

N-AMYL ALCOHOL

AAN

CAUTIONARY RESPONSE INFORMATION

Common Synonyms		Liquid	Colorless	Mild, sweet odor
1-Amyl alcohol n-Butylcarbinol 1-Pentanol Pentyl alcohol		Floats on water. Flammable, irritating vapor is produced.		
<p style="color: red;">Shut off ignition sources and call fire department. Stop discharge if possible. Keep people away. Avoid contact with liquid and vapor; avoid inhalation. Stay upwind and use water spray to "knock down" vapor. Isolate and remove discharged material. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled, will cause coughing, nausea, headache, or difficult breathing. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to eyes. Harmful if swallowed. Not irritating to skin. 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.</p>			
Water Pollution	<p>Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and pollution control officials. Notify operators of nearby water intakes.</p>			

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Collection Systems: Skim
Chemical and Physical Treatment:
Absorb
Clean shore line
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 20; Alcohols, glycols
2.2 **Formula:** CH₃(CH₂)₄CH₂OH
2.3 **IMO/UN Designation:** 3.2/1105
2.4 **DOT ID No.:** 1105
2.5 **CAS Registry No.:** 71-41-0
2.6 **NAERG Guide No.:** 129
2.7 **Standard Industrial Trade Classification:** 51229

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Face splash shield, goggles, protective clothing, and cartridge respirator.
- 3.2 **Symptoms Following Exposure:** Irritation of skin, eyes, and respiratory tract; headache and vertigo; dyspnea and cough; nausea, vomiting, and diarrhea. Double vision, deafness, delirium, and occasionally fatal poisoning, preceded by severe nervous symptoms, have been reported. Coma, glycosuria, and methemoglobinemia can occur.
- 3.3 **Treatment of Exposure:** SKIN: remove chemical by thorough washing with soap and water. EYES: wash promptly with large quantities of water for at least 15 mins. Call a doctor.
- 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; LD₅₀ = 0.5 to 5 g/kg
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** None
- 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:** No appreciable hazard. Practically harmless to the skin.
3.12 **Odor Threshold:** 0.12 ppm
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:** 91°F C.C.
4.2 **Flammable Limits in Air:** 1.1%-10%
4.3 **Fire Extinguishing Agents:** Alcohol foam, dry chemical or carbon dioxide
4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective
4.5 **Special Hazards of Combustion Products:** Not pertinent
4.6 **Behavior in Fire:** Not pertinent
4.7 **Auto Ignition Temperature:** 680°F
4.8 **Electrical Hazards:** Not listed
4.9 **Burning Rate:** 3.6 mm/min.
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** Currently not available
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** Currently not available
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):** 155%, 5 days
6.4 **Food Chain Concentration Potential:** None
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 1/BOD
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 98%; 74% plus 25% 2-methyl-butanol
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** Open (flame arrester)
7.5 **IMO Pollution Category:** D
7.6 **Ship Type:** 3
7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Flammable liquid
8.2 **49 CFR Class:** 3
8.3 **49 CFR Package Group:** II
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 1 |
| Flammability (Red)..... | 3 |
| Instability (Yellow)..... | 0 |
- 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:** 88.15
9.3 **Boiling Point at 1 atm:** 280.2°F = 137.9°C = 411.1°K
9.4 **Freezing Point:** -110°F = -79°C = 194°K
9.5 **Critical Temperature:** 595.4°F = 313°C = 586.2°K
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 0.818 at 15°C (liquid)
9.8 **Liquid Surface Tension:** 25.60 dynes/cm = .02560 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** 5 dynes/cm = 0.005 N/m at 20°C
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.06
9.12 **Latent Heat of Vaporization:** 217.1 Btu/lb = 120.6 cal/g = 5.049 X 10⁵ J/kg
9.13 **Heat of Combustion:** -16,200 Btu/lb = -9000 cal/g = -376.8 X 10⁵ J/kg
9.14 **Heat of Decomposition:** Not pertinent
9.15 **Heat of Solution:** Not pertinent
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:** 0.2 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
35	51.840	20	0.465	30	1.062	55	7.037
40	51.690	30	0.477	35	1.058	60	6.275
45	51.530	40	0.490	40	1.055	65	5.608
50	51.370	50	0.502	45	1.051	70	5.022
55	51.220	60	0.514	50	1.047	75	4.507
60	51.060	70	0.526	55	1.043	80	4.053
65	50.910	80	0.539	60	1.039	85	3.651
70	50.750	90	0.551	65	1.035	90	3.296
75	50.590	100	0.563	70	1.031	95	2.981
80	50.440	110	0.575	75	1.027	100	2.701
85	50.280	120	0.587	80	1.023	105	2.451
90	50.130	130	0.600	85	1.019	110	2.228
95	49.970	140	0.612	90	1.015	115	2.029
100	49.810	150	0.624	95	1.011	120	1.851
105	49.660	160	0.636	100	1.007		
110	49.500	170	0.649	105	1.003		
115	49.340			110	0.999		
120	49.190			115	0.995		
				120	0.991		
				125	0.987		

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
78	2.600	20	0.007	20	0.00012	0	0.366
		30	0.011	30	0.00018	10	0.371
		40	0.017	40	0.00028	20	0.375
		50	0.026	50	0.00042	30	0.380
		60	0.039	60	0.00062	40	0.384
		70	0.059	70	0.00091	50	0.388
		80	0.087	80	0.00132	60	0.393
		90	0.125	90	0.00187	70	0.397
		100	0.180	100	0.00264	80	0.402
		110	0.254	110	0.00366	90	0.406
		120	0.354	120	0.00502	100	0.411
		130	0.489	130	0.00681	110	0.415
		140	0.668	140	0.00915	120	0.420
		150	0.903	150	0.01217	130	0.424
		160	1.209	160	0.01603	140	0.428
		170	1.604	170	0.02092	150	0.433
						160	0.437
						170	0.442
						180	0.446
						190	0.451
						200	0.455
						210	0.459
						220	0.464
						230	0.468
						240	0.473
						250	0.477