1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1,2-Dibromo-3-chloropropane
Product Number : 676713
Brand : Aldrich
Product Use : For laboratory research purposes.
Supplier : Sigma-Aldrich Canada Co.
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA
Telephone : +1 9058299500
Fax : +1 9058299292
Emergency Phone # (For both supplier and manufacturer) : 1-800-424-9300
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956
Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs
Testes., Central nervous system, Eyes, Liver, Kidney

WHMIS Classification

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3</td>
<td>Combustible Liquid</td>
<td>Flammable liquids (Category 4)</td>
</tr>
<tr>
<td>D1B</td>
<td>Toxic Material Causing Immediate and Serious Toxic Effects</td>
<td>Acute toxicity, Oral (Category 3)</td>
</tr>
<tr>
<td>D2A</td>
<td>Very Toxic Material Causing Other Toxic Effects</td>
<td>Acute toxicity, Inhalation (Category 2)</td>
</tr>
<tr>
<td>D2B</td>
<td>Toxic Material Causing Other Toxic Effects</td>
<td>Acute toxicity, Dermal (Category 4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye irritation (Category 2B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Germ cell mutagenicity (Category 1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carcinogenicity (Category 1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reproductive toxicity (Category 1A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specific target organ toxicity - repeated exposure (Category 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute aquatic toxicity (Category 3)</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger
Hazard statement(s)
H227  Combustible liquid
H301  Toxic if swallowed.
H312  Harmful in contact with skin.
H320  Causes eye irritation.
H330  Fatal if inhaled.
H340  May cause genetic defects.
H350  May cause cancer.
H360  May damage fertility or the unborn child.
H373  May cause damage to organs through prolonged or repeated exposure.
H402  Harmful to aquatic life.

Precautionary statement(s)
P201  Obtain special instructions before use.
P260  Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280  Wear protective gloves/ protective clothing.
P284  Wear respiratory protection.
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.

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

Potential Health Effects
Inhalation  Toxic if inhaled. May cause respiratory tract irritation.
Skin  May cause skin irritation.
Eyes  May cause eye irritation.
Ingestion  Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS
Synonyms  : DBCP
Formula  : C₃H₅Br₂Cl
Molecular Weight  : 236.33 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-12-8</td>
<td>202-479-3</td>
<td>602-021-00-6</td>
<td>-</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
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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, Hydrogen chloride gas, Hydrogen bromide gas

Explosion data - sensitivity to mechanical impact
no data available

Explosion data - sensitivity to static discharge
no data available

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

Contains no substances with occupational exposure limit values.

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.
Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash protection
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 60 min
Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, 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.

Specific engineering controls
Use mechanical exhaust or laboratory fume hood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
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</tr>
</tbody>
</table>

**Safety data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>no data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>60 - 65 °C (140 - 149 °F) at 10.0 hPa (7.5 mmHg)</td>
</tr>
<tr>
<td>Flash point</td>
<td>76.7 °C (170.1 °F)</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>no data available</td>
</tr>
<tr>
<td>Density</td>
<td>2.081 g/cm³ at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>no data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: 3.11</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>no data available</td>
</tr>
</tbody>
</table>
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 oxidizing agents, Magnesium

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas, Hydrogen bromide gas
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 170.0 mg/kg

Inhalation LC50
LC50 Inhalation - rat - 8 h - 103 ppm

Dermal LD50
LD50 Dermal - rabbit - 1,400 mg/kg

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Severe skin irritation

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity

May alter genetic material.
In vivo tests showed mutagenic effects

Carcinogenicity
This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC: 2B - Group 2B: Possibly carcinogenic to humans (1,2-Dibromo-3-chloropropene)

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.

Reproductive toxicity

May cause reproductive disorders.
Teratogenicity

Known human reproductive toxicant

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

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
no data available

**Potential health effects**

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Toxic if inhaled. May cause respiratory tract irritation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>Skin</td>
<td>May cause skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>May cause eye irritation.</td>
</tr>
</tbody>
</table>

**Signs and Symptoms of Exposure**
Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue, Central nervous system depression, Gastrointestinal disturbance, Damage to the eyes, Liver injury may occur, Kidney injury may occur.

**Synergistic effects**
no data available

**Additional Information**
RTECS: TX8750000

12. **ECOLOGICAL INFORMATION**

**Toxicity**
Toxicity to fish LC50 - other fish - 20 mg/l - 48.0 h

**Persistence and degradability**
no data available

**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.
Harmful to aquatic life.

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: 2872  Class: 6.1  Packing group: III
Proper shipping name: Dibromochloropropane
Reportable Quantity (RQ): 1 lbs
Marine Pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2872  Class: 6.1  Packing group: III
Proper shipping name: DIBROMOCHLOROPROPANES
Marine Pollutant: No

IATA
UN number: 2872  Class: 6.1  Packing group: III
Proper shipping name: Dibromochloropropanes

15. REGULATORY INFORMATION

WHMIS Classification

\begin{align*}
\text{B3} & \quad \text{Combustible Liquid} & \quad \text{Combustible Liquid} \\
\text{D1B} & \quad \text{Toxic Material Causing Immediate and Serious Toxic Effects} & \quad \text{Toxic by ingestion} \\
\text{D2A} & \quad \text{Very Toxic Material Causing Other Toxic Effects} & \quad \text{Toxic by inhalation.} \\
\text{D2B} & \quad \text{Toxic Material Causing Other Toxic Effects} & \quad \text{Teratogen} \\
\end{align*}

Carcinogen
Reproductive hazard
Mutagen

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information
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