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

1.1 Product identifiers
Product name : Diethylamine
CAS-No. : 109-89-7

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
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1A), 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
F Highly flammable R11
C Corrosive R35
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):
- H225: Highly flammable liquid and vapour.
- H302 + H332: Harmful if swallowed or if inhaled
- H311: Toxic in contact with skin.
- H314: Causes severe skin burns and eye damage.

Precautionary statement(s):
- 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.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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

<table>
<thead>
<tr>
<th>Formula</th>
<th>Molecular weight</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Hazardous ingredients according to Regulation (EC) No 1272/2008</th>
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<tr>
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<td>109-89-7</td>
<td>203-716-3</td>
<td>612-003-00-X</td>
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<tr>
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<td>Diethylamine</td>
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<td></td>
<td></td>
<td></td>
<td>CAS-No. 109-89-7 Flam. Liq. 2; Acute Tox. 4; &lt;= 100 %</td>
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<tr>
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<td>EC-No. 203-716-3 Acute Tox. 3; Skin Corr. 1A;</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>Index-No. 612-003-00-X H225, H302 + H332, H311,</td>
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<tr>
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<td></td>
<td></td>
<td>H314</td>
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<td>Hazardous ingredients according to Directive 1999/45/EC</td>
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<td>Component Classification Concentration</td>
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<td>Diethylamine</td>
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<tr>
<td></td>
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<td>CAS-No. 109-89-7 F, C, R11 - R20/21/22 - R35 &lt;= 100 %</td>
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</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
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.

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. Flash back possible over considerable distance. Container explosion may occur under fire conditions. 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
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 AXBEK (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

a) Appearance
Form: liquid
Colour: colourless

b) Odour
No data available

c) Odour Threshold
No data available

d) pH
13 at 100 g/l at 20 °C

e) Melting point/freezing point
Melting point/range: -50 °C

f) Initial boiling point and boiling range
55 °C

g) Flash point
-22,99 °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: 10,1 % (V)
Lower explosion limit: 1,8 % (V)
k) Vapour pressure 241,936 hPa at 20 °C
l) Vapour density 2,53 - (Air = 1.0)
m) Relative density 0,707 g/mL at 25 °C
n) Water solubility soluble
o) Partition coefficient: n-octanol/water log Pow: 0,58
p) Auto-ignition temperature 310 °C at 1.013 hPa
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
Surface tension 19,85 mN/m at 25 °C
Relative vapour density 2,53 - (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
Aldehydes, Alcohols, Dicyanofurazan, Ketones, phenols, Acids, Halogenated hydrocarbon, Oxidizing agents, Epoxides
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 - 540 mg/kg (OECD Test Guideline 401)
LC50 Inhalation - Rat - female - 4 h - 17,3 mg/l (OECD Test Guideline 403)
LD50 Dermal - Rabbit - male - 582 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Causes severe burns. - 1 min (OECD Test Guideline 404)

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

Respiratory or skin sensitisation
No data available
Germ cell mutagenicity
Mouse
lymphocyte
Result: negative

Mouse - male and female
Result: negative

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
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: HZ8750000
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Lachrymation

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish LC50 - Oryzias latipes - 27 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates semi-static test EC50 - Ceriodaphnia dubia (water flea) - 4,6 mg/l - 48 h
Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata (green algae) - 54 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria LC50 - Pseudomonas putida - 47 mg/l - 17 h

12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 28 d
Result: 68 - 70 % - 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
Toxic to aquatic life.
Do not empty into drains.
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</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1154</td>
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14.2 UN proper shipping name

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<th>ADR/RID</th>
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<tr>
<td>DIETHYLAMINE</td>
<td>DIETHYLAMINE</td>
<td>Diethylamine</td>
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14.3 Transport hazard class(es)

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14.4 Packaging group

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14.5 Environmental hazards

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<tbody>
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<td>no</td>
<td>Marine pollutant: no</td>
<td>no</td>
</tr>
</tbody>
</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.

<table>
<thead>
<tr>
<th>Acute Tox.</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq.</td>
<td>Flammable liquids</td>
</tr>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H302 + H332</td>
<td>Harmful if swallowed or if inhaled</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td>Skin Corr.</td>
<td>Skin corrosion</td>
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Full text of R-phrases referred to under sections 2 and 3

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<thead>
<tr>
<th>C</th>
<th>Corrosive</th>
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</thead>
<tbody>
<tr>
<td>F</td>
<td>Highly flammable</td>
</tr>
<tr>
<td>R11</td>
<td>Highly flammable.</td>
</tr>
<tr>
<td>R20/21/22</td>
<td>Harmful by inhalation, in contact with skin and if swallowed.</td>
</tr>
<tr>
<td>R35</td>
<td>Causes severe burns.</td>
</tr>
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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.