ETHYLENE GLYCOL MONOETHYL ETHER

EGE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Cellosolve
Dowanol EE
2-Ethoxyethanol
Ethylene glycol ethyl ether
Glycol monoethyl ether
Poly-solv EE

Oily liquid | Colorless | Sweet odor

Floats and mixes with water.

Call fire department.
Avoid contact with liquid.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible.
Extinguish with dry chemical, alcohol foam, or carbon dioxide.
Cool exposed containers with water.

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.
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: 40; Glycol ether
2.2 Formula: $HOCH_2CH_2OCH_2CH_3$
2.3 IMO/UN Designation: 3.3/1171
2.4 DOT ID No.: 1171
2.5 CAS Registry No.: 110-80-5
2.6 NAERG Guide No.: 127
2.7 Standard Industrial Trade Classification: 51616

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Organic gas mask; goggles or face shield; rubber gloves.
3.2 Symptoms Following Exposure: Some eye irritation. Inhalation of vapors causes irritation of nose.
3.3 Treatment of Exposure: Flush eyes with water for 15 min. Flush skin with large volumes of water. Call a physician.
3.4 TLV-TWA: 5 ppm
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, rabbit, guinea pig)
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: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 500 ppm
3.14 OSHA PEL-TWA: 200 ppm
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: 120°F O.C. 202°F C.C.
4.2 Flammable Limits in Air: 1.8%-14.0%
4.3 Fire Extinguishing Agents: Alcohol foam, carbon dioxide or dry chemical
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: 455°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 2.4 mm/min
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 26.2 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 9.0 (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): 1.58 lb/lb, 5 days; 54% (theor.), 5 days
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 0
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: Commercial
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: 3

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).....	2
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: U359
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: 90.12
9.3 Boiling Point at 1 atm: 275.2°F = 135.1°C = 408.3°K
9.4 Freezing Point: –93.0°F = –69.4°C = 203.3°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 0.931 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): 1.064
9.12 Latent Heat of Vaporization: 191 Btu/lb = 106 cal/g = 4.44 X 10^5 J/kg
9.13 Heat of Combustion: (est.) –13,000 Btu/lb = –7,400 cal/g = –310 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: (est.) –9 Btu/lb = –5 cal/g = –0.2 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: 0.1 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
40	59.090	35	0.562	90	1.194		N
50	58.760	40	0.564	95	1.186		O
60	58.420	45	0.567	100	1.177		T
70	58.090	50	0.570	105	1.169		
80	57.750	55	0.573	110	1.160		P
90	57.410	60	0.575	115	1.152		E
100	57.080	65	0.578	120	1.144		R
110	56.740	70	0.581	125	1.135		T
120	56.400	75	0.584	130	1.127		I
130	56.070	80	0.587	135	1.118		N
140	55.730	85	0.589	140	1.110		E
150	55.390	90	0.592	145	1.102		N
160	55.060	95	0.595	150	1.093		T
170	54.720	100	0.598				
180	54.390						
190	54.050						
200	53.710						
210	53.380						

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	0.052	60	0.00085	0	0.337
	I	70	0.078	70	0.00124	25	0.347
	S	80	0.114	80	0.00177	50	0.357
	C	90	0.164	90	0.00250	75	0.367
	I	100	0.231	100	0.00346	100	0.377
	B	110	0.320	110	0.00472	125	0.386
	L	120	0.438	120	0.00634	150	0.396
	E	130	0.590	130	0.00840	175	0.405
		140	0.785	140	0.01099	200	0.415
		150	1.031	150	0.01420	225	0.424
		160	1.340	160	0.01816	250	0.433
		170	1.722	170	0.02297	275	0.441
		180	2.192	180	0.02877	300	0.450
		190	2.762	190	0.03570	325	0.459
		200	3.451	200	0.04392	350	0.467
		210	4.274	210	0.05359	375	0.476
		220	5.253	220	0.06488	400	0.484
		230	6.406	230	0.07798	425	0.492
		240	7.758	240	0.09308	450	0.500
		250	9.331	250	0.11040	475	0.508
		260	11.150	260	0.13010	500	0.515
		270	13.250	270	0.15240	525	0.523
		280	15.650	280	0.17760	550	0.530
		290	18.380	290	0.20580	575	0.538
		300	21.470	300	0.23730	600	0.545