DIETHYLENE GLYCOL

DEG

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
DEG
Diglycol
Bis-(2-Hydroxyethyl)ether
3-Oxa-1, 5-pentanediol
2,2'-Oxybisethanol

Oily liquid Colorless Odorless

Sinks and mixes with water.

Call fire department.
Notify local health and pollution control agencies.

Fire	Combustible. Extinguish with dry chemical, alcohol foam, or carbon dioxide. Water and foam may be ineffective on fire. Cool exposed containers with water.
Exposure	Not harmful.
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.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 40; Glycol ether
2.2 Formula: $(HOCH_2CH_2)_2O$
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: Not listed
2.5 CAS Registry No.: 111-46-6
2.6 NAERG Guide No.: Not listed
2.7 Standard Industrial Trade Classification: 51616

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Full face mask with canister for short exposures to high vapor levels; rubber gloves; goggles.
3.2 Symptoms Following Exposure: Ingestion of large amounts may cause degeneration of kidney and liver and cause death. Liquid may cause slight skin irritation.
3.3 Treatment of Exposure: INHALATION: no problem likely. If any ill effects do develop, get medical attention. INGESTION: induce vomiting if ingested. No known antidote; treat symptomatically. EYE AND SKIN: flush with water. If any ill effects occur, 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 0; LD_{50} above 15 g/kg (rat)
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Kidney and liver damage.
3.10 Vapor (Gas) Irritant Characteristics: None
3.11 Liquid or Solid Characteristics: None
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: 255°F C.C.
4.2 Flammable Limits in Air: 1.6%-10.8%
4.3 Fire Extinguishing Agents: Alcohol foam, carbon dioxide, 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: 444°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: 1.5 mm/min.
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: 23.8 (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: Not pertinent
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:
> 32,000 ppm/96 hr/mosquito fish/TL_m/ fresh water
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): 6%, 5 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: I
Reduction of amenities: XX

7. SHIPPING INFORMATION

7.1 Grades of Purity: Regular grade; polyester 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: 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: 106.12
9.3 Boiling Point at 1 atm: 473°F = 245°C = 518°K
9.4 Freezing Point: 20°F = –8°C = 265°K
9.5 Critical Temperature: 766.4°F = 408°C = 681.2°K
9.6 Critical Pressure: 680 psia = 46 atm = 4.7 MN/m^2
9.7 Specific Gravity: 1.118 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): Not pertinent
9.12 Latent Heat of Vaporization: 270 Btu/lb = 150 cal/g = 6.28 X 10^5 J/kg
9.13 Heat of Combustion: –9617 Btu/lb = –5343 cal/g = –223.7 X 10^5 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: Very low

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	70.809	40	0.534	65	1.442		N
50	70.440	50	0.540	70	1.442		O
60	70.080	60	0.545	75	1.442		T
70	69.719	70	0.551	80	1.442		
80	69.349	80	0.557	85	1.442		P
90	68.990	90	0.562	90	1.442		E
100	68.620	100	0.568	95	1.442		R
110	68.259	110	0.573	100	1.442		T
120	67.900	120	0.579	105	1.442		I
130	67.530	130	0.584	110	1.442		N
140	67.169	140	0.590	115	1.442		E
150	66.799	150	0.595	120	1.442		N
160	66.440	160	0.601	125	1.442		T
170	66.070	170	0.607	130	1.442		
180	65.709	180	0.612	135	1.442		
190	65.349	190	0.618	140	1.442		
200	64.980	200	0.623	145	1.442		
210	64.620	210	0.629	150	1.442		

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	80	0.000	80	0.00000		N
	I	100	0.000	100	0.00000		O
	S	120	0.001	120	0.00001		T
	C	140	0.001	140	0.00002		
	I	160	0.003	160	0.00005		P
	B	180	0.008	180	0.00012		E
	L	200	0.016	200	0.00024		R
	E	220	0.034	220	0.00049		T
		240	0.067	240	0.00095		I
		260	0.128	260	0.00176		N
		280	0.237	280	0.00317		E
		300	0.424	300	0.00552		N
		320	0.736	320	0.00933		T
		340	1.243	340	0.01537		
		360	2.046	360	0.02467		
		380	3.288	380	0.03871		