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

1.1 Product identifiers
   Product name : 2-Bromo Butane
   CAS-No. : 78-76-2

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses : Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
   Company : Central Drug House (P) Ltd
   7/28 Vardaan House
   New Delhi-10002
   INDIA
   Telephone : +91 11 49404040
   Email : care@cdhfinechemical.com

1.4 Emergency telephone number
   Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   Flammable liquids (Category 2), H225
   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements
   Labelling according Regulation (EC) No 1272/2008
   Pictogram

   Signal word Danger Flammable
   Hazard statement(s)
   H225 Highly flammable liquid and vapour.
   Precautionary statement(s)
   P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
   Supplemental Hazard Statements none
2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms: sec-Butyl bromide

Formula: C₄H₉Br
Molecular weight: 137.02 g/mol
CAS-No.: 78-76-2
EC-No.: 201-140-7

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Bromobutane</td>
<td>Flam. Liq. 2; H225</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>78-76-2</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>201-140-7</td>
<td></td>
</tr>
</tbody>
</table>

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

SECTION 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.

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
Flush eyes with water as a precaution.

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

SECTION 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
Carbon oxides, Hydrogen bromide gas

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.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
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. Discharge into the
environment must be avoided.

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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
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
Store in cool place. 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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

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 (US) or type ABEK (EN
14387) respirator cartridges as a backup to enginee 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. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: clear, liquid
   Colour: light brown

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
   91 °C - lit.

g) Flash point
   21 °C - closed cup

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
   1.255 g/cm³ at 25 °C

n) Water solubility
   No data available

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

p) Auto-ignition temperature
   No data available

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

s) Explosive properties
   No data available

t) Oxidizing properties
   No data available

9.2 Other safety information
   No data available

SECTION 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. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
   Strong oxidizing agents, Strong bases, Magnesium, Sodium/sodium oxides, Potassium
10.6 **Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen bromide gas
Other decomposition products - No data available
In the event of fire: see section 5

**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

- **Acute toxicity**
  No data available

- **Skin corrosion/irritation**
  No data available

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

- **Respiratory or skin sensitisation**
  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.

- **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: EJ6228000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Cough, Shortness of breath, Headache, Nausea, Vomiting

**SECTION 12: Ecological information**

12.1 **Toxicity**

- **Toxicity to fish**
  LC50 - other fish - 28.97 mg/l - 96 h

- **Toxicity to daphnia and other aquatic invertebrates**
  EC50 - Daphnia (water flea) - 32.28 mg/l - 48 h

- **Toxicity to algae**
  EC50 - Algae - 20.87 mg/l - 96 h

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
This substance/mixture contains no components considered to be either persistent, bioaccumulative and
toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Harmful to aquatic life.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer
surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2339  IMDG: 2339  IATA: 2339

14.2 UN proper shipping name
ADR/RID: 2-BROMOBUTANE
IMDG: 2-BROMOBUTANE
IATA: 2-Bromobutane

14.3 Transport hazard class(es)
ADR/RID: 3  IMDG: 3  IATA: 3

14.4 Packaging group
ADR/RID: II  IMDG: II  IATA: II

14.5 Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

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

H225 Highly flammable liquid and vapour.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used
only as a guide. The information in this document is based on the present state of our knowledge and is
applicable to the product with regard to appropriate safety precautions. It does not represent any
guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held
liable for any damage resulting from handling or from contact with the above product. See
www.cdhfinechemical.com for additional terms and conditions of sale.