ETHYLENE GLYCOL

EGL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
1,2-Dihydroxyethane
1,2-Ethanediol
Ethylene dihydrate
Glycol
Monoethylene glycol

Thick liquid Colorless Odorless

Sinks and mixes with water.

Call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible.
Extinguish with dry chemical, alcohol foam, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause loss of consciousness.
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 and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

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: 20; Alcohol, glycol
2.2 Formula: $HOCH_2CH_2OH$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 107-21-1
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51221

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Goggles; shower and eye bath.
3.2 Symptoms Following Exposure: Inhalation of vapor is not hazardous. Ingestion causes stupor or coma, sometimes leading to fatal kidney injury.
3.3 Treatment of Exposure: INGESTION: induce vomiting and call a physician. SKIN AND EYES: flush with water.
3.4 TLV-TWA: Not listed.
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: 100 mg/m^3
3.7 Toxicity by Ingestion: Grade 1; LD_{50} = 5 to 15 g/kg (rat, guinea pig, mouse)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Fatal kidney injury may result if ingested.
3.10 Vapor (Gas) Irritant Characteristics: Vapors are nonirritating to the eyes and throat.
3.11 Liquid or Solid Characteristics: No appreciable hazard. Practically harmless to the skin.
3.12 Odor Threshold: Odorless
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: 240°F O.C. 232°F C.C.
4.2 Flammable Limits in Air: LEL = 3.2%; UEL not listed
4.3 Fire Extinguishing Agents: Water fog, alcohol foam, carbon dioxide, or dry chemical
4.4 Fire Extinguishing Agents Not to Be Used: Water or foam may cause frothing.
4.5 Special Hazards of Combustion Products: Not pertinent
4.6 Behavior in Fire: Not pertinent
4.7 Auto Ignition Temperature: 775°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 1.0 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 11.9 (calc.)
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): 5.0 (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: >100 ppm/48 hr/shrimp/LC_{50}/salt water
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): 12.5% (theor.), 5 days; 78% (theor.). 20 days
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 0
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: Industrial grade; low-conductivity grade
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 avaialable
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).....	1
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: 5000 pounds
8.7 EPA Pollution Category: D
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: 62.07
9.3 Boiling Point at 1 atm: 387.°F = 197.6°C = 470.8°K
9.4 Freezing Point: 8.6°F = 13°C = 260°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.115 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): 1.095
9.12 Latent Heat of Vaporization: 344 Btu/lb = 191 cal/g = 8.00 X 10^5 J/kg
9.13 Heat of Combustion: –7259 Btu/lb = –4033 cal/g = –168.9 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: (est.) –20 Btu/lb = –12 cal/g = –0.5 X 10^5 J/kg
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: 43.26 cal/g
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: 0.008 psia

NOTES

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9.20 SATURATED LIQUID DENSITY	
Temperature (degrees F)	Pounds per cubic foot
40	70.129
50	69.910
60	69.690
70	69.459
80	69.209
90	68.959
100	68.690
110	68.419
120	68.129
130	67.830
140	67.520
150	67.200
160	66.870
170	66.530
180	66.179
190	65.820
200	65.440
210	65.059

9.21 LIQUID HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
20	0.536
40	0.549
60	0.563
80	0.576
100	0.589
120	0.603
140	0.616
160	0.629
180	0.643
200	0.656
220	0.669
240	0.683
260	0.696
280	0.709
300	0.723

9.22 LIQUID THERMAL CONDUCTIVITY	
Temperature (degrees F)	British thermal unit inch per hour-square foot-F
75	1.700
80	1.697
85	1.694
90	1.691
95	1.688
100	1.685
105	1.683
110	1.680
115	1.677
120	1.674
125	1.671
130	1.668
135	1.665
140	1.662
145	1.659
150	1.656
155	1.653
160	1.650
165	1.647
170	1.644
175	1.641
180	1.638
185	1.635

9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Centipoise
	N
	O
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	E
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	I
	N
	E
	N
	T

9.24 SOLUBILITY IN WATER	
Temperature (degrees F)	Pounds per 100 pounds of water
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	I
	S
	C
	I
	B
	L
	E

9.25 SATURATED VAPOR PRESSURE	
Temperature (degrees F)	Pounds per square inch
60	0.001
70	0.001
80	0.002
90	0.003
100	0.005
110	0.008
120	0.012
130	0.017
140	0.026
150	0.037
160	0.053
170	0.075
180	0.106
190	0.146
200	0.201
210	0.273
220	0.369
230	0.493
240	0.653
250	0.859
260	1.120
270	1.451
280	1.867
290	2.386
300	3.029

9.26 SATURATED VAPOR DENSITY	
Temperature (degrees F)	Pounds per cubic foot
60	0.00001
70	0.00001
80	0.00002
90	0.00003
100	0.00005
110	0.00008
120	0.00012
130	0.00017
140	0.00025
150	0.00035
160	0.00050
170	0.00069
180	0.00095
190	0.00130
200	0.00176
210	0.00236
220	0.00314
230	0.00413
240	0.00540
250	0.00700
260	0.00900
270	0.01150
280	0.01460
290	0.01840
300	0.02305

9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
0	0.344
25	0.354
50	0.364
75	0.373
100	0.382
125	0.391
150	0.400
175	0.409
200	0.417
225	0.425
250	0.433
275	0.440
300	0.448
325	0.455
350	0.462
375	0.468
400	0.475
425	0.481
450	0.487
475	0.493
500	0.498
525	0.504
550	0.509
575	0.514
600	0.518