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

1.1 Product identifiers
   Product name: N,N-Dimethyl Amino Ethanol
   CAS-No.: 108-01-0

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 3), H226
- Acute toxicity, Oral (Category 4), H302
- Acute toxicity, Inhalation (Category 3), H331
- Acute toxicity, Dermal (Category 4), H312
- Skin corrosion (Category 1B), H314

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC
- C Corrosive R34 R10
- Xn Harmful R20/21/22

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008
- Pictogram
Signal word: Danger

Hazard statement(s):
- H226: Flammable liquid and vapour.
- H302 + H312: Harmful if swallowed or in contact with skin.
- H314: Causes severe skin burns and eye damage.
- H331: Toxic if inhaled.

Precautionary statement(s):
- P261: Avoid breathing vapours.
- 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/ physician.

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.
Lachrymator.

SECTION 3: Composition/information on ingredients

3.1 Substances

| Synonyms | N,N-Dimethyl-2-hydroxyethylamine | N,N-Dimethylethanolamine |
| Formula | C_4H_11NO |
| Molecular weight | 89.14 g/mol |
| CAS-No. | 108-01-0 |
| EC-No. | 203-542-8 |
| Index-No. | 603-047-00-0 |

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-Dimethylaminoethanol</td>
<td>Flam. Liq. 3; Acute Tox. 4;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>108-01-0</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>203-542-8</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-047-00-0</td>
<td></td>
</tr>
</tbody>
</table>

Hazardous ingredients according to Directive 1999/45/EC

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Dimethylaminoethanol</td>
<td>C, R10 - R20/21/22 - R34</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>108-01-0</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>203-542-8</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-047-00-0</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases 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
Take off contaminated clothing and shoes immediately. 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.

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, Nitrogen oxides (NOx)

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
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. 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 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
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. Handle and store under inert gas. 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
Components with workplace control parameters

8.2 Exposure controls
Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

**Eye/face protection**
Tightly fitting safety goggles. Faceshield (8-inch minimum). 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**
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.

**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. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Form: clear, liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>light yellow</td>
</tr>
</tbody>
</table>
b) Odour  amine-like

c) Odour Threshold  No data available

d) pH  10.5 - 11.0 at 100 g/l at 20 °C

e) Melting point/freezing point  Melting point/range: -70 °C - lit.

f) Initial boiling point and boiling range  134 - 136 °C - lit.

g) Flash point  39 °C - closed cup

h) Evaporation rate  No data available

i) Flammability (solid, gas)  No data available

j) Upper/lower flammability or explosive limits  Upper explosion limit: 12.2 % (V)  Lower explosion limit: 1.4 % (V)

k) Vapour pressure  8.16 hPa at 20 °C

l) Vapour density  3.08 - (Air = 1.0)

m) Relative density  0.886 g/mL at 20 °C

n) Water solubility  soluble

o) Partition coefficient: n-octanol/water  log Pow: -0.549 at 23 °C

p) Auto-ignition temperature  230 °C at 1.013 hPa

q) Decomposition temperature  No data available

r) Viscosity  No data available

s) Explosive properties  Not explosive

t) Oxidizing properties  No data available

9.2 Other safety information

Dissociation constant  9.3 at 1.000 mg/l

Relative vapour density  3.08 - (Air = 1.0)

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.

10.5 Incompatible materials  
Oxidizing agents, Copper, Zinc, Iron, Do not store near acids.

10.6 Hazardous decomposition products  
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**
LD50 Oral - Rat - male and female - 1.182,7 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male - 4 h - 1641 ppm (OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - 1.219 mg/kg (OECD Test Guideline 402)

**Skin corrosion/irritation**
Skin - Rabbit
Result: Corrosive - 1 h (OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Corrosive (OECD Test Guideline 405)

**Respiratory or skin sensitisation**
Buehler Test - Guinea pig
Result: Does not cause skin sensitisation.

**Germ cell mutagenicity**
Hamster ovary
Result: negative
OECD Test Guideline 474
Mouse - male and female
Result: negative

**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: KK6125000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

SECTION 12: Ecological information

12.1 Toxicity

**Toxicity to fish**
LC50 - Leuciscus idus (Golden orfe) - > 100 - 220 mg/l - 96 h
static test LC50 - Leuciscus idus (Golden orfe) - 146,63 mg/l - 96 h (DIN 38412)
Toxicity to daphnia and other aquatic invertebrates

Toxicity to algae

<table>
<thead>
<tr>
<th>Test</th>
<th>EC50</th>
<th>Duration</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna (Water flea)</td>
<td>98.37 mg/l</td>
<td>48 h</td>
<td>(Directive 67/548/EEC, Annex V, C.2.)</td>
</tr>
<tr>
<td>Desmodesmus subspicatus (Scenedesmus subspicatus)</td>
<td>66.08 mg/l</td>
<td>72 h</td>
<td></td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

Biodegradability: aerobic - Exposure time 14 d
Result: 60.5% - Readily biodegradable.
(OECD Test Guideline 301C)

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.

SECTION 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.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

<table>
<thead>
<tr>
<th>ADR/RID: 2051</th>
<th>IMDG: 2051</th>
<th>IATA: 2051</th>
</tr>
</thead>
</table>

14.2 UN proper shipping name

<table>
<thead>
<tr>
<th>ADR/RID: 2-DIMETHYLAMINOETHANOL</th>
<th>IMDG: 2-DIMETHYLAMINOETHANOL</th>
<th>IATA: Dimethylaminoethanol</th>
</tr>
</thead>
</table>

14.3 Transport hazard class(es)

<table>
<thead>
<tr>
<th>ADR/RID: 8 (3)</th>
<th>IMDG: 8 (3)</th>
<th>IATA: 8 (3)</th>
</tr>
</thead>
</table>

14.4 Packaging group

<table>
<thead>
<tr>
<th>ADR/RID: II</th>
<th>IMDG: II</th>
<th>IATA: II</th>
</tr>
</thead>
</table>

14.5 Environmental hazards

<table>
<thead>
<tr>
<th>ADR/RID: no</th>
<th>IMDG Marine pollutant: no</th>
<th>IATA: no</th>
</tr>
</thead>
</table>

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

No data available
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.

Acute Tox. Acute toxicity
Flam. Liq. Flammable liquids
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H302 + H312 Harmful if swallowed or in contact with skin
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
Skin Corr. Skin corrosion

Full text of R-phrases referred to under sections 2 and 3

C Corrosive
R10 Flammable.
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
R34 Causes burns.

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.