MONOISOPROPANOLAMINE

MPA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
1-Amino-2-propanol
2-Hydroxypropylamine
Isopropanolamine

Thick liquid | Colorless | Slight ammonia odor

Floats and mixes with water. Freezing point is 35°F.

Avoid contact with liquid.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Call fire department.
Notify local health and pollution control agencies.

Fire

Combustible.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Extinguish with dry chemical, water, alcohol foam, or carbon dioxide.

Exposure

CALL FOR MEDICAL AID.

LIQUID OR SOLID
Irritating to skin and eyes.
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 and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

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.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: $CH_3CH(OH)CH_2NH_2$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 78-96-6
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51461

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Full face shield; goggles; eye wash facility.
3.2 Symptoms Following Exposure: Vapor irritates eyes and nose. Liquid causes local injury to mouth, throat, digestive tract, skin, and eyes.
3.3 Treatment of Exposure: INGESTION: induce vomiting by giving large volumes of warm salt water (2 tablespoons per glass); call a doctor. EYES: flush with water for at least 15 min. and call a doctor. SKIN: flush with water.
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; LD_{50} = 0.5 to 5 g/kg (rat)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
3.11 Liquid or Solid Characteristics: Causes smarting of the skin and first-degree burns on short exposure and may cause secondary burns on long exposure.
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: 165°F O.C. 171°F C.C.
4.2 Flammable Limits in Air: 2.2% (calc.)–12% (est.)
4.3 Fire Extinguishing Agents: Dry chemical, water spray, alcohol foam, or carbon dioxide.
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Irritating vapors generated when heated.
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: 706°F (est.)
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 1.1 mm/min
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 27.4 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 8.5 (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: 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): (theor.) 5.1%, 5 days; 46%, 20 days
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 1
Human Contact hazard: I
Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 Grades of Purity: 98.5+%
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: 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: 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: 75.11
9.3 Boiling Point at 1 atm: 320°F = 160°C = 433°K
9.4 Freezing Point: 35.4°F = 1.9°C = 275.1°K
9.5 Critical Temperature: 622.4°F = 328°C = 601.2°K
9.6 Critical Pressure: 850 psia = 58 atm = 5.9 MN/m^2
9.7 Specific Gravity: 0.961 at 20°C (liquid)
9.8 Liquid Surface Tension: Not pertinent
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: Not pertinent
9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent
9.12 Latent Heat of Vaporization: 272 Btu/lb = 151 cal/g = 6.32 X 10^5 J/kg
9.13 Heat of Combustion: (est.) –13,900 Btu/lb = –7,700 cal/g = –322 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: (est.) –17 Btu/lb = –10 cal/g = –0.4 X 10^5 J/kg
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: 0.05 psia

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
50	60.470	52	0.671		N		N
60	60.190	54	0.672		O		O
70	59.910	56	0.673		T		T
80	59.620	58	0.674				
90	59.340	60	0.675		P		P
100	59.050	62	0.677		E		E
110	58.770	64	0.678		R		R
120	58.480	66	0.679		T		T
130	58.200	68	0.680		I		I
140	57.920	70	0.681		N		N
150	57.630	72	0.682		E		E
160	57.350	74	0.683		N		N
170	57.060	76	0.684		T		T
180	56.780	78	0.685				
190	56.490	80	0.687				
200	56.210	82	0.688				
210	55.930	84	0.689				
		86	0.690				

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	60	0.009	60	0.00012		N
	I	70	0.014	70	0.00018		O
	S	80	0.020	80	0.00026		T
	C	90	0.030	90	0.00038		
	I	100	0.044	100	0.00055		P
	B	110	0.063	110	0.00077		E
	L	120	0.089	120	0.00108		R
	E	130	0.125	130	0.00149		T
		140	0.174	140	0.00203		I
		150	0.238	150	0.00273		N
		160	0.323	160	0.00365		E
		170	0.435	170	0.00483		N
		180	0.580	180	0.00634		T
		190	0.765	190	0.00824		
		200	1.002	200	0.01063		
		210	1.302	210	0.01360		
		220	1.678	220	0.01728		
		230	2.148	230	0.02179		
		240	2.729	240	0.02729		
		250	3.444	250	0.03396		
		260	4.318	260	0.04199		
		270	5.382	270	0.05161		
		280	6.667	280	0.06306		
		290	8.212	290	0.07664		
		300	10.060	300	0.09265		