

FORMAMIDE

FAM

CAUTIONARY RESPONSE INFORMATION

Common Synonyms		Liquid	Colorless	Faint odor of ammonia
Carbamide Formic acid, amide Methanamide Methanoic acid, amide		Sinks and mixes with water. Freezing point is 36°F.		
<p>Keep people away. Avoid contact with liquid. Wear goggles, self-contained breathing apparatus, rubber gloves and overclothing. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	Combustible. Wear goggles, self-contained breathing apparatus, rubber gloves and overclothing. Extinguish with dry chemical, water, alcohol foam or carbon dioxide.			
Exposure	CALL FOR MEDICAL AID. LIQUID Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water.			
Water Pollution	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enter water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.			

<p>1. CORRECTIVE RESPONSE ACTIONS Dilute and disperse Stop discharge</p>	<p>2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: 10; Amide 2.2 Formula: HCONH₂ 2.3 IMO/UN Designation: Not listed 2.4 DOT ID No.: Not listed 2.5 CAS Registry No.: Currently not available 2.6 NAERG Guide No.: Not listed 2.7 Standard Industrial Trade Classification: 51471</p>
<p>3. HEALTH HAZARDS</p> <p>3.1 Personal Protective Equipment: Wear rubber gloves, goggles, self-contained breathing apparatus and rubber overclothing.</p> <p>3.2 Symptoms Following Exposure: INHALATION: A moderate irritant to mucous membranes. EYES: Moderately irritating to the eyes. SKIN: A mild to moderate irritant to the skin.</p> <p>3.3 Treatment of Exposure: INHALATION: Move victim to fresh air. EYES: Flush eyes with plenty of water. SKIN: Wash affected areas well with soap and water.</p> <p>3.4 TLV-TWA: 10 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Grade 1; LD₅₀ = 6.1 - 7.5 g/kg (rat) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Teratogenic 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</p>	

<p>4. FIRE HAZARDS</p> <p>4.1 Flash Point: 319°F O.C. 4.2 Flammable Limits in Air: Currently not available 4.3 Fire Extinguishing Agents: Dry chemical, water, alcohol foam, or carbon dioxide. 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent. 4.5 Special Hazards of Combustion Products: Toxic fumes emitted on decomposition (carbon monoxide and ammonia), beginning at 180 - 210°C. 4.6 Behavior in Fire: Vapor will burn in air above 310°F. 4.7 Auto Ignition Temperature: 310°F. 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: 10.7 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 3.5 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed</p>	<p>7. SHIPPING INFORMATION</p> <p>7.1 Grades of Purity: Reagent Grade (98%), Technical Grade, Practical Grade, Commercial 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: Data not available 7.7 Barge Hull Type: Currently not available</p>								
<p>5. CHEMICAL REACTIVITY</p> <p>5.1 Reactivity with Water: No reaction 5.2 Reactivity with Common Materials: Currently not available 5.3 Stability During Transport: Stable in absence of high temperatures (decomposes to carbon monoxide and ammonia 180 - 210°C). 5.4 Neutralizing Agents for Acids and Caustics: Not pertinent 5.5 Polymerization: Not pertinent 5.6 Inhibitor of Polymerization: Not pertinent</p>	<p>8. HAZARD CLASSIFICATIONS</p> <p>8.1 49 CFR Category: Not listed 8.2 49 CFR Class: Not pertinent 8.3 49 CFR Package Group: Not listed. 8.4 Marine Pollutant: No 8.5 NFPA Hazard Classification:</p> <table border="1"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>2</td> </tr> <tr> <td>Flammability (Red).....</td> <td>2</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table> <p>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</p>	Category	Classification	Health Hazard (Blue).....	2	Flammability (Red).....	2	Instability (Yellow).....	0
Category	Classification								
Health Hazard (Blue).....	2								
Flammability (Red).....	2								
Instability (Yellow).....	0								
<p>6. WATER POLLUTION</p> <p>6.1 Aquatic Toxicity: Currently not available 6.2 Waterfowl Toxicity: Currently not available 6.3 Biological Oxygen Demand (BOD): 0.0% in 5 days 6.4 Food Chain Concentration Potential: Currently not available 6.5 GESAMP Hazard Profile: Bioaccumulation: 0 Damage to living resources: 0 Human Oral hazard: 1 Human Contact hazard: 1 Reduction of amenities: XX</p>	<p>9. PHYSICAL & CHEMICAL PROPERTIES</p> <p>9.1 Physical State at 15° C and 1 atm: Liquid 9.2 Molecular Weight: 45.04 9.3 Boiling Point at 1 atm: 412°F = 210.5°C = 483.5°K 9.4 Freezing Point: 36°F = 2.55°C = 275.55°K 9.5 Critical Temperature: Currently not available 9.6 Critical Pressure: Currently not available 9.7 Specific Gravity: 1.1334 at 20°C 9.8 Liquid Surface Tension: 58.35 dynes/cm = 0.0584 N/m at 20°C 9.9 Liquid Water Interfacial Tension: 14.40 dynes/cm = 0.0144 N/m at 20°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: 5,380 Btu/lb = 2,973.8 cal/g = 125.2 x 10³ J/kg 9.14 Heat of Decomposition: Currently not available 9.15 Heat of Solution: Currently not available 9.16 Heat of Polymerization: Currently not available 9.17 Heat of Fusion: Currently not available 9.18 Limiting Value: Currently not available 9.19 Reid Vapor Pressure: Currently not available</p>								

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
	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		C U R R E N T L Y N O T A V A I L A B L E	35 40 45 50 55 60 65 70 75	6.966 6.147 5.504 4.987 4.560 4.203 3.899 3.638 3.410

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	264	0.574	264	0.00300		C U R R E N T L Y N O T A V A I L A B L E