N,N-DIMETHYLCYCLOHEXYLAMINE

DXN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms			
Cyclohexylamine, n,n-dimethyl n-Dimethylcyclohexanamine	Liquid	Colorless	Musky ammonia odor
	Floats and mixes slowly with water.		

Keep people away. Avoid contact with vapor or liquid.
Avoid inhalation.
Wear self-contained breathing apparatus and full protective clothing.
Restrict ignition sources.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

COMBUSTIBLE.
Flashback along vapor trail may occur.
Containers may explode in fire.
Vapor may explode if ignited in enclosed area.
Wear self-contained breathing apparatus and full protective clothing.
Extinguish with CO_2, dry chemicals, or foam.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Strong irritant to eyes, nose and throat.
Harmful if inhaled; could be fatal.
Move victim to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Will burn skin and eyes.
Harmful if swallowed.
IF IN EYES, flush with plenty of water for at least 15 minutes.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of running water.

Water Pollution

Effect of low concentration on aquatic life is unknown.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Dilute and disperse

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 7; Aliphatic amines
2.2 Formula: $(CH_3)_2NC_6H_{11}$
2.3 IMO/UN Designation: 8/2264
2.4 DOT ID No.: 2264
2.5 CAS Registry No.: 98-94-2
2.6 NAERG Guide No.: 132
2.7 Standard Industrial Trade Classification: 51453

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Wear self-contained breathing apparatus, rubber boots, heavy rubber gloves. If entering spill area, wear self-contained breathing apparatus and full protective clothing, including boots.
3.2 Symptoms Following Exposure: Inhalation of high concentration of vapor will will produce irritation of the respiratory tract and lungs. Inhalation of large quantities of vapor may be fatal.
3.3 Treatment of Exposure: Get medical attention. INHALATION: Remove from exposure area. If the victim has trouble breathing, give oxygen. If breathing has stopped, give articial respiration. EYES: Flush eyes with water for at least 15 minutes. SKIN: Remove contaminated clothing. Flush affected areas with plenty of running water.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 3; LD_{50} = 348 mg/kg (rat)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Vapors are irritating such that personnel will not tolerate moderate or high concentrations.
3.11 Liquid or Solid Characteristics: Severe skin irritant. Causes second and third-degree burns on short contact and is very injurious to eyes.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: Not listed.
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 108°F C.C.
4.2 Flammable Limits in Air: Currently not available
4.3 Fire Extinguishing Agents: Carbon dioxide, dry chemical powder, polymer or alcohol foam.
4.4 Fire Extinguishing Agents Not to Be Used: Currently not available
4.5 Special Hazards of Combustion Products: Currently not available
4.6 Behavior in Fire: Dangerous when exposed to heat or flame. Can react vigorously with oxidizing materials.
4.7 Auto Ignition Temperature: Currently not available
4.8 Electrical Hazards: Currently not available
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 63.1 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 17.5 (calc.)
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: Not reactive
5.2 Reactivity with Common Materials: Not reactive
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Currently not available
5.5 Polymerization: Will not occur
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): Currently not available
6.4 Food Chain Concentration Potential: Currently not available
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: 97%, 99%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: Not listed
7.4 Venting: Not listed
7.5 IMO Pollution Category: C
7.6 Ship Type: 2
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Corrosive material
8.2 49 CFR Class: 8
8.3 49 CFR Package Group: II
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	3
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: Not listed.
8.7 EPA Pollution Category: Not listed.
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 127.23
9.3 Boiling Point at 1 atm: 323.6°F = 162°C = 435.2°K
9.4 Freezing Point: Currently not available
9.5 Critical Temperature: Currently not available
9.6 Critical Pressure: Currently not available
9.7 Specific Gravity: 0.849 at 20°C
9.8 Liquid Surface Tension: Currently not available
9.9 Liquid Water Interfacial Tension: Currently not available
9.10 Vapor (Gas) Specific Gravity: 4.4 (est)
9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
9.12 Latent Heat of Vaporization: Currently not available
9.13 Heat of Combustion: Currently not available
9.14 Heat of Decomposition: Currently not available
9.15 Heat of Solution: Currently not available
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: Currently not available
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE	0	0.031
						25	0.035
						50	0.039
						75	0.043
						100	0.047
						125	0.051
						150	0.055
						175	0.060
						200	0.064
						225	0.068
						250	0.072
						275	0.076
						300	0.080
						325	0.084
						350	0.088
						375	0.093
						400	0.097
						425	0.101
						450	0.105
						475	0.109
						500	0.113
						525	0.117
						550	0.121
						575	0.126
						600	0.130