CAPROLACTAM

1. CORRECTIVE RESPONSE ACTIONS

1.1 Dilute and disperse
1.2 Stop discharge
1.3 Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 22; Caprolactam solution
2.2 Formula: INCH(N)/CH:O
2.3 IMOGN Designation: Not listed
2.4 DOT No.: Not listed
2.5 CAS Registry No.: 105-60-2
2.6 MAK Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51577

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Gas mask or self-contained breathing apparatus; rubber gloves and boots; goggles or face shield.
3.2 Symptoms Following Exposure: Inhalation causes coughing or mild irritation. Contact with hot liquid will burn eyes and skin.
3.3 Treatment of Exposure: INHALATION: remove patient to fresh air. EYES: wash with copious quantities of water for at least 15 min.; call physician. SKIN: wash with water; call physician in case of thermal burn.
3.4 TLV-TWA: 1 mg/m³
3.5 TLV-STEL: 3 mg/m³
3.6 TLV-Ceiling: Not listed
3.7 Toxicity by Ingestion: Grade 2; oral rat LD₅₀ = 2.14 mg/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available.
3.10 Vapor (Gas) Irritant Characteristics: Vapors are nonirritating to the eyes and throat.
3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin.
3.12 Odor Threshold: 0.3 mg/m³
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 AEGCL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: 257°F O.C. 320°F C.C.
4.2 Flammable Limits in Air: 1.84% (LEL)
4.3 Fire Extinguishing Agents: Water, dry chemical, foam, or carbon dioxide.
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion: Products: Toxic oxides of nitrogen
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: Currently not available
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 2.4 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichiometric Air to Fuel Ratio: 4.0 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 12.5 (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: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
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: None
6.5 GESAMP Hazard Profile:
6.6 GESAMP Hazard Profile:
6.7 Specific Gravity: 1.02 at 77°C (liquid)
6.8 Liquid Surface Tension: (est.) 20 dynes/cm = 0.020 N/m at 77°C
6.9 Liquid Water Interfacial Tension: (est.) 40 dynes/cm = 0.040 N/m at 77°C
6.10 Vapor (Gas) Specific Gravity: 3.9
6.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
6.12 Latent Heat of Vaporization: 209 Btu/lb = 116 cal/g = 4.85 X 10⁻⁴ J/kg
6.14 Heat of Decomposition: Not pertinent
6.15 Heat of Solution: Not pertinent
6.16 Heat of Polymerization: –324 Btu/lb = –180 cal/g = –7.5 X 10⁻³ J/kg
6.17 Heat of Fusion: Currently not available
6.18 Limiting Values: Currently not available
6.19 Reid Vapor Pressure: 0.45 psi

7. SHIPPING INFORMATION

7.1 Grades of Purity: 99%
7.2 Storage Temperature: 75°C
7.3 Inert Atmosphere: Nitrogen cushion
7.4 Venting: Pressure-vacuum
7.5 IMO Pollution Category: D
7.6 Ship Type: Data not available
7.7 Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

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 HFPA Hazard Classification: Not listed
8.6 EPA Reportable Quantity: 5000 pounds
8.7 EPA Pollution Category: D
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: Solid
9.2 Molecular Weight: 113
9.3 Boiling Point at 1 atm: 515°F = 268°C = 541 K
9.4 Freezing Point: 154°F = 68°C = 341 K
9.5 Critical Temperature: 944.4°F = 506.9°C = 785.1 K
9.6 Critical Pressure: 660 psia = 45 atm = 4.6 MN/m²
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NOTES
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### SOLUBILITY IN WATER

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