1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Propargyl bromide solution
Product Number: P51001
Brand: Aldrich
Supplier: Sigma-Aldrich
            3050 Spruce Street
            SAINT LOUIS MO  63103
            USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
                        Product Safety - Americas Region
                        1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Target Organ Effect, Toxic by ingestion, Irritant, Teratogen, Reproductive hazard

Target Organs
Central nervous system, Bladder, Liver, Kidney, Brain.

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Reproductive toxicity (Category 2)
Specific target organ toxicity - single exposure (Category 2)
Specific target organ toxicity - single exposure (Category 3)
Aspiration hazard (Category 1)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H301 Toxic if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 + H336 May cause respiratory irritation, and drowsiness or dizziness.
H361 Suspected of damaging fertility or the unborn child.
H371 May cause damage to organs.
H402 Harmful to aquatic life.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P281 Use personal protective equipment as required.
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.
P331 Do NOT induce vomiting.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

NFPA Rating
Health hazard: 2
Fire: 3
Reactivity Hazard: 0

Potential Health Effects
Inhalation May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Toxic if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3-Bromo-1-propyne

Formula : C₃H₃Br
Molecular Weight : 118.96 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Bromopropyne</td>
<td>Flam. Liq. 2; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H225, H301, H315, H319, H335</td>
<td>70 - 90 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>106-96-7</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>203-447-1</td>
<td></td>
</tr>
</tbody>
</table>

| Toluene            | Flam. Liq. 2; Skin Irrit. 2; Repr. 2; STOT SE 3; STOT RE 2; Asp. Tox. 1; H225, H304, H315, H336, H361d, H373 | 20 - 30 %    |
| CAS-No.            | 108-88-3                               |               |
| EC-No.             | 203-625-9                              |               |
| Index-No.          | 601-021-00-3                           |               |

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

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 bromide gas

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapours, 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).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. 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.

Recommended storage temperature: 2 - 8 °C

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>3-Bromopropylene</td>
<td>106-96-7</td>
<td>TWA</td>
<td>0.1 ppm</td>
<td>USA. Workplace Environmental Exposure Levels (WEEL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remarks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>TWA</td>
<td>100 ppm&lt;br&gt;375 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm&lt;br&gt;560 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>200 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
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</table>
### Remarks

<table>
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<tr>
<th>Remarks</th>
<th>Z37.12-1967</th>
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</table>

<table>
<thead>
<tr>
<th>CEIL</th>
<th>300 ppm</th>
<th>USA. Occupational Exposure Limits (OSHA) - Table Z2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Peak</th>
<th>500 ppm</th>
<th>USA. Occupational Exposure Limits (OSHA) - Table Z2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TWA</th>
<th>20 ppm</th>
<th>USA. ACGIH Threshold Limit Values (TLV)</th>
</tr>
</thead>
</table>

Visual impairment  
Female reproductive  
Pregnancy loss  
2010 Adoption  
Substances for which there is a Biological Exposure Index or Indices (see BEI® section)  
Not classifiable as a human carcinogen

<table>
<thead>
<tr>
<th>TWA</th>
<th>100 ppm</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>375 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ST</th>
<th>150 ppm</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>560 mg/m³</td>
<td></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.

**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, Flame retardant antistatic protective clothing, 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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- Form: liquid  
- Colour: no data available

**Safety data**
- pH: no data available  
- Melting point/freezing point: no data available  
- Boiling point: 88 - 90 °C (190 - 194 °F)  
- Flash point: 18 °C (64 °F) - closed cup  
- Ignition temperature: no data available
### 10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
Vapours may form explosive mixture with air.

**Conditions to avoid**
Heat, flames and sparks. Extremes of temperature and direct sunlight.

**Materials to avoid**
Bases, Strong oxidizing agents, Copper, Peroxides, Silver/silver oxides, Mercury/mercury oxides.

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

Contains the following stabiliser(s):
Magnesium oxide (0.3 %)

### 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50/LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>no data available</td>
</tr>
<tr>
<td>Inhalation</td>
<td>no data available</td>
</tr>
<tr>
<td>Dermal</td>
<td>no data available</td>
</tr>
</tbody>
</table>

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
no data available

**Serious eye damage/eye irritation**
Eyes: no data available

**Respiratory or skin sensitisation**
no data available

**Germ cell mutagenicity**

Carcinogenicity
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Toluene)
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
  Inhalation  May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
  Ingestion  Toxic if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.
  Skin  May be harmful if absorbed through skin. Causes skin irritation.
  Eyes  Causes eye irritation.

Signs and Symptoms of Exposure
Lung irritation, chest pain, pulmonary edema, Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce, and scrotum in animals., Headache

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available

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**
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. 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: 2345  
- Class: 3  
- Packing group: II  
- Proper shipping name: 3-Bromopropylene  
- Reportable Quantity (RQ): 5000 lbs  
- Marine pollutant: No  
- Poison Inhalation Hazard: No  

**IMDG**
- UN number: 2345  
- Class: 3  
- Packing group: II  
- EMS-No: F-E, S-D  
- Proper shipping name: 3-BROMOPROPYNE  
- Marine pollutant: No  

**IATA**
- UN number: 2345  
- Class: 3  
- Packing group: II  
- Proper shipping name: 3-Bromopropylene  

15. REGULATORY INFORMATION

**OSHA Hazards**
- Flammable liquid, Target Organ Effect, Toxic by ingestion, Irritant, Teratogen, Reproductive hazard

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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tbody>
<tr>
<td>3-Bromopropylene</td>
<td>106-96-7</td>
<td>1993-04-24</td>
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</table>

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

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<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

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

**Massachusetts Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>3-Bromopropylene</td>
<td>106-96-7</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

**Pennsylvania Right To Know Components**

<table>
<thead>
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<th>CAS-No.</th>
<th>Revision Date</th>
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</thead>
<tbody>
<tr>
<td>Toluene</td>
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</tr>
<tr>
<td>3-Bromopropylene</td>
<td>106-96-7</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

**New Jersey Right To Know Components**

<table>
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<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tr>
<td>Toluene</td>
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<td>3-Bromopropylene</td>
<td>106-96-7</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

**California Prop. 65 Components**

WARNING: This product contains a chemical known to the State of California to cause cancer.
16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

- **Acute Tox.** Acute toxicity
- **Asp. Tox.** Aspiration hazard
- **Eye Irrit.** Eye irritation
- **Flam. Liq.** Flammable liquids
- **H225** Highly flammable liquid and vapour.
- **H301** Toxic if swallowed.
- **H304** May be fatal if swallowed and enters airways.
- **H315** Causes skin irritation.
- **H319** Causes serious eye irritation.
- **H335** May cause respiratory irritation.
- **H336** May cause drowsiness or dizziness.
- **H361d** Suspected of damaging the unborn child.
- **H373** May cause damage to organs through prolonged or repeated exposure.
- **Repr.** Reproductive toxicity
- **Skin Irrit.** Skin irritation
- **STOT RE** Specific target organ toxicity - repeated exposure
- **STOT SE** Specific target organ toxicity - single exposure

Further information

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