

ETHYLENE GLYCOL MONOMETHYL ETHER

EME

CAUTIONARY RESPONSE INFORMATION			
Common Synonyms Dowanol EM Glycol monomethyl ether 2-Methoxyethanol Methyl cellosolve Poly-solv EM	Liquid Floats and mixes with water.	Colorless	Odorless
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	2. CHEMICAL DESIGNATIONS	3. HEALTH HAZARDS
Dilute and disperse Stop discharge	2.1 CG Compatibility Group: 40; Glycol ether 2.2 Formula: CH ₃ OCH ₂ CH ₂ OH 2.3 IMO/UN Designation: 3.3/1188 2.4 DOT ID No.: 1188 2.5 CAS Registry No.: 109-86-4 2.6 NAERG Guide No.: 127 2.7 Standard Industrial Trade Classification: 51616	3.1 Personal Protective Equipment: Chemical safety goggles; protective clothing; supplied-air respirator for high concentrations; safety shower and eye bath. 3.2 Symptoms Following Exposure: Irritation of skin and eyes. Chronic exposure may also cause weakness, sleepiness, headache, gastrointestinal upset, weight loss, change of personality. 3.3 Treatment of Exposure: SKIN OR EYES: wash affected area with water for 15 min. 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 5g/kg (rat, rabbit, guinea pig) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Causes blood disorders and damage to central nervous system in humans. 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: 0.9 ppm 3.13 IDLH Value: 200 ppm 3.14 OSHA PEL-TWA: 25 ppm 3.15 OSHA PEL-STEL: Not listed. 3.16 OSHA PEL-Ceiling: Not listed. 3.17 EPA A EGL: Not listed

4. FIRE HAZARDS	7. SHIPPING INFORMATION							
4.1 Flash Point: 120°F O.C. 107°F C.C. 4.2 Flammable Limits in Air: 2.5%-19.8% 4.3 Fire Extinguishing Agents: Dry chemical, carbon dioxide or alcohol foam 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: 551°F 4.8 Electrical Hazards: Not pertinent 4.9 Burning Rate: 1.8 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	7.1 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: <table border="0"> <tr> <td>Category</td> <td>Classification</td> </tr> <tr> <td>Health Hazard (Blue).....</td> <td>2</td> </tr> <tr> <td>Flammability (Red).....</td> <td>2</td> </tr> <tr> <td>Instability (Yellow).....</td> <td>0</td> </tr> </table>	Category	Classification	Health Hazard (Blue).....	2	Flammability (Red).....	2	Instability (Yellow).....	0
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: 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: 76.10 9.3 Boiling Point at 1 atm: 256.1°F = 124.5°C = 397.7°K 9.4 Freezing Point: -121.2°F = -85.1°C = 188.1°K 9.5 Critical Temperature: 557.6°F = 292°C = 565.2°K 9.6 Critical Pressure: 735 psia = 50 atm = 5.1 MN/m ² 9.7 Specific Gravity: 0.966 at 20°C (liquid) 9.8 Liquid Surface Tension: 33 dynes/cm = 0.033 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): 1.079 9.12 Latent Heat of Vaporization: 223 Btu/lb = 124 cal/g = 5.19 X 10 ³ J/kg 9.13 Heat of Combustion: -9460 Btu/lb = -5250 cal/g = -220 X 10 ³ J/kg 9.14 Heat of Decomposition: Not pertinent 9.15 Heat of Solution: Currently not available 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: 0.39 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	61.220	35	0.552	85	1.298		N
50	60.890	40	0.554	90	1.291		O
60	60.560	45	0.557	95	1.283		T
70	60.230	50	0.560	100	1.276		
80	59.900	55	0.563	105	1.268		P
90	59.580	60	0.565	110	1.260		E
100	59.250	65	0.568	115	1.253		R
110	58.920	70	0.571	120	1.245		T
120	58.590	75	0.574	125	1.238		I
130	58.260	80	0.577	130	1.230		N
140	57.930	85	0.579	135	1.223		E
150	57.600	90	0.582	140	1.215		N
160	57.270	95	0.585	145	1.207		E
170	56.940	100	0.588	150	1.200		N
180	56.610						
190	56.280						
200	55.950						
210	55.620						

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	0.088	60	0.00120		0	0.332
I	70	0.129	70	0.00173		25	0.341
S	80	0.186	80	0.00245		50	0.350
C	90	0.264	90	0.00341		75	0.359
I	100	0.368	100	0.00467		100	0.368
B	110	0.506	110	0.00630		125	0.377
L	120	0.685	120	0.00837		150	0.385
E	130	0.914	130	0.01099		175	0.394
	140	1.205	140	0.01424		200	0.402
	150	1.570	150	0.01825		225	0.411
	160	2.022	160	0.02314		250	0.419
	170	2.579	170	0.02903		275	0.427
	180	3.256	180	0.03609		300	0.435
	190	4.074	190	0.04445		325	0.443
	200	5.053	200	0.05430		350	0.451
	210	6.216	210	0.06581		375	0.458
	220	7.589	220	0.07915		400	0.466
	230	9.197	230	0.09453		425	0.474
	240	11.070	240	0.11220		450	0.481
	250	13.240	250	0.13220		475	0.488
	260	15.730	260	0.15490		500	0.495
	270	18.580	270	0.18050		525	0.502
	280	21.830	280	0.20920		550	0.509
	290	25.510	290	0.24120		575	0.516
	300	29.660	300	0.27680		600	0.523