap and water.
Immediately call a POISON CENTER or doctor/physician.
Dispose of contents/container to an approved waste disposal plant.

HMIS Classification
- Health hazard: 4
- Chronic Health Hazard: *
- Flammability: 2
- Physical hazards: 0

NFPA Rating
- Health hazard: 4
- Fire: 2
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation: Toxic if inhaled. May cause respiratory tract irritation.
- Skin: May be fatal if absorbed through skin. May cause skin irritation.
- Eyes: May cause eye irritation.
- Ingestion: May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:
- α-Hydroxyisobutyronitrile
- 2-Hydroxyisobutyronitrile

Formula: C₄H₇NO
Molecular Weight: 85.10 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Cyanopropan-2-ol</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>75-86-5</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-909-4</td>
</tr>
<tr>
<td>Index-No.</td>
<td>608-004-00-X</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Cyanopropan-2-ol</td>
<td>75-86-5</td>
<td>C</td>
<td>1 ppm 4 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>15 minute ceiling value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA 2 ppm USA. Workplace Environmental Exposure Levels (WEEL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STEL 5 ppm USA. Workplace Environmental Exposure Levels (WEEL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C 5 mg/m3 USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation Headache Hypoxia/cyanosis Danger of cutaneous absorption</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Immersion protection**
Material: Chloroprene  
Minimum layer thickness: 0.6 mm  
Break through time: > 480 min  
Material tested: Camapren® (Aldrich Z677493, Size M)

**Splash protection**
Material: Nitrile rubber  
Minimum layer thickness: 0.4 mm  
Break through time: > 30 min  
Material tested: Camatril® (Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Eye protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**
- **Form**: clear, liquid
- **Colour**: light yellow

**Safety data**
- **pH**: no data available
- **Melting point**: Melting point/range: -19 °C (-2 °F) - lit.
- **Boiling point**: 82 °C (180 °F) at 31 hPa (23 mmHg) - lit.
- **Flash point**: 75 °C (167 °F) - closed cup
- **Ignition temperature**: no data available
- **Autoignition temperature**: no data available
- **Lower explosion limit**: 2.25 % (V)
- **Upper explosion limit**: 11 % (V)
- **Vapour pressure**: no data available
- **Density**: 0.932 g/cm³ at 25 °C (77 °F)
- **Water solubility**: no data available
- **Partition coefficient n-octanol/water**: no data available
Relative vapour density  no data available
Odour  no data available
Odour Threshold  no data available
Evaporation rate  no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 18.65 mg/kg

Inhalation LC50

Dermal LD50
LD50 Dermal - rabbit - 15.8 mg/kg

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

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

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

**Teratogenicity**
no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inhalation</strong></td>
<td>Toxic if inhaled. May cause respiratory tract irritation.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>May be fatal if swallowed.</td>
</tr>
<tr>
<td><strong>Skin</strong></td>
<td>May be fatal if absorbed through skin. May cause skin irritation.</td>
</tr>
<tr>
<td><strong>Eyes</strong></td>
<td>May cause eye irritation.</td>
</tr>
</tbody>
</table>

**Signs and Symptoms of Exposure**
Cough, Shortness of breath, Headache, Nausea, Vomiting, May cause cyanosis., Convulsions

**Synergistic effects**
no data available

**Additional Information**
RTECS: OD9275000

**12. ECOLOGICAL INFORMATION**

**Toxicity**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC50 - Oncorhynchus mykiss (rainbow trout) - 0.22 mg/l - 96.0 h</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>EC50 - Daphnia magna (Water flea) - 0.13 mg/l - 48 h</td>
</tr>
</tbody>
</table>

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodegradability</td>
<td>Biotic/Aerobic</td>
</tr>
<tr>
<td>Result</td>
<td>80 % - Readily biodegradable.</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

**13. DISPOSAL CONSIDERATIONS**

**Product**
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
Dispose of as unused product.
14. TRANSPORT INFORMATION

DOT (US)
UN number: 1541  Class: 6.1  Packing group: I
Proper shipping name: Acetone cyanohydrin, stabilized
Reportable Quantity (RQ): 10 lbs
Marine pollutant: No
Poison Inhalation Hazard: Hazard zone B

IMDG
UN number: 1541  Class: 6.1  Packing group: I  EMS-No: F-A, S-A
Proper shipping name: ACETONE CYANOHYDRIN, STABILIZED
Marine pollutant: Marine pollutant

IATA
UN number: 1541  Class: 6.1
Proper shipping name: Acetone cyanohydrin, stabilized
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Toxic by inhalation., Highly toxic by ingestion, Highly toxic by skin absorption

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

<table>
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SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

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SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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</tr>
</tbody>
</table>

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.