

ISOAMYL ALCOHOL

IAA

CAUTIONARY RESPONSE INFORMATION				4. FIRE HAZARDS	7. SHIPPING INFORMATION								
Common Synonyms Fermentation amyl alcohol Fusel oil Isobutylcarbinol Isopentyl alcohol 3-Methyl-1-butanol Potato spirit oil	Liquid	Colorless	Mild, choking alcohol odor	4.1 Flash Point: 114°F O.C. 4.2 Flammable Limits in Air: 1.2%-9.0% (212°F) 4.3 Fire Extinguishing Agents: Water spray, 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: Not pertinent 4.6 Behavior in Fire: Not pertinent 4.7 Auto Ignition Temperature: 662°F 4.8 Electrical Hazards: Class I, Group C 4.9 Burning Rate: 3.6 mm/min. 4.10 Adiabatic Flame Temperature: Currently not available 4.11 Stoichiometric Air to Fuel Ratio: 35.7 (calc.) 4.12 Flame Temperature: Currently not available 4.13 Combustion Molar Ratio (Reactant to Product): 11.0 (calc.) 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	7.1 Grades of Purity: Pure; fusel oil 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: Data not available 7.7 Barge Hull Type: Currently not available								
Keep people away. Call fire department. Avoid contact with liquid and vapor. Notify local health and pollution control agencies. Protect water intakes.				8. HAZARD CLASSIFICATIONS									
Fire	Combustible. Extinguish with water, dry chemical, alcohol foam, or carbon dioxide. Cool exposed containers with water.				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:								
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose, and throat. Harmful if inhaled. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Irritating to eyes. IF IN EYES, hold eyelids open and flush with plenty of water.				Category Classification Health Hazard (Blue)..... 1 Flammability (Red)..... 2 Instability (Yellow)..... 0								
Water Pollution	Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.				8.6 EPA Reportable Quantity: Not listed. 8.7 EPA Pollution Category: Not listed. 8.8 RCRA Waste Number: Not listed 8.9 EPA FWC List: Not listed								
1. CORRECTIVE RESPONSE ACTIONS		2. CHEMICAL DESIGNATIONS		5. CHEMICAL REACTIVITY									
Dilute and disperse Stop discharge Contain Collection Systems: Skim Salvage waterfowl		2.1 CG Compatibility Group: 20; Alcohol, glycol 2.2 Formula: $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_2\text{OH}$ 2.3 IMO/UN Designation: 3.3/1105, 3.2/1201 2.4 DOT ID No.: 1105, 1201 2.5 CAS Registry No.: 123-51-3 2.6 NAERG Guide No.: 129 2.7 Standard Industrial Trade Classification: 51219		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									
3. HEALTH HAZARDS													
<p>3.1 Personal Protective Equipment: Face shield to avoid splash; protective breathing apparatus.</p> <p>3.2 Symptoms Following Exposure: Very high vapor concentrations irritate eyes and upper respiratory tract. Continued contact with skin may cause irritation.</p> <p>3.3 Treatment of Exposure: EYES: Immediately flush with plenty of water for at least 15 min.; get medical attention. SKIN: flush with water; wash with soap and water.</p> <p>3.4 TLV-TWA: 100 ppm</p> <p>3.5 TLV-STEL: Not listed.</p> <p>3.6 TLV-Ceiling: 125 ppm</p> <p>3.7 Toxicity by Ingestion: Grade 2; LD₅₀ = 0.5 to 5 g/kg</p> <p>3.8 Toxicity by Inhalation: Currently not available.</p> <p>3.9 Chronic Toxicity: None</p> <p>3.10 Vapor (Gas) Irritant Characteristics: Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations.</p> <p>3.11 Liquid or Solid Characteristics: Liquid may irritate skin.</p> <p>3.12 Odor Threshold: Currently not available</p> <p>3.13 IDLH Value: 500 ppm</p> <p>3.14 OSHA PEL-TWA: 100 ppm</p> <p>3.15 OSHA PEL-STEL: Not listed.</p> <p>3.16 OSHA PEL-Ceiling: Not listed.</p> <p>3.17 EPA AEGL: Not listed</p>													
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6. WATER POLLUTION													
<p>6.1 Aquatic Toxicity: 100 ppm/82 hr/goldfish/lethal/fresh water 400-600 ppm/24 hr/creek chub/critical range/river water</p> <p>6.2 Waterfowl Toxicity: Currently not available</p> <p>6.3 Biological Oxygen Demand (BOD): 156%, 5 days</p> <p>6.4 Food Chain Concentration Potential: None</p> <p>6.5 GESAMP Hazard Profile: Bioaccumulation: - Damage to living resources: - Human Oral hazard: - Human Contact hazard: - Reduction of amenities: -</p>													
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9. PHYSICAL & CHEMICAL PROPERTIES													
<p>9.1 Physical State at 15°C and 1 atm: Liquid</p> <p>9.2 Molecular Weight: 88.15</p> <p>9.3 Boiling Point at 1 atm: 270°F = 132°C = 405°K</p> <p>9.4 Freezing Point: Not pertinent</p> <p>9.5 Critical Temperature: 584.6°F = 307°C = 580.2°K</p> <p>9.6 Critical Pressure: Not pertinent</p> <p>9.7 Specific Gravity: 0.81 at 20°C (liquid)</p> <p>9.8 Liquid Surface Tension: 23.8 dynes/cm = 0.0238 N/m at 20°C</p> <p>9.9 Liquid Water Interfacial Tension: 5 dynes/cm = 0.005 N/m at 18°C</p> <p>9.10 Vapor (Gas) Specific Gravity: Not pertinent</p> <p>9.11 Ratio of Specific Heats of Vapor (Gas): (est.) 1.062</p> <p>9.12 Latent Heat of Vaporization: 215.6 Btu/lb = 119.8 cal/g = 5.016 X 10⁵ J/kg</p> <p>9.13 Heat of Combustion: -16,200 Btu/lb = -9,000 cal/g = -376.8 X 10⁵ J/kg</p> <p>9.14 Heat of Decomposition: Not pertinent</p> <p>9.15 Heat of Solution: -57.1 Btu/lb = -31.7 cal/g = -1.33 X 10⁵ J/kg</p> <p>9.16 Heat of Polymerization: Not pertinent</p> <p>9.17 Heat of Fusion: Currently not available</p> <p>9.18 Limiting Value: Currently not available</p> <p>9.19 Reid Vapor Pressure: Currently not available</p>													
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	51.720	40	0.511	75	0.953	34	8.196
40	51.560	50	0.524	80	0.951	36	7.875
45	51.400	60	0.537	85	0.948	38	7.570
50	51.250	70	0.551	90	0.946	40	7.278
55	51.090	80	0.564	95	0.943	42	7.000
60	50.940	90	0.577	100	0.941	44	6.735
65	50.780	100	0.591	105	0.938	46	6.482
70	50.620	110	0.604	110	0.936	48	6.240
75	50.470	120	0.617	115	0.934	50	6.009
80	50.310	130	0.631	120	0.931	52	5.788
85	50.160	140	0.644	125	0.929	54	5.577
90	50.000	150	0.657	130	0.926	56	5.375
95	49.840	160	0.671	135	0.924	58	5.182
100	49.690	170	0.684	140	0.921	60	4.997
105	49.530	180	0.697	145	0.919	62	4.820
110	49.380	190	0.711	150	0.917	64	4.651
115	49.220	200	0.724	155	0.914	66	4.489
120	49.060	210	0.737	160	0.912	68	4.334
				165	0.909	70	4.185
				170	0.907	72	4.043
						74	3.906
						76	3.775
						78	3.649
						80	3.528
						82	3.412
						84	3.301

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
68	2.750	40	0.012	40	0.00020	100	0.403
		50	0.019	50	0.00031	120	0.413
		60	0.030	60	0.00048	140	0.423
		70	0.046	70	0.00072	160	0.432
		80	0.070	80	0.00106	180	0.441
		90	0.104	90	0.00155	200	0.450
		100	0.152	100	0.00223	220	0.459
		110	0.220	110	0.00317	240	0.468
		120	0.314	120	0.00444	260	0.476
		130	0.442	130	0.00616	280	0.484
		140	0.616	140	0.00844	300	0.492
		150	0.849	150	0.01144	320	0.500
		160	1.158	160	0.01535	340	0.508
		170	1.565	170	0.02041	360	0.516
		180	2.094	180	0.02688	380	0.523
		190	2.777	190	0.03510	400	0.530
		200	3.651	200	0.04545	420	0.537
		210	4.761	210	0.05838	440	0.544
						460	0.551
						480	0.557
						500	0.564
						520	0.570
						540	0.576
						560	0.581
						580	0.587
						600	0.592