MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

- **Product form**: Substance
- **EC-No.**: 203-697-1
- **CAS-No.**: 109-70-6
- **Product code**: 02268
- **Chemical structure**:

```
Br
\-----\-Cl
```

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

1.2.1. Relevant identified uses

- **Use of the substance/mixture**: Laboratory chemicals, Manufacture of substances

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

LOBA CHEMIE PVT.LTD.
107 Wode House Road, Jehangir Villa, Colaba
400005 Mumbai - INDIA
T +91 22 6663 6663 - F +91 22 6663 6699
info@lobachemie.com - www.lobachemie.com

1.4. Emergency telephone number

- **Emergency number**: +91 22 6663 6663 (9:00am - 6:00 pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

- **Classification according to Regulation (EC) No. 1272/2008 [CLP]**
  - Flammable liquids, Category 3: H226
  - Acute toxicity (oral), Category 4: H302
  - Acute toxicity (inhal.), Category 3: H331

Full text of H statements: see section 16
1-BROMO-3-CHLOROPROPANE For Synthesis
Safety Data Sheet

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
Xn; R20
Xn; R22
R10
Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

GHS02
GHS06

Signal word (CLP): Danger

Hazard statements (CLP):
H226 - Flammable liquid and vapour.
H302 - Harmful if swallowed.
H331 - Toxic if inhaled.

Precautionary statements (CLP):
P261 - Avoid breathing vapours, dust, fume, gas.
P311 - Call a POISON CENTER or doctor.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name: 1-BROMO-3-CHLOROPROPANE For Synthesis
CAS-No.: 109-70-6
EC-No.: 203-697-1

Full text of R- and H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: 
Assure fresh air breathing. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.

First-aid measures after skin contact: 
Take off immediately all contaminated clothing. Wash skin with plenty of water. Get immediate medical advice/attention.
First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Rinse mouth. Call a POISON CENTER/doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation: Toxic if inhaled.

Symptoms/effects after ingestion: Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Flammable liquid and vapour.

Explosion hazard: May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Use personal protective equipment as required.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Collect spillage. On land, sweep or shovel into suitable containers.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid contact with skin and eyes. Take precautionary measures against static discharge. Use only non-sparking tools. Provide good ventilation in process area to prevent formation of vapour. Keep away from sources of ignition - No smoking.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage conditions: Keep container tightly closed. Keep in fireproof place.
### Incompatible materials
Heat sources.

### 7.3. Specific end use(s)
No additional information available

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters
No additional information available

#### 8.2. Exposure controls

<table>
<thead>
<tr>
<th>Protection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand protection</td>
<td>Protective gloves</td>
</tr>
<tr>
<td>Eye protection</td>
<td>Chemical goggles or safety glasses</td>
</tr>
<tr>
<td>Skin and body protection</td>
<td>Wear suitable protective clothing</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>[In case of inadequate ventilation] wear respiratory protection.</td>
</tr>
</tbody>
</table>

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>157.44 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Clear colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>-59 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>144 - 145 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>45 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1.592 g/cm³ at 20°C</td>
</tr>
<tr>
<td>Solubility</td>
<td>Water: Insoluble</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
</tbody>
</table>
1-BROMO-3-CHLOROPROPANE For Synthesis
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
Open flame. Heat. Sparks.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Oral: Harmful if swallowed. Inhalation: Toxic if inhaled.

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified
Potential adverse human health effects and symptoms: Harmful if swallowed.

### SECTION 12: Ecological information

#### 12.1. Toxicity
No additional information available

#### 12.2. Persistence and degradability
No additional information available

#### 12.3. Bioaccumulative potential
No additional information available

#### 12.4. Mobility in soil
No additional information available

#### 12.5. Results of PBT and vPvB assessment
No additional information available

#### 12.6. Other adverse effects
No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- **Product/Packaging disposal recommendations**: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
- **Additional information**: Handle empty containers with care because residual vapours are flammable.

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

- UN-No. (ADR): 2688
- UN-No. (IMDG): 2688
- UN-No. (IATA): 2688
- UN-No. (ADN): 2688
- UN-No. (RID): 2688

#### 14.2. UN proper shipping name

- Proper Shipping Name (ADR): 1-BROMO-3-CHLOROPROPANE
- Proper Shipping Name (IMDG): 1-BROMO-3-CHLOROPROPANE
- Proper Shipping Name (IATA): 1-Bromo-3-chloropropane
- Proper Shipping Name (ADN): 1-BROMO-3-CHLOROPROPANE
- Proper Shipping Name (RID): 1-BROMO-3-CHLOROPROPANE
- Transport document description (ADR): UN 2688 1-BROMO-3-CHLOROPROPANE, 6.1, III, (E)
- Transport document description (IMDG): UN 2688 1-BROMO-3-CHLOROPROPANE, 6.1, III
- Transport document description (IATA): UN 2688 1-Bromo-3-chloropropane, 6.1, III
# 1-BROMO-3-CHLOROPROPANE For Synthesis
## Safety Data Sheet

| **Transport document description (ADN)** | UN 2688 1-BROMO-3-CHLOROPROPANE, 6.1, III |
| **Transport document description (RID)** | UN 2688 1-BROMO-3-CHLOROPROPANE, 6.1, III |

## 14.3. Transport hazard class(es)

### ADR
Transport hazard class(es) (ADR) : 6.1
Danger labels (ADR) : 6.1

### IMDG
Transport hazard class(es) (IMDG) : 6.1
Danger labels (IMDG) : 6.1

### IATA
Transport hazard class(es) (IATA) : 6.1
Hazard labels (IATA) : 6.1

### ADN
Transport hazard class(es) (ADN) : 6.1
Danger labels (ADN) : 6.1

### RID
Transport hazard class(es) (RID) : 6.1
Danger labels (RID) : 6.1

## 14.4. Packing group
Packing group (ADR) : III
Packing group (IMDG) : III
Packing group (IATA) : III
1-BROMO-3-CHLOROPROPANE For Synthesis
Safety Data Sheet

Packing group (ADN) : III
Packing group (RID) : III

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport
Classification code (ADR) : T1
Limited quantities (ADR) : 5l
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P001, IBC03, LP01, R001
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T4
Portable tank and bulk container special provisions (ADR) : TP1
Tank code (ADR) : L4BH
Tank special provisions (ADR) : TU15, TE19
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Special provisions for carriage - Packages (ADR) : V12
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
Special provisions for carriage - Operation (ADR) : S9
Hazard identification number (Kemler No.) : 60
Orange plates : 60

Tunnel restriction code (ADR) : E
EAC code : 2X

- Transport by sea
Packing instructions (IMDG) : P001, LP01
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-A
Stowage category (IMDG) : A
Properties and observations (IMDG) : Colourless liquid. Immiscible with water. Decomposes when heated, evolving highly toxic fumes. Toxic if swallowed, by skin contact or by inhalation.
MFAG-No : 159

- Air transport
PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y642
PCA limited quantity max net quantity (IATA) : 2L
PCA packing instructions (IATA) : 655
1-BROMO-3-CHLOROPROPANE For Synthesis
Safety Data Sheet

PCA max net quantity (IATA) : 60L
CAO packing instructions (IATA) : 663
CAO max net quantity (IATA) : 220L
ERG code (IATA) : 6L

- Inland waterway transport
Classification code (ADN) : T1
Special provisions (ADN) : 802
Limited quantities (ADN) : 5 L
Excepted quantities (ADN) : E1
Equipment required (ADN) : PP, EP, TOX, A
Ventilation (ADN) : VE02
Number of blue cones/lights (ADN) : 0

- Rail transport
Classification code (RID) : T1
Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T4
Portable tank and bulk container special provisions (RID) : TP1
Tank codes for RID tanks (RID) : L4BH
Special provisions for RID tanks (RID) : TU15
Transport category (RID) : 2
Special provisions for carriage – Packages (RID) : W12
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31
Colis express (express parcels) (RID) : CE8
Hazard identification number (RID) : 60

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
1-BROMO-3-CHLOROPROPANE For Synthesis is not on the REACH Candidate List
1-BROMO-3-CHLOROPROPANE For Synthesis is not on the REACH Annex XIV List

15.1.2. National regulations

Germany
Reference to AwSV : Water hazard class (WGK) 2, significant hazard to water (Classification according to AwSV; ID No. 920)
1-BROMO-3-CHLOROPROPANE For Synthesis
Safety Data Sheet


Netherlands
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark
Class for fire hazard : Class II-1
Store unit : 5 liter
Classification remarks : R10 <H226;H302;H331>; Emergency management guidelines for the storage of flammable liquids must be followed
Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-statements:

<table>
<thead>
<tr>
<th>Acute Tox. 3 (Inhalation)</th>
<th>Acute toxicity (inhal.), Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4 (Oral)</td>
<td>Acute toxicity (oral), Category 4</td>
</tr>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable liquids, Category 3</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled.</td>
</tr>
<tr>
<td>R10</td>
<td>Flammable</td>
</tr>
<tr>
<td>R20</td>
<td>Harmful by inhalation</td>
</tr>
<tr>
<td>R22</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>Xn</td>
<td>Harmful</td>
</tr>
</tbody>
</table>

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.