1. Identification

Product identifier used on the label

Lupragen® N 100 - N,N-Dimethylcyclohexylamine

Recommended use of the chemical and restriction on use
Recommended use*: for industrial and professional users

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company: BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula: C(8)H(17)N
Chemical family: amines, cyclic, aliphatic
Synonyms: N,N-Dimethylcyclohexanamine

2. Hazards Identification


Classification of the product

<table>
<thead>
<tr>
<th>Classification</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq.</td>
<td>3</td>
<td>Flammable liquids</td>
</tr>
<tr>
<td>Acute Tox.</td>
<td>3</td>
<td>(Inhalation - vapour)</td>
</tr>
<tr>
<td>Acute Tox.</td>
<td>3</td>
<td>(oral)</td>
</tr>
<tr>
<td>Acute Tox.</td>
<td>3</td>
<td>(dermal)</td>
</tr>
<tr>
<td>Skin Corr./Irrit.</td>
<td>1B</td>
<td>Skin corrosion/irritation</td>
</tr>
<tr>
<td>Eye Dam./Irrit.</td>
<td>1</td>
<td>Serious eye damage/eye irritation</td>
</tr>
<tr>
<td>Aquatic Acute</td>
<td>2</td>
<td>Hazardous to the aquatic environment - acute</td>
</tr>
</tbody>
</table>
Aquatic Chronic 2 Hazardous to the aquatic environment - chronic

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled
H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P260 Do not breathe dust/mist/vapours.
P273 Avoid release to the environment.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P240 Ground and bond container and receiving equipment.

Precautionary Statements (Response):
P310 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.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P391 Collect spillage.
P370 + P378 In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):
P233 Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Precautionary Statements (Disposal):
P501 Dispose of contents/container to hazardous or special waste collection point.
3. Composition / Information on Ingredients


<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Weight %</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>98-94-2</td>
<td>&gt;= 99.0%-&lt;= 100.0%</td>
<td>cyclohexyldimethylamine</td>
</tr>
</tbody>
</table>

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas with water while removing contaminated clothing. Immediate medical attention required.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:
Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11. Further symptoms are possible

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. Pulmonary edema prophylaxis. Medical monitoring for at least 24 hours.

5. Fire-Fighting Measures

Extinguishing media
Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture
Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters
Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Impact Sensitivity:
Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Breathing protection required. Avoid contact with the skin, eyes and clothing.

Environmental precautions
Do not discharge into drains/surface waters/groundwater.

Substance/product is RCRA hazardous due to its properties.

Methods and material for containment and cleaning up
Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Precautions for safe handling
Keep away from sources of ignition - No smoking. Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:
Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities
Segregate from acids and acid forming substances.

Suitable materials for containers: Carbon steel (Iron), Stainless steel 1.4401, Stainless steel 1.4301 (V2), tinned carbon steel (Tinplate), glass, High density polyethylene (HDPE)
 Unsuitable materials for containers: Paper/Fibreboard

Further information on storage conditions: Avoid extreme heat. Keep away from sources of ignition - No smoking.

Storage stability:
Storage duration: 24 Months
### 8. Exposure Controls/Personal Protection

No occupational exposure limits known.

**Advice on system design:**
Provide local exhaust ventilation to control vapours/mists.

**Personal protective equipment**

**Respiratory protection:**
Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

**Hand protection:**
Chemical resistant protective gloves

**Eye protection:**
Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

**Body protection:**
chemical-protection suit (f.e. according to EN 14605)

**General safety and hygiene measures:**
Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Store work clothing separately.

### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Odour:</td>
<td>amine-like</td>
</tr>
<tr>
<td>Odour threshold:</td>
<td>Not determined since toxic by inhalation.</td>
</tr>
<tr>
<td>Colour:</td>
<td>colourless to yellow</td>
</tr>
<tr>
<td>pH value:</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(5 g/l, 20 °C)</td>
</tr>
<tr>
<td></td>
<td>Literature data.</td>
</tr>
<tr>
<td>Melting point:</td>
<td>&lt; -77 °C</td>
</tr>
<tr>
<td></td>
<td>Literature data.</td>
</tr>
<tr>
<td>Boiling point:</td>
<td>162.3 °C</td>
</tr>
<tr>
<td></td>
<td>(1,013 hPa)</td>
</tr>
<tr>
<td>Flash point:</td>
<td>41 °C</td>
</tr>
<tr>
<td></td>
<td>(DIN 51758, closed cup)</td>
</tr>
<tr>
<td>Flammability:</td>
<td>Combustible liquid.</td>
</tr>
<tr>
<td>Lower explosion limit:</td>
<td>For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.</td>
</tr>
</tbody>
</table>
10. Stability and Reactivity

**Reactivity**

Corrosion to metals:
Corrosive effects to metal are not anticipated. In the presence of water or moisture metal corrosion cannot be excluded.

Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases:
Strong exothermic reaction with acids.

**Chemical stability**

The product is stable if stored and handled as prescribed/indicated. The product may become unstable at elevated temperatures and under pressure.

**Possibility of hazardous reactions**

Strong exothermic reaction with acids.
The product is chemically stable.

**Conditions to avoid**
Avoid all sources of ignition: heat, sparks, open flame. See MSDS section 7 - Handling and storage.

**Incompatible materials**
mineral acids

**Hazardous decomposition products**

 Decomposition products:
Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxides

Thermal decomposition:
340 °C (DSC (DIN 51007))
No decomposition if used as directed. It is not a self-decompositionable substance.

11. **Toxicological information**

**Primary routes of exposure**

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

**Acute Toxicity/Effects**

**Acute toxicity**

*Information on: Dimethylcyclohexylamine*
-----

**Oral**
Type of value: LD50
Species: rat
Value: 272 - 289 mg/kg

**Inhalation**
Type of value: LC50
Species: rat
Value: >1,7 - 5,8 mg/l (similar to OECD guideline 403)
Exposure time: 6 h
The vapour was tested.

**Dermal**
Type of value: LD50
Species: rat
Value: 380 mg/kg (OECD Guideline 402)

Type of value: LD50
Species: rat
Value: > 400 mg/kg (OECD Guideline 402)
Limit concentration test only (LIMIT test).

**Assessment other acute effects**
Assessment of STOT single:
Apart from effects causing lethality, no specific target organ toxicity was observed in experimental studies.
Irritation / corrosion
Assessment of irritating effects: Corrosive! Damages skin and eyes.

Skin
Species: rabbit
Result: Corrosive.
Method: BASF-Test

Eye
As the product corrodes the skin, it can be expected to have a similar effect on the eyes also.

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Mouse Local Lymph Node Assay (LLNA)
Species: mouse
Result: Non-sensitizing.
Method: OECD Guideline 429

Aspiration Hazard
No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: After repeated administration the prominent effect is the induction of corrosion.

Genetic toxicity
Assessment of mutagenicity: No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity
Assessment of carcinogenicity: Study scientifically not justified.

Reproductive toxicity
Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening test (OECD 421/422).

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies. The results were determined in a Screening test (OECD 421/422).

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible

Medical conditions aggravated by overexposure
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.
12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Acutely toxic for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish
LC50 (96 h) 31.58 mg/l, Leuciscus idus (DIN 38412 Part 15, static)
Nominal concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample. After neutralization, it is no longer toxic.

Aquatic invertebrates
LC50 (48 h) 75 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)
The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants
EC50 (72 h) > 2.0 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static)
Nominal concentration.

EC10 (72 h) 0.0784 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static)
Nominal concentration.

Chronic toxicity to fish
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates
Study scientifically not justified.

Assessment of terrestrial toxicity
No data available.
Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
DIN 38412 Part 8 static bacterium/EC10 (17 h): 137 mg/l
Nominal concentration.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Readily biodegradable (according to OECD criteria).

Elimination information

90 - 100 % DOC reduction (18 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic, non-adapted)

Assessment of stability in water
According to structural properties, hydrolysis is not expected/probable.
Bioaccumulative potential

Assessment bioaccumulation potential
No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).

Bioaccumulation potential
Bioconcentration factor: 35.66 (calculated)

Mobility in soil

Assessment transport between environmental compartments
The substance will slowly evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Additional information

Other ecotoxicological advice:
Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants. Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:
Incinerate or dispose of in a RCRA-licensed facility. Do not discharge into waterways or sewer systems without proper authorization.

Container disposal:
Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

RCRA: D001

14. Transport Information

Land transport
USDOT
Hazard class: 8
Packing group: II
ID number: UN 2264
Hazard label: 8, 3, EHSM
Proper shipping name: N,N-DIMETHYLCYCLOHEXYLAMINE

Sea transport
IMDG
Hazard class: 8
Packing group: II
ID number: UN 2264
Hazard label: 8, 3, EHSM
Marine pollutant: YES
Proper shipping name: N,N-DIMETHYLCYCLOHEXYLAMINE

Air transport
15. Regulatory Information

**Federal Regulations**

Registration status:
Chemical TSCA, US released / listed

**EPCRA 311/312 (Hazard categories):** Refer to SDS section 2 for GHS hazard classes applicable for this product.

**State regulations**

<table>
<thead>
<tr>
<th>State RTK</th>
<th>CAS Number</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>NJ</td>
<td>98-94-2</td>
<td>cyclohexyldimethylamine</td>
</tr>
</tbody>
</table>

**NFPA Hazard codes:**
Health: 3  Fire: 2  Reactivity: 0  Special:

**Assessment of the hazard classes according to UN GHS criteria (most recent version):**

- Acute Tox. 3 (oral) Acute toxicity
- Acute Tox. 3 (dermal) Acute toxicity
- Acute Tox. 3 (Inhalation - vapour) Acute toxicity
- Skin Corr./Irrit. 1B Skin corrosion/irritation
- Aquatic Acute 2 Hazardous to the aquatic environment - acute
- Flam. Liq. 3 Flammable liquids
- Eye Dam./Irrit. 1 Serious eye damage/eye irritation
- Aquatic Chronic 2 Hazardous to the aquatic environment - chronic

16. Other Information

**SDS Prepared by:**
BASF NA Product Regulations
SDS Prepared on: 2017/11/16

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