DI-N-BUTYLAMINE FOR SYNTHESIS MSDS

CAS-No.: 111-92-2 MSDS

MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>111-92-2</td>
</tr>
<tr>
<td>Product code</td>
<td>3270A</td>
</tr>
<tr>
<td>Chemical structure</td>
<td>H(CH₃)₂C≡N(—CH₃)</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Dibutylamine</td>
</tr>
</tbody>
</table>

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

1.2.1. Relevant identified uses

<table>
<thead>
<tr>
<th>Use of the substance/mixture</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial/Professional use spec</td>
<td>Industrial</td>
</tr>
<tr>
<td>Use</td>
<td>For professional use only</td>
</tr>
</tbody>
</table>

Use of the substance/mixture: Laboratory chemicals

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 (9:00 am - 6:00 pm)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

<table>
<thead>
<tr>
<th>Classification</th>
<th>H Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids</td>
<td>H225</td>
</tr>
<tr>
<td>Acute toxicity (oral)</td>
<td>H302</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>H312</td>
</tr>
<tr>
<td>Acute toxicity (inhal.)</td>
<td>H332</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>H314</td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16
Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
Xn; R20/21/22
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
- GHS05
- GHS07

Signal word (CLP): Danger

Hazard statements (CLP):
- H225 - Highly flammable liquid and vapour.
- H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled
- H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP):
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P280 - Wear protective gloves, protective clothing, eye protection, face protection.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 - Immediately call a POISON CENTER or doctor.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name: DI-N-BUTYLAMINE FOR SYNTHESIS
CAS-No.: 111-92-2

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. Allow the victim to rest.
First-aid measures after skin contact: Take off immediately all contaminated clothing. Immediately call a POISON CENTER/doctor. Wash with plenty of water/….
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: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation: Harmful if inhaled.
Symptoms/effects after skin contact: Harmful in contact with skin.
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
Additional hazards when processed: Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling: Avoid contact with skin and eyes. Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from sources of ignition - No smoking. Do not breathe vapours.

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. Use explosion-proof electrical/ventilating/lighting 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

Hand protection: Protective gloves
Eye protection: Chemical goggles or safety glasses
Skin and body protection: Wear suitable protective clothing
Respiratory protection: [In case of inadequate ventilation] wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Molecular mass: 129.25 g/mol
Colour: Clear Colorless.
Odour: amine like.
Odour threshold: No data available
pH: 11.1 at 1 g/l at 20 °C
Relative evaporation rate (butylacetate=1): No data available
Melting point: -62 °C
Freezing point: No data available
Boiling point: 159 °C
Flash point: 40 °C
Auto-ignition temperature: 260 °C
 Decomposition temperature: No data available
### DI-N-BUTYLAMINE FOR SYNTHESIS

#### Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>2.5 hPa at 20 °C</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>4.5</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.76 g/cm³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Water: 4.05 g/l (25°C)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>2.06</td>
</tr>
<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>0.006 - 0.068 vol %</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. Dermal: Harmful in contact with skin. Inhalation: Harmful if inhaled.

Skin corrosion/irritation: Causes severe skin burns and eye damage. pH: 11.1 at 1 g/l at 20 °C

Serious eye damage/irritation: Serious eye damage, category 1, implicit. pH: 11.1 at 1 g/l at 20 °C

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. Harmful in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

| DI-N-BUTYLAMINE FOR SYNTHESIS (111-92-2) |
| Log Pow | 2.06 |

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): 2248
## DI-N-BUTYLAMINE FOR SYNTHESIS

**Safety Data Sheet**

| UN-No. (IMDG) | 2248 |
| UN-No. (IATA) | 2248 |
| UN-No. (ADN) | 2248 |
| UN-No. (RID) | 2248 |

### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | DI-N-BUTYLAMINE |
| Proper Shipping Name (IMDG) | DI-n-BUTYLAMINE |
| Proper Shipping Name (IATA) | Di-n-butylamine |
| Proper Shipping Name (ADN) | DI-N-BUTYLAMINE |
| Proper Shipping Name (RID) | DI-n-BUTYLAMINE |

| Transport document description (ADR) | UN 2248 DI-N-BUTYLAMINE, 8 (3), II, (D/E) |
| Transport document description (IMDG) | UN 2248 DI-n-BUTYLAMINE, 8 (3), II (39°C c.c.) |
| Transport document description (IATA) | UN 2248 Di-n-butylamine, 8 (3), II |
| Transport document description (ADN) | UN 2248 DI-N-BUTYLAMINE, 8 (3), II |
| Transport document description (RID) | UN 2248 DI-n-BUTYLAMINE, 8 (3), II |

### 14.3. Transport hazard class(es)

#### ADR

| Transport hazard class(es) (ADR) | 8 (3) |
| Danger labels (ADR) | 8, 3 |

#### IMDG

| Transport hazard class(es) (IMDG) | 8 (3) |
| Danger labels (IMDG) | 8, 3 |

#### IATA

| Transport hazard class(es) (IATA) | 8 (3) |
| Hazard labels (IATA) | 8, 3 |

#### ADN

| Transport hazard class(es) (ADN) | 8 (3) |
| Danger labels (ADN) | 8, 3 |
RID
Transport hazard class(es) (RID): 8 (3)
Danger labels (RID): 8, 3

14.4. Packing group
Packing group (ADR): II
Packing group (IMDG): II
Packing group (IATA): II
Packing group (ADN): II
Packing group (RID): II

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): CF1
Limited quantities (ADR): 1l
Excepted quantities (ADR): E2
Packing instructions (ADR): P001, IBC02
Mixed packing provisions (ADR): MP15
Portable tank and bulk container instructions (ADR): T7
Portable tank and bulk container special provisions (ADR): TP2
Tank code (ADR): L4BN
Vehicle for tank carriage: FL
Transport category (ADR): 2
Special provisions for carriage - Operation (ADR): S2
Hazard identification number (Kemler No.): 83
Orange plates: 83

Tunnel restriction code (ADR): D/E
EAC code: •3W
APP code: A(ff)

- Transport by sea
Limited quantities (IMDG): 1 L
Excepted quantities (IMDG): E2
Packing instructions (IMDG): P001
IBC packing instructions (IMDG): IBC02
Tank instructions (IMDG): T7
Tank special provisions (IMDG): TP2
DI-N-BUTYLAMINE FOR SYNTHESIS
Safety Data Sheet

EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-C
Stowage category (IMDG) : A
Flash point (IMDG) : 39°C c.c.
MFAG-No : 132

- Air transport
PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y840
PCA limited quantity max net quantity (IATA) : 0.5L
PCA packing instructions (IATA) : 851
PCA max net quantity (IATA) : 1L
CAO packing instructions (IATA) : 855
CAO max net quantity (IATA) : 30L
ERG code (IATA) : 8F

- Inland waterway transport
Classification code (ADN) : CF1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

- Rail transport
Classification code (RID) : CF1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Packing instructions (RID) : P001, IBC02
Mixed packing provisions (RID) : MP15
Portable tank and bulk container instructions (RID) : T7
Portable tank and bulk container special provisions (RID) : TP2
Tank codes for RID tanks (RID) : L4BN
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE6
Hazard identification number (RID) : 83

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
DI-N-BUTYLAMINE FOR SYNTHESIS is not on the REACH Candidate List
DI-N-BUTYLAMINE FOR SYNTHESIS is not on the REACH Annex XIV List
15.1.2. National regulations

Germany
Reference to AwSV : Water hazard class (WGK) 1, low hazard to water (Classification according to AwSV; ID No. 593)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-eliminatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-eliminatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-eliminatieve 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 <H225;H302+H312+H332;H314>: 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 Pregnant/breastfeeding women working with the product must not be in direct contact with 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>R-</th>
<th>Acute Tox. 4 (Dermal)</th>
<th>Acute toxicity (dermal), Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute Tox. 4 (Inhalation)</td>
<td>Acute toxicity (inhal.), Category 4</td>
</tr>
<tr>
<td></td>
<td>Acute Tox. 4 (Oral)</td>
<td>Acute toxicity (oral), Category 4</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2</td>
<td>Flammable liquids, Category 2</td>
</tr>
<tr>
<td></td>
<td>Skin Corr. 1A</td>
<td>Skin corrosion/irritation, Category 1A</td>
</tr>
<tr>
<td></td>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td></td>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td></td>
<td>H312</td>
<td>Harmful in contact with skin.</td>
</tr>
<tr>
<td></td>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td></td>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td>R10</td>
<td>Flammable</td>
</tr>
<tr>
<td></td>
<td>R20/21/22</td>
<td>Harmful by inhalation, in contact with skin and if swallowed</td>
</tr>
<tr>
<td></td>
<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.