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Ingredient contributing to the hazard(%) : 99%

Section 4 - First Aid Measures

The First-aid Information :

- Inhalation : Move victim to fresh air. Call emergency medical service. Give artificial respiration if victim is not breathing. Do not give mouth-to-mouth resuscitation if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult.
- Skin Contact : Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. For minor skin contact, avoid spreading material on unaffected skin. Keep victim warm and quiet. Get medical attention immediately. Reuse or disposal the contaminated clothes or shoes before thoroughly cleaning.
- Eye Contact : In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Get medical attention immediately.
- Ingestion : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

The Most Important Symptoms and Hazardous Effects : Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth, and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.

Protection of First-aiders : Wear Class C protective suits.

Notes to a Physician : Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Consider gastric lavage if swallow.

Section 5 - Fire Fighting Measures

Extinguishing Media :

Small fires: Dry chemical, CO₂ or water spray.

Large fires: Dry chemical, CO₂, alcohol-resistant foam or water spray.

Specific Hazards when Fire-fight : Combustible when exposed to heat or flame; can react with oxidizing materials.

Specific Fire-fighting Procedure :

1. Move containers from fire area if you can do it without risk.
2. Dike fire control water for later disposal; do not scatter the material.
3. Fire involving tanks or car/trailer loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
4. Do not get water inside containers.
5. Cool containers with flooding quantities of water until well after fire is out.
6. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
7. ALWAYS stay away from tanks engulfed in fire.



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8. Avoid inhale the substance or decomposition.

Specific Protection of Firefighters : Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

Personal Precautions :

1. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.
2. Stay upwind. Keep out of low area.

Environmental Precautions : Eliminate all ignition source.

Methods for Cleaning up :

1. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
2. Stop leak if it is safe to do so.
3. Prevent entry into waterways, sewers, basements, or confined area.
4. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to containers.
5. Dike fire control water for later disposal; do not scatter the material.
6. DO NOT GET WATER INSIDE CONTAINERS.

Section 7 - Handling and Storage

Handling :

1. Keep container dry.
2. Keep away from heat and any source of ignition.
3. Ground all equipment containing material.
4. Do not ingest. Do not breathe gas/fumes/vapor/spray.
5. Never add water to this product.
6. Do not use plastic barrels.
7. Use anti-spark equipments.
8. Wear suitable protective clothing.
9. Keep away from incompatibles such as oxidizing agents, acids.

Storage :

1. Keep container tightly closed.
2. Keep container in a cool, well-ventilated area.
3. Storage and use areas should be No Smoking areas.
4. Protect against physical damage.
5. Keep away from incompatibles such as oxidizing agents, acids.
6. Outside or detached storage is preferred.
7. Inside storage should be in a standard flammable liquids storage room or cabinet.
8. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Section 8 - Exposure Controls & Personal Protection

Engineering measures : The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Ensure that eyewash stations and safety showers are proximal to the work-station location.



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Control parameters			
TWA	STEL	Ceiling	Biological standards
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Personal protective equipment : <ul style="list-style-type: none"> ■ Respiratory Protection : For conditions of use where exposure to the substance is apparent, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres. ■ Hand Protection : Wear rubber gloves ■ Eye Protection : Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area. Do not wear contact lenses. ■ Skin and Body Protection : Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. 			
Hygiene measures : <ol style="list-style-type: none"> 1. Wear proper protective gears. 2. Wash hands thoroughly after handling. 			

Section 9 - Physical & Chemical Properties

Appearance : liquid	Odor : faint fishy odor
Color : colorless or light yellow liquid	Melting Point: 0°C
pH value : strong base	Boiling point/boiling range : 258 °C
Flammability: --	Flash point : 96°C
Decomposition temp : --	Test method : closed
Auto ignition temp : --	Explosion properties : --
Vapor pressure : 1.0mmHg@83°C	Vapor density : 6.27 (air = 1)
Density : 0.91(water = 1)	Solubility : Partially soluble in ethanol, ether, benzene, oxygenated solvents. Sparingly soluble in water.
log Kow : -0.81~-0.43	Evaporation Rate : --

Section 10 - Stability & Reactivity Data

Stability : Stable under ordinary conditions of use and storage. Strong base.
Possible hazardous reactions under specific conditions : Acids, aldehydes, esters, ketones, oxidizers, oxygen, peroxides, nitrate, and incompatibles.
Conditions to avoid : heat, incompatibles, confined area, combustibles
Materials to avoid : strong acids (such as hydrochloric, sulfuric, and nitric), combustibles, oxidizing substances (such as perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine, and fluorine), peroxide.
Hazardous decomposition products : Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides.



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Section 11 - Toxicological Information

Route of exposure : skin, inhalation, eyes, ingestion
Symptoms : nausea & vomiting, anxiety, restlessness & drowsiness, headache, diarrhea, thirsty, weakness, collapse, unconsciousness, coma, or even death
Immediate Toxicity : <ol style="list-style-type: none">1. Skin : Corrosive. May cause severe irritation, redness, pain, and skin burns. Irritant and possible sensitizer. Strong irritant to skin & mucous membranes.2. Inhalation : Inhalation produces damaging effects on the mucous membranes and upper respiratory tract. Symptoms may include irritation of the nose and throat, and labored breathing. May cause lung edema, a medical emergency.3. Eye : Causes irritation, redness, and pain.4. Ingestion : Toxic. May cause burns in esophagus and stomach, coughing, nausea, and vomiting.<ul style="list-style-type: none">● LD₅₀: 373 mg/kg (Rat, Oral)● LC₅₀: --● Irritation eye rabbit 750ug/24H severe● Skin rabbit: 2mg/24H sever
Specific effects : <ol style="list-style-type: none">1. High exposure to Dicyclohexylamine can cause nausea, vomiting, weakness, and convulsions.2. Dicyclohexylamine may cause a skin allergy. If allergy develops, very slow future exposure can cause itching and a skin rash.3. If symptoms develop or overexposure is suspected, the following is recommended: evaluation by a qualified allergist, including careful exposure history and special testing, may help diagnose skin allergy.

Section 12 - Ecological Information

Ecotoxicology : <ul style="list-style-type: none">■ LC₅₀(fish) : --■ EC₅₀(Aquatic Invertebrates) : --■ Bioconcentration factor (BCF) : 1200 (estimated)
Persistence and degradability : <ul style="list-style-type: none">■ Half-Life (Air) : If released to the atmosphere, dicyclohexylamine is expected to exist solely in the vapor phase in the ambient atmosphere, based on an experimental vapor pressure of 3.4X10⁻² mm Hg. Vapor-phase dicyclohexylamine is expected to be readily degraded by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 2.9 hours.■ Half-Life (Water surface) : If released into water, an estimated Koc of 260 indicates that adsorption to suspended solids and sediment is expected to occur. Volatilization from water surfaces is expected based on the Henry's Law constant for this compound. Estimated volatilization half-lives for a model river and lake are 1.1 and 12 days, respectively.■ Half-Life (Groundwater) : --■ Half-Life (Soil) : If released to soil, dicyclohexylamine is expected to have moderate mobility in soil based on an estimated Koc of 260. Volatilization from moist soil surfaces



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may occur based on an estimated Henry's Law constant of 5.5×10^{-5} atm-cu m/mol.

Bioaccumulative potential :

Mobility in soil : If released to soil, DCHA is expected to have moderate mobility in soil based on an estimated Koc of 260.

Other adverse effects : An estimated BCF of 1200 indicates that bioconcentration in aquatic organisms will be important. Microbial degradation of DCHA is expected to occur.

Section 13 - Disposal Considerations

Methods of disposal :

1. Follow ROC Environmental Law and Regulations.
2. Contact a licensed professional waste disposal service.
3. Incineration in a certified incineration furnace or volatile the disposal.
4. If possible, recycle the containers or disposal in the certified landfill.
5. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Section 14 - MSDS Transport Information

UN classification number : 2565

Proper D.O.T Shipping Name : Dicyclohexylamine

Hazard Class : 8

Packing Group : III

Marine pollution : n/a

Specific precautionary transport measures and conditions : --

Section 15 - Regulatory Information

Regulations :

1. Labor Safety and Health Facilities Regulations
2. Toxic Chemical Substances Labeling and Safety Data Regulations
3. Road Traffic Safety Regulations
4. Industrial Waste Storage and Disposal Regulations
5. Public Hazardous Materials and Flammable Pressurized Gases Establishment Standards and Safety Control Regulations

Section 16 - Other Information

Literature references	<ol style="list-style-type: none">1. RTECS Database, TOMES PLUS CD-ROM, Vol.68, 20062. ChemWatch Database, 2006-13. OHS MSDS Database, 20064. HSDB Database, TOMES PLUS CD-ROM, Vol.68, 2006
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Remarks	Symbols Explanations: "--" No information is available at this time. "/" Not applicable to this substance.		
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