

ETHYL BUTANOL

EBT

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 2-Ethyl-1-butanol 2-Ethylbutyl alcohol sec-Hexyl alcohol sec-Pentylcarbinol Pseudohexyl alcohol	Liquid Colorless Mild alcohol odor
	Floats on water.
<p>Call fire department. Avoid contact with liquid. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Combustible. Extinguish with dry chemical, foam, or carbon dioxide. Cool exposed containers with water.
Exposure	CALL FOR MEDICAL AID. LIQUID Will burn eyes. Harmful if swallowed. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
Water Pollution	Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

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

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 20; Alcohol, glycol
2.2 **Formula:** (C₂H₅)₂CHCH₂OH
2.3 **IMO/UN Designation:** Not listed
2.4 **DOT ID No.:** 2275
2.5 **CAS Registry No.:** 97-95-0
2.6 **NAERG Guide No.:** 129
2.7 **Standard Industrial Trade Classification:** 51219

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Fresh-air mask; plastic gloves; coverall goggles; safety shower and eye bath.
- 3.2 **Symptoms Following Exposure:** Liquid causes eye burns. Vapors may be mildly irritating to nose and throat.
- 3.3 **Treatment of Exposure:** Remove to fresh air. Remove contaminated clothing. Wash affected skin areas with water. Flush eyes with water for at least 15 min. and get medical care.
- 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 (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:** Irritates eyes; moderate irritation of skin.
- 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:** 128°F O.C.
- 4.2 **Flammable Limits in Air:** 1.9%-8.8%
- 4.3 **Fire Extinguishing Agents:** Carbon dioxide or dry chemical for small fires; alcohol foam for large fires.
- 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:** 580°F (calc.)
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** 42.8 (calc.)
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** 13.0 (calc.)
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** N₂ diluent: 9.5% @ 150°C.

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):** Currently not available
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 1
Human Oral hazard: 1
Human Contact hazard: 1
Reduction of amenities: X

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 (flame arrester) or pressure-vacuum
- 7.5 **IMO Pollution Category:** D
- 7.6 **Ship Type:** Data not available
- 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:** III
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 1 |
| Flammability (Red)..... | 2 |
| 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:** 102.17
- 9.3 **Boiling Point at 1 atm:** 293°F = 146°C = 419°K
- 9.4 **Freezing Point:** -173°F = -114°C = 159°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 0.834 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** 24.3 dynes/cm = 0.0243 N/m at 25°C
- 9.9 **Liquid Water Interfacial Tension:** (est.) 40 dynes/cm = 0.04 N/m at 20°C
- 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:** 196.0 Btu/lb = 108.9 cal/g = 4.559 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** (est.) = -16,600 Btu/lb = -9,250 cal/g = -387 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:** 0.07 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
34	53.240	32	0.540	50	1.109	50	0.878
36	53.170	34	0.540	52	1.109	52	0.862
38	53.100	36	0.540	54	1.109	54	0.846
40	53.030	38	0.540	56	1.109	56	0.831
42	52.960	40	0.540	58	1.109	58	0.817
44	52.890	42	0.540	60	1.109	60	0.802
46	52.820	44	0.540	62	1.109	62	0.788
48	52.750	46	0.540	64	1.109	64	0.775
50	52.680	48	0.540	66	1.109	66	0.762
52	52.620	50	0.540	68	1.109	68	0.749
54	52.550	52	0.540	70	1.109	70	0.736
56	52.480	54	0.540	72	1.109	72	0.724
58	52.410	56	0.540	74	1.109	74	0.712
60	52.340	58	0.540	76	1.109	76	0.700
62	52.270	60	0.540	78	1.109	78	0.689
64	52.200	62	0.540	80	1.109	80	0.677
66	52.130	64	0.540	82	1.109	82	0.666
68	52.060	66	0.540	84	1.109	84	0.656
70	51.990	68	0.540				
72	51.920	70	0.540				
74	51.850	72	0.540				
76	51.780	74	0.540				
78	51.710	76	0.540				
80	51.640	78	0.540				
82	51.580	80	0.540				
84	51.510	82	0.540				

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	0.430	60	0.014	60	0.00025		N
		70	0.021	70	0.00038		O
		80	0.032	80	0.00056		T
		90	0.047	90	0.00081		
		100	0.068	100	0.00116		P
		110	0.098	110	0.00164		E
		120	0.140	120	0.00230		R
		130	0.197	130	0.00317		T
		140	0.273	140	0.00434		I
		150	0.376	150	0.00587		N
		160	0.511	160	0.00786		E
		170	0.689	170	0.01042		N
		180	0.920	180	0.01370		T
		190	1.218	190	0.01785		
		200	1.598	200	0.02306		
		210	2.080	210	0.02957		
		220	2.687	220	0.03763		
		230	3.445	230	0.04754		
		240	4.385	240	0.05965		
		250	5.544	250	0.07435		
		260	6.963	260	0.09209		
		270	8.692	270	0.11340		
		280	10.780	280	0.13880		
		290	13.300	290	0.16890		
		300	16.320	300	0.20450		