1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 6-Bromo-1-hexene
Product Number : 247219
Brand : Aldrich
CAS-No. : 2695-47-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 1B), H360
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H360 May damage fertility or the unborn child.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233
Keep container tightly closed.
P240
Ground/bond container and receiving equipment.
P241
Use explosion-proof electrical/ventilating/lighting/equipment.
P242
Use only non-sparking tools.
P243
Take precautionary measures against static discharge.
P261
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264
Wash skin thoroughly after handling.
P271
Use only outdoors or in a well-ventilated area.
P280
Wear protective gloves/ eye protection/ face protection.
P281
Use personal protective equipment as required.
P303 + P351 + P338
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P312
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P353 + P351
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P308 + P313
IF exposed or concerned: Get medical advice/attention.
P332 + P313
If skin irritation occurs: Get medical advice/attention.
P337 + P313
If eye irritation persists: Get medical advice/attention.
P362
Take off contaminated clothing and wash before reuse.
P370 + P378
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233
Store in a well-ventilated place. Keep container tightly closed.
P403 + P235
Store in a well-ventilated place. Keep cool.
P405
Store locked up.
P501
Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula: C₆H₁₁Br
Molecular weight: 163.06 g/mol
CAS-No.: 2695-47-8

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-Bromohex-1-ene</td>
<td>Flam. Liq. 3; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H226, H315, H319, H335</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>N,N-Dimethylformamide</td>
<td>Flam. Liq. 3; Acute Tox. 4; Eye Irrit. 2A; Repr. 1B; H226, H312 + H332, H319, H360</td>
<td>&gt;= 1 - &lt; 5 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of 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. 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.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

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

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. 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. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 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).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 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. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
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. Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>68-12-2</td>
<td>TWA</td>
<td>10 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

**Remarks**
- Liver damage
- Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
- Not classifiable as a human carcinogen
- Danger of cutaneous absorption

**TWA**
- 10.000000 ppm USA. ACGIH Threshold Limit Values (TLV)
- 10.000000 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

**Skin designation**
- The value in mg/m³ is approximate.
- Potential for dermal absorption
- USA. NIOSH Recommended Exposure Limits

**TWA**
- 10 ppm
- 30 mg/m³ USA. NIOSH Recommended Exposure Limits

**Skin designation**
- The value in mg/m³ is approximate.

**PEL**
- 10 ppm
- 30 mg/m³ California permissible exposure limits for chemical contaminants (Title 8, Article 107)

#### Hazardous components without workplace control parameters

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylformamide</td>
<td>68-12-2</td>
<td>N-Methylformamide</td>
<td>15.0000 mg/l</td>
<td>In urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

**Remarks**
- End of shift (As soon as possible after exposure ceases)

**N-Acetyl-S-(N-methylcarbamoyl) cysteine**
- 40.0000 mg/l
- In urine
- ACGIH - Biological Exposure Indices (BEI)

**Prior to last shift of workweek**
8.2 Exposure controls

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face 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 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.

**Body Protection**
Impervious clothing, 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.

**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).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

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

b) **Odour**
   - No data available

c) **Odour Threshold**
   - No data available

d) **pH**
   - No data available

e) **Melting point/freezing point**
   - No data available

f) **Initial boiling point and boiling range**
   - 47 - 51 °C (117 - 124 °F) at 21 hPa (16 mmHg) - lit.

g) **Flash point**
   - No data available

h) **Evaporation rate**
   - No data available

i) **Flammability (solid, gas)**
   - No data available

j) **Upper/lower flammability or explosive limits**
   - No data available

k) **Vapour pressure**
   - No data available

l) **Vapour density**
   - No data available

m) **Relative density**
   - 1.22 g/cm3 at 25 °C (77 °F)

n) **Water solubility**
   - No data available

o) **Partition coefficient: n-octanol/water**
   - No data available

p) **Auto-ignition temperature**
   - No data available

q) **Decomposition**
   - No data available
9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY
10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Hydrogen bromide gas
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION
11.1 Information on toxicological effects

Acute toxicity
No data available

Dermal: No data available
No data available
No data available

Skin corrosion/irritation
No data available
No data available

Serious eye damage/eye irritation
No data available
No data available

Respiratory or skin sensitisation
No data available
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.
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

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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: 1993 Class: 3 Packing group: III
Proper shipping name: Flammable liquids, n.o.s. (6-Bromohex-1-ene)
Reportable Quantity (RQ): 3333 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1993  Class: 3  Packing group: III  EMS-No: F-E, S-E
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (6-Bromohex-1-ene)

IATA
UN number: 1993  Class: 3  Packing group: III
Proper shipping name: Flammable liquid, n.o.s. (6-Bromohex-1-ene)

15. REGULATORY INFORMATION

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

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

<table>
<thead>
<tr>
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<td>68-12-2</td>
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SARA 311/312 Hazards
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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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

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.  Acute toxicity
Eye Irrit.  Eye irritation
Flam. Liq.  Flammable liquids
H226  Flammable liquid and vapour.
H312 + H332  Harmful in contact with skin or if inhaled
H315  Causes skin irritation.
H319  Causes serious eye irritation.
H335  May cause respiratory irritation.
H360  May damage fertility or the unborn child.
Repr.  Reproductive toxicity
Skin Irrit.  Skin irritation
STOT SE  Specific target organ toxicity - single exposure

HMIS Rating
Health hazard:  2
Chronic Health Hazard:  *
Flammability:  0
Physical Hazard  0

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

**Further information**
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**Preparation Information**
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956
Version: 4.8  Revision Date: 05/27/2016  Print Date: 10/19/2018