POLYETHYLENE POLYAMINES

PEB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms			
Poly(ethyleneimine) Polyethyleneimine	Liquid	Yellowish	Amine odor
	Miscible in water.		

KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR.
Wear self-contained positive pressure breathing apparatus and full protective clothing.
Shut off ignition sources. Call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

COMBUSTIBLE
POISONOUS GASES ARE PRODUCED IN FIRE.
Poisonous gas may be produced in fire or when heated.
Wear self-contained positive pressure breathing apparatus and full protective clothing.
Extinguish small fires: dry chemical, CO_2, water spray or alcohol foam; large fires: water spray, fog or alcohol foam.
Move container from fire area if you can do it without risk.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
May be harmful if inhaled.
May irritate eyes and skin.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.
Move to fresh air.

LIQUID
Irritating to eyes and skin.
May be harmful if swallowed.
IF IN EYES OR ON SKIN: flush with plenty of running water for at least 15 min.; hold eyelids open if necessary.
Wash skin with soap and water.
Remove and isolate contaminated clothing and shoes at the site.
Keep victim quiet and maintain normal body temperature.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water and induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

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

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Dilute and disperse
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 7; Aliphatic amines
2.2 Formula: $(C_2H_5N)x$
2.3 IMO/UN Designation: 8/2735
2.4 DOT ID No.: 2735
2.5 CAS Registry No.: Currently not available
2.6 NAERG Guide No.: 153
2.7 Standard Industrial Trade Classification: 51452

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Self-contained positive pressure breathing apparatus and full protective clothing.
3.2 Symptoms Following Exposure: May be harmful if inhaled. Irritating to eyes and skin. May be harmful if swallowed.
3.3 Treatment of Exposure: INHALATION: Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. EYES OR SKIN: Flush with running water for at least 15 min.; hold eyelids open if necessary. Wash skin with soap and water. Remove and isolate contaminated clothing and shoes at the site. Keep victim quiet and maintain normal body temperature. INGESTION: If swallowed and victim is conscious have victim drink water and induce vomiting. 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: Currently not available
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: A strong eye and skin irritant.
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: 206.6°F
4.2 Flammable Limits in Air: Currently not available
4.3 Fire Extinguishing Agents: Small fires: dry chemicals, CO_2, water spray or alcohol foam. Large fires: water spray, fog or alcohol foam.
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Contain toxic and irritating gases.
4.6 Behavior in Fire: Gives off toxic gases (NO_x).
4.7 Auto Ignition Temperature: 743°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Currently not available
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: Not pertinent.
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent.
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: Incompatible with aluminum, zinc and other nonferrous metals.
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: Currently not available
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: (2)
Human Oral hazard: 1
Human Contact hazard: 0
Reduction of amenities: 0

7. SHIPPING INFORMATION

7.1 Grades of Purity: Currently not available
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Open
7.5 IMO Pollution Category: (C)
7.6 Ship Type: 3
7.7 Barge Hull Type: 3

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Corrosive material
8.2 49 CFR Class: 8
8.3 49 CFR Package Group: Currently not available.
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: Currently not available
9.3 Boiling Point at 1 atm: 401°F = 205°C = 478°K
9.4 Freezing Point: Not pertinent
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 0.99 (temperature unknown)(liquid)
9.8 Liquid Surface Tension: Currently not available
9.9 Liquid Water Interfacial Tension: Currently not available
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: Not pertinent
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
	MISCIBLE		CURRENTLY NOT AVAILABLE		CURRENTLY NOT AVAILABLE		NOT PERTINENT