

METHYLAMINE

MTA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Aminomethane Mercurialin Monomethylamine		Gas	Colorless	Ammonia-like odor
Mixes with water and boils.				
Shut off ignition sources. Call fire department. Keep people away. Avoid contact with liquid. Evacuate area in case of large discharge. Notify local health and pollution control agencies.				
Fire	<p>FLAMMABLE. POISONOUS GASES MAY BE PRODUCED IN FIRE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Let fire burn. Stop flow of gas if possible. Cool exposed containers and protect men effecting shutoff with water.</p>			
Exposure	<p>Call for medical aid.</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Will burn skin and eyes. 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>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. 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

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 7; Aliphatic amine
2.2 **Formula:** CH₃NH₂
2.3 **IMO/UN Designation:** Anhydrous: 2/1061; aqueous soln: 3.1/1235
2.4 **DOT ID No.:** 1235 (aqueous), 1061 (anhydrous)
2.5 **CAS Registry No.:** 74-89-5
2.6 **NAERG Guide No.:** 118 (anhydrous); 132 (aqueous)
2.7 **Standard Industrial Trade Classification:** 51451

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles or face mask; rubber suit, apron, sleeves, and/or gloves; rubber or leather safety shoes; air-line mask, positive-pressure hose mask, self-contained breathing apparatus, or industrial canister-type gas mask.
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of nose and throat, followed by violent sneezing, burning sensation in throat, coughing, constriction of larynx and difficulty in breathing, pulmonary congestion, edema of the lungs, and conjunctivitis. Contact with liquid burns skin and eyes. (Severe exposure may cause blindness.) Vapors may cause dermatitis. Ingestion causes burns of the mouth, throat, and esophagus.
- 3.3 **Treatment of Exposure:** Get medical attention for anyone overcome or injured by exposure to this compound. **INHALATION:** Remove victim to fresh air at once; apply artificial respiration if breathing has stopped; administer oxygen. **EYES:** Flush with water for at least 15 min. **SKIN:** Flush with water; if skin is burned do not use ointments or cover for 24 hours. **INGESTION:** Do NOT induce vomiting; give large amount of water.
- 3.4 **TLV-TWA:** 5 ppm
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** 15 ppm
3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 0.5 to 5 g/kg
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Currently not available
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are moderately irritating such that personnel will not usually tolerate moderate or high concentrations.
3.11 **Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure and may cause second-degree burns on long exposure.
3.12 **Odor Threshold:** 0.021 ppm
3.13 **IDLH Value:** 100 ppm
3.14 **OSHA PEL-TWA:** 10 ppm
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:** Not pertinent (flammable, liquefied compressed gas)
4.2 **Flammable Limits in Air:** 4.3%-21%
4.3 **Fire Extinguishing Agents:** Let gas fire burn; stop flow of gas. Extinguish solution fires with dry chemical, alcohol foam, or carbon dioxide.
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion Products:** Toxic nitrogen oxides may be formed.
4.6 **Behavior in Fire:** Vapors are heavier than air and may travel considerable distance to a source of ignition and flash back.
4.7 **Auto Ignition Temperature:** 806°F
4.8 **Electrical Hazards:** Currently not available
4.9 **Burning Rate:** Not pertinent
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 15.5 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 4.5 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** N₂ diluent: 10.7%

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Dissolves completely
5.2 **Reactivity with Common Materials:** Corrosive to copper, copper alloys, zinc alloys, aluminum, and galvanized surfaces
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:** >10 and <30 ppm/24 hr/creek chub/TL₅₀
6.2 **Waterfowl Toxicity:** Currently not available
6.3 **Biological Oxygen Demand (BOD):** 67.8% of theoretical in 13 days
6.4 **Food Chain Concentration Potential:** None
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: XXX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Anhydrous, 99.3+%. Water solutions, 30-50% by weight.
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** Safety relief
7.5 **IMO Pollution Category:** Currently not available
7.6 **Ship Type:** Currently not available
7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable gas
8.2 **49 CFR Class:** 2.1
8.3 **49 CFR Package Group:** Not pertinent.
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 3 |
| Flammability (Red)..... | 4 |
| Instability (Yellow)..... | 0 |
- 8.6 **EPA Reportable Quantity:** 100 pounds
8.7 **EPA Pollution Category:** B
8.8 **RCRA Waste Number:** Not listed
8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Gas
9.2 **Molecular Weight:** 31.1
9.3 **Boiling Point at 1 atm:** 20.3°F = -6.5°C = 266.7°K
9.4 **Freezing Point:** -134.5°F = -92.5°C = 180.7°K
9.5 **Critical Temperature:** 318.2°F = 159°C = 432.2°K
9.6 **Critical Pressure:** 1,080 psia = 73.6 atm = 7.47 MN/m²
9.7 **Specific Gravity:** 0.693 at -6.5°C (liquid)
9.8 **Liquid Surface Tension:** 100.59 dynes/cm = 0.1006 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** Not pertinent
9.10 **Vapor (Gas) Specific Gravity:** 1.1
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.1946
9.12 **Latent Heat of Vaporization:** 358 Btu/lb = 199 cal/g = 8.33 X 10⁵ J/kg
9.13 **Heat of Combustion:** -15,000 Btu/lb = -8,340 cal/g = -34.9 X 10⁶ J/kg
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 *Properties apply to anhydrous material.

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
0	44.090	0	0.783	0	1.569	15	0.257
5	43.880	5	0.788	5	1.556	20	0.250
10	43.670	10	0.793	10	1.543		
15	43.470	15	0.798	15	1.529		
20	43.260	20	0.803	20	1.516		

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
77	108.000	-90	0.339	-90	0.00265	0	0.363
		-80	0.521	-80	0.00398	25	0.374
		-70	0.784	-70	0.00583	50	0.384
		-60	1.157	-60	0.00839	75	0.395
		-50	1.674	-50	0.01184	100	0.406
		-40	2.381	-40	0.01643	125	0.416
		-30	3.330	-30	0.02245	150	0.427
		-20	4.587	-20	0.03023	175	0.438
		-10	6.229	-10	0.04013	200	0.448
		0	8.347	0	0.05261	225	0.459
		10	11.050	10	0.06815	250	0.470
		20	14.450	20	0.08728	275	0.480
		30	18.700	30	0.11060	300	0.491
		40	23.940	40	0.13880	325	0.502
		50	30.360	50	0.17260	350	0.512
		60	38.150	60	0.21270	375	0.523
						400	0.534
						425	0.544
						450	0.555
						475	0.566
						500	0.576
						525	0.587
						550	0.598
						575	0.608
						600	0.619