1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1,2-Dibromoethane
Product Number : D40752
Brand : Aldrich
Company : Sigma-Aldrich
            3050 Spruce Street
            SAINT LOUIS MO  63103
            USA
Telephone : +18003255832
Fax : +18003255052
Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Carcinogen, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Corrosive

Target Organs
Liver, Kidney, Lungs, Eyes

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H350 May cause cancer.
H371 May cause damage to organs.
H401 Toxic 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.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTER or doctor/physician.

HMIS Classification
Health hazard: 3
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating
Health hazard: 3
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation
Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin
Toxic if absorbed through skin. Causes skin burns.

Eyes
Causes eye burns.

Ingestion
Toxic if swallowed. Causes burns.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : EDB
Ethylene dibromide

Formula : C$_2$H$_4$Br$_2$
Molecular Weight : 187.86 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>1,2-Dibromooethane</td>
<td>106-93-4</td>
<td>203-444-5</td>
<td>602-010-00-6</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. Continue rinsing eyes during transport to hospital.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

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

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE
Precautions for safe handling
Avoid inhalation of vapour or mist.
Normal measures for preventive fire protection.

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.
Light sensitive. May darken on storage

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>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. Danger of cutaneous absorption</td>
</tr>
<tr>
<td>1,2-Dibromoethane</td>
<td>106-93-4</td>
<td>TWA</td>
<td>20 ppm</td>
<td>1997-08-04</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEIL</td>
<td>30 ppm</td>
<td>1997-08-04</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peak</td>
<td>50 ppm</td>
<td>1997-08-04</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
</tr>
</tbody>
</table>

See Table Z-2

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.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid
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</td>
<td>8 - 11 °C (46 - 52 °F) - lit.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>131 - 132 °C (268 - 270 °F) - lit.</td>
</tr>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>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>72.0 hPa (54.0 mmHg) at 55.0 °C (131.0 °F)</td>
</tr>
<tr>
<td>Density</td>
<td>2.18 g/mL at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>no data available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
Alkali metals, Oxidizing agents, Magnesium

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen bromide gas

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LDLO Oral - Human - female - 90.0 mg/kg
LD50 Oral - rabbit - 55.0 mg/kg
LD50 Oral - guinea pig - 110.0 mg/kg
LD50 Oral - Chicken - 79.0 mg/kg
LD50 Oral - Quail - 130.0 mg/kg
LC50 Inhalation - rat - 0.5 h - 14,300 mg/m3
LD50 Dermal - rabbit - 300.0 mg/kg

Skin corrosion/irritation
Skin - rabbit - Severe skin irritation - 336 h

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity
no data available
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: 2A - Group 2A: Probably carcinogenic to humans (1,2-Dibromoethane)
NTP: Reasonably anticipated to be a human carcinogen (1,2-Dibromoethane)
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

Specific target organ toxicity - single exposure (GHS)
May cause damage to organs.

Specific target organ toxicity - repeated exposure (GHS)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion Toxic if swallowed. Causes burns.
Skin Toxic if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.

Signs and Symptoms of Exposure
Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting., Gastrointestinal disturbance, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: KH9275000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish Growth inhibition NOEC - Oryzias latipes - 5.81 mg/l - 96.0 h
Growth inhibition LOEC - Oryzias latipes - 9.62 mg/l - 96.0 h
LC50 - Oryzias latipes - 32.1 mg/l - 96.0 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.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
13. DISPOSAL CONSIDERATIONS

**Product**
Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**
- UN-Number: 1605 Class: 6.1 Packing group: I
- Proper shipping name: Ethylene dibromide
- Reportable Quantity (RQ): 1 lbs
- Marine pollutant: No
- Poison Inhalation Hazard: Hazard zone B

**IMDG**
- UN-Number: 1605 Class: 6.1 Packing group: I EMS-No: F-A, S-A
- Proper shipping name: ETHYLENE DIBROMIDE
- Marine pollutant: No

**IATA**
- UN-Number: 1605 Class: 6.1
- Proper shipping name: Ethylene dibromide
- IATA Passenger: Not permitted for transport
- IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

**OSHA Hazards**
Carcinogen, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Corrosive

**DSL Status**
All components of this product are on the Canadian DSL list.

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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

**Massachusetts Right To Know Components**

<table>
<thead>
<tr>
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<td>106-93-4</td>
<td>2007-07-01</td>
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**Pennsylvania Right To Know Components**

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**New Jersey Right To Know Components**

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**California Prop. 65 Components**

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<td>106-93-4</td>
<td>2008-10-10</td>
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WARNING! This product contains a chemical known to the State of California to cause cancer.
California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
1,2-Dibromoethane

16. OTHER INFORMATION

Further information
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