

ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE

EMA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 2-Butoxyethanol acetate 2-Butoxyethyl acetate Butyl "cellosolve" acetate Glycol monobutyl ether acetate	Liquid Colorless Weak fruity odor Floats and mixes slowly with water.
<p>Keep people away. Avoid inhalation. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Combustible. Extinguish with dry chemicals, alcohol foam, or carbon dioxide. Water may be ineffective on fire.
Exposure	Call for medical aid. LIQUID 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.
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

Dilute and disperse
Stop discharge
Contain
Collection Systems: Skim
Chemical and Physical Treatment: Burn;
Absorb

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 34: Esters
2.2 Formula: $n\text{-C}_4\text{H}_9\text{OCH}_2\text{CH}_2\text{OCOCH}_3$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 112-07-2
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51616

3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: Goggles or face shield; rubber gloves.
 3.2 Symptoms Following Exposure: Inhalation of concentrated vapor may cause headache, nausea, dizziness. Liquid causes irritation of eyes and mild irritation of skin. Ingestion produces same symptoms as inhalation.
 3.3 Treatment of Exposure: INHALATION: remove to fresh air. EYES: flush thoroughly with water for at least 15 min. SKIN: flush thoroughly with water. INGESTION: induce vomiting; get medical attention.
 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; oral LD₅₀ = 3,200 mg/kg (mouse)
 3.8 Toxicity by Inhalation: Currently not available.
 3.9 Chronic Toxicity: Currently not available.
 3.10 Vapor (Gas) Irritant Characteristics: Currently not available.
 3.11 Liquid or Solid Characteristics: Currently not available.
 3.12 Odor Threshold: Currently not available.
 3.13IDLH 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: 190°F O.C. 160°F C.C.
 4.2 Flammable Limits in Air: 0.9%-8.5%
 4.3 Fire Extinguishing Agents: Dry chemical, alcohol foam, 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: 645°F
 4.8 Electrical Hazards: Currently not available
 4.9 Burning Rate: 4.1 mm/min.
 4.10 Adiabatic Flame Temperature: Currently not available
 4.11 Stoichiometric Air to Fuel Ratio: 50.0 (calc.)
 4.12 Flame Temperature: Currently not available
 4.13 Combustion Molar Ratio (Reactant to Product): 16.0 (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: 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: Not listed

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: 98+%
- 7.2 Storage Temperature: Ambient
 7.3 Inert Atmosphere: No requirement
 7.4 Venting: Open (flame arrester)
 7.5 IMO Pollution Category: C
 7.6 Ship Type: 3
 7.7 Barge Hull Type: Currently not available

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:
- | | |
|---------------------------|----------------|
| 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 FWCNA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15°C and 1 atm: Liquid
 9.2 Molecular Weight: 160.21
 9.3 Boiling Point at 1 atm: 378.0°F = 192.2°C = 465.4°K
 9.4 Freezing Point: -82.3°F = -63.5°C = 209.7°K
 9.5 Critical Temperature: Not pertinent
 9.6 Critical Pressure: Not pertinent
 9.7 Specific Gravity: 0.942 at 20°C (liquid)
 9.8 Liquid Surface Tension: (est.) 26 dynes/cm = 0.026 N/m at 20°C
 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: 120 Btu/lb = 65 cal/g = 2.7 X 10⁵ J/kg
 9.13 Heat of Combustion: (est.) 14,000 Btu/lb = 7,700 cal/g = -320 X 10⁵ J/kg
 9.14 Heat of Decomposition: Not pertinent
 9.15 Heat of Solution: Not pertinent
 9.16 Heat of Polymerization: Currently not available
 9.17 Heat of Fusion: Currently not available
 9.18 Limiting Value: Currently not available
 9.19 Reid Vapor Pressure: Currently not available

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	59.980	52	0.441	52	1.048	52	2.135
36	59.910	54	0.442	54	1.048	54	2.089
38	59.840	56	0.443	56	1.048	56	2.044
40	59.770	58	0.444	58	1.048	58	2.000
42	59.700	60	0.446	60	1.048	60	1.958
44	59.630	62	0.447	62	1.048	62	1.917
46	59.560	64	0.448	64	1.048	64	1.877
48	59.500	66	0.449	66	1.048	66	1.838
50	59.430	68	0.450	68	1.048	68	1.800
52	59.360	70	0.451	70	1.048	70	1.764
54	59.290	72	0.452	72	1.048	72	1.728
56	59.220	74	0.453	74	1.048	74	1.693
58	59.150	76	0.454	76	1.048	76	1.659
60	59.080	78	0.456	78	1.048	78	1.627
62	59.010	80	0.457	80	1.048	80	1.595
64	58.940	82	0.458	82	1.048	82	1.563
66	58.870	84	0.459	84	1.048	84	1.533
68	58.800	86	0.460	86	1.048	86	1.504
70	58.730						
72	58.660						
74	58.590						
76	58.520						
78	58.450						
80	58.390						
82	58.320						
84	58.250						

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
34	1.420	180	0.126	180	0.00293		N
36	1.440	190	0.171	190	0.00393		O
38	1.460	200	0.231	200	0.00523		T
40	1.480	210	0.309	210	0.00689		P
42	1.500	220	0.410	220	0.00901		E
44	1.520	230	0.540	230	0.01168		R
46	1.540	240	0.705	240	0.01503		T
48	1.560	250	0.913	250	0.01920		I
50	1.580	260	1.174	260	0.02435		N
52	1.600	270	1.500	270	0.03068		E
54	1.620	280	1.904	280	0.03841		N
56	1.640	290	2.400	290	0.04779		E
58	1.660	300	3.008	300	0.05910		T
60	1.680	310	3.748	310	0.07268		
62	1.700	320	4.644	320	0.08889		
64	1.720	330	5.722	330	0.10820		
66	1.740	340	7.015	340	0.13090		
68	1.760	350	8.555	350	0.15770		
70	1.780	360	10.380	360	0.18910		
72	1.800	370	12.550	370	0.22570		
74	1.820	380	15.090	380	0.26820		
76	1.840	390	18.070	390	0.31740		
78	1.860						
80	1.880						
82	1.900						
84	1.920						