

PROPYLENE GLYCOL

PPG

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 1,2-Dihydroxypropane Methylethylene glycol 1,2-Propanediol	Thick liquid Colorless Odorless Mixes with water.
<p>Keep people away. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Combustible. Extinguish with water, dry chemical, alcohol foam, or carbon dioxide. Cool exposed containers with water.
Exposure	Not harmful.
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:** CH₂CH(OH)CH₂OH
2.3 **IMO/UN Designation:** Not listed
2.4 **DOT ID No.:** Not listed
2.5 **CAS Registry No.:** 57-55-6
2.6 **NAERG Guide No.:** Not listed
2.7 **Standard Industrial Trade Classification:** 51229

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles.
3.2 **Symptoms Following Exposure:** Liquid may irritate eyes.
3.3 **Treatment of Exposure:** Flush eyes with plenty of water.
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 (mouse)
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** None
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:** 225°F O.C. 210°F C.C.
4.2 **Flammable Limits in Air:** 2.6%-12.5%
4.3 **Fire Extinguishing Agents:** Water fog, alcohol foam, carbon dioxide, 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:** 700°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 **Stoichiometric Air to Fuel Ratio:** 19.0 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 7.0 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** USP, industrial, food (all 99+%)
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** Open (flame arrester)
7.5 **IMO Pollution Category:** Currently not available
7.6 **Ship Type:** Currently not available
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)..... | 0 |
| 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

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
5.2 **Reactivity with Common Materials:** None
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):** 2.2% of theoretical in 5 days
6.4 **Food Chain Concentration Potential:** None
6.5 **GESAMP Hazard Profile:** Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
9.2 **Molecular Weight:** 76.10
9.3 **Boiling Point at 1 atm:** 369.1°F = 187.3°C = 460.5°K
9.4 **Freezing Point:** <-76°F = <-60°C = <213°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 1.04 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 36 dynes/cm = 0.036 N/m at 25°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):** 1.073
9.12 **Latent Heat of Vaporization:** 306 Btu/lb = 170 cal/g = 7.12 X 10⁵ J/kg
9.13 **Heat of Combustion:** -10,310 Btu/lb = -5,728 cal/g = -239.8 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:** Currently not available

NOTES

PROPYLENE GLYCOL

PPG

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	65.700	0	0.540		N		N
50	65.419	10	0.548		O		O
60	65.139	20	0.556		T		T
70	64.860	30	0.563				
80	64.589	40	0.571		P		P
90	64.309	50	0.579		E		E
100	64.030	60	0.587		R		R
110	63.750	70	0.594		T		T
120	63.480	80	0.602		I		I
130	63.200	90	0.610		N		N
140	62.920	100	0.618		E		E
150	62.640	110	0.626		N		N
160	62.370	120	0.633		T		T
170	62.090	130	0.641				
180	61.810	140	0.649				
190	61.530	150	0.657				
200	61.260	160	0.664				
210	60.980	170	0.672				
		180	0.680				
		190	0.688				
		200	0.696				
		210	0.703				

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	0.002	80	0.00002	0	0.355
	I	100	0.005	100	0.00007	25	0.365
	S	120	0.014	120	0.00017	50	0.375
	C	140	0.033	140	0.00039	75	0.385
	I	160	0.074	160	0.00085	100	0.394
	B	180	0.153	180	0.00170	125	0.404
	L	200	0.297	200	0.00319	150	0.413
	E	220	0.544	220	0.00568	175	0.422
		240	0.950	240	0.00963	200	0.431
		260	1.589	260	0.01565	225	0.440
		280	2.557	280	0.02450	250	0.448
		300	3.975	300	0.03710	275	0.457
		320	5.995	320	0.05451	300	0.465
		340	8.795	340	0.07797	325	0.473
		360	12.590	360	0.10880	350	0.481
		380	17.610	380	0.14870	375	0.489
						400	0.497
						425	0.504
						450	0.512
						475	0.519
						500	0.526
						525	0.533
						550	0.540
						575	0.547
						600	0.553