

ISOPHORONE DIAMINE

IPI

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Liquid Colorless Faint amine odor Floats and mixes with water. Freezing point is 50°F.
<p>Keep people away. Avoid contact with liquid and vapor. Wear goggles, rubber overclothing and gloves, and a mask with an ammonia type filter. Call fire department. Notify local health and pollution control agencies.</p>	
Fire	<p>Combustible. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Extinguish with water, dry chemical, or carbon dioxide.</p>
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR If inhaled, may cause irritation, coughing, and nausea. Move to fresh air. If breathing has stopped, give artificial respiration.</p> <p>LIQUID May cause inflammation/burns to eyes and skin. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.</p>
Water Pollution	<p>Effect of low concentrations 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.</p>

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Collection Systems: Dredge
Chemical and Physical Treatment:
Neutralize

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 7; Aliphatic amines
2.2 **Formula:** (CH₃)₃C₆H₁₁(NH₂)CH₂NH₂
2.3 **IMO/UN Designation:** 8/2289
2.4 **DOT ID No.:** 2289
2.5 **CAS Registry No.:** 2855-13-2
2.6 **NAERG Guide No.:** 153
2.7 **Standard Industrial Trade Classification:** 51453

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Wear rubber overclothing, gloves, goggles, and self-contained breathing apparatus.
- 3.2 **Symptoms Following Exposure:** Inhalation of high concentrations of vapor causes irritation, coughing, and nausea. Eyes: May cause inflammation/burns. Skin: May cause burns. Ingestion: Nausea.
- 3.3 **Treatment of Exposure:** INHALATION: Move victim to fresh air; call emergency medical care. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Immediately flush with running water for at least 15 minutes; hold eyelids open if appropriate. Remove and isolate contaminated clothing and shoes at the site. Keep victim quiet and maintain normal body temperature. INGESTION: If swallowed and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
- 3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 1.03 g/kg (rat)
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Currently not available
3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
3.11 **Liquid or Solid Characteristics:** Currently not available
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:** 230°F O.C.
4.2 **Flammable Limits in Air:** Currently not available
4.3 **Fire Extinguishing Agents:** Small fires: dry chemical, CO₂, water spray or foam; Large fires: water spray, fog or foam.
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion Products:** Currently not available
4.6 **Behavior in Fire:** Currently not available
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 **Stoichiometric Air to Fuel Ratio:** 83.3 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 23.0 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
5.2 **Reactivity with Common Materials:** Corrodes aluminum and steel in the presence of moisture and carbon dioxide.
5.3 **Stability During Transport:** Stable
5.4 **Neutralizing Agents for Acids and Caustics:** Flush with water.
5.5 **Polymerization:** Not pertinent
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: 1
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99.7%
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Currently not available
7.5 **IMO Pollution Category:** D
7.6 **Ship Type:** 3
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:** III
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:** Not listed
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:** 170.3
9.3 **Boiling Point at 1 atm:** 477°F = 247°C = 520°K
9.4 **Freezing Point:** 50°F = 10°C = 283°K
9.5 **Critical Temperature:** Currently not available
9.6 **Critical Pressure:** Currently not available
9.7 **Specific Gravity:** 0.924 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 34.7 dynes/cm = 0.0347 N/m at 23°C
9.9 **Liquid Water Interfacial Tension:** 37.62 dynes/cm = 0.0376 N/m at 23°C
9.10 **Vapor (Gas) Specific Gravity:** Currently not available
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
68	57.700		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E	68	18.200

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
	M I S C I B L E	68	0.003		C U R R E N T L Y N O T A V A I L A B L E		C U R R E N T L Y N O T A V A I L A B L E