

DIETHYL CARBONATE

DEC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Carbonic acid, diethyl ester Ethyl carbonate Eufin		Watery liquid	Colorless	Pleasant odor
Floats on water. Flammable, irritating vapor is produced.				
<p>Keep people away. Shut off ignition sources and call fire department. Avoid contact with liquid and vapor. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	<p>FLAMMABLE. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Extinguish with dry chemical, foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.</p>			
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>VAPORS Irritating to eyes, nose and throat. If inhaled will cause headache, dizziness, nausea, or loss of consciousness. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>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.</p>			
Water Pollution	<p>Effect of low concentrations on aquatic life is unknown. Fouling to shoreline. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>			

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Contain
Collection Systems: Skim
Clean shore line
Salvage waterfowl

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
2.2 **Formula:** (CH₃CH₂)₂CO₃
2.3 **IMO/UN Designation:** Not listed
2.4 **DOT ID No.:** 2366
2.5 **CAS Registry No.:** 105-58-8
2.6 **NAERG Guide No.:** 127
2.7 **Standard Industrial Trade Classification:** 51550

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Protective clothing; rubber gloves and goggles, organic vapor canister or air mask.
- 3.2 **Symptoms Following Exposure:** High vapor concentrations can cause headache, irritation of eyes and respiratory tract, dizziness, nausea, weakness, loss of consciousness.
- 3.3 **Treatment of Exposure:** INHALATION: remove from exposure; administer artificial respiration and oxygen if needed. EYES: flush with water for at least 15 min.
- 3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Currently not available
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** None
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors may cause slight smarting of eyes.
3.11 **Liquid or Solid Characteristics:** Minimum hazard.
3.12 **Odor Threshold:** Currently not available
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:** 115°F O.C. 77°F C.C.
4.2 **Flammable Limits in Air:** Currently not available
4.3 **Fire Extinguishing Agents:** Foam, carbon dioxide, dry chemical
4.4 **Fire Extinguishing Agents Not to Be Used:** Water
4.5 **Special Hazards of Combustion Products:** Not pertinent
4.6 **Behavior in Fire:** Not pertinent
4.7 **Auto Ignition Temperature:** Currently not available
4.8 **Electrical Hazards:** Not pertinent
4.9 **Burning Rate:** 3.4 mm/min.
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 28.6 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 10.0 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Too slow to be hazardous
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):** Currently not available
6.4 **Food Chain Concentration Potential:** None
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 1
Human Oral hazard: 1
Human Contact hazard: 1
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99-100%
7.2 **Storage Temperature:** Currently not available
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Currently not available
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:** 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)..... | 3 |
| Instability (Yellow)..... | 1 |
- 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:** 118.13
9.3 **Boiling Point at 1 atm:** 260.2°F = 126.8°C = 400.0°K
9.4 **Freezing Point:** -45°F = -43°C = 230°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 0.975 at 20°C (liquid)
9.8 **Liquid Surface Tension:** 26.3 dynes/cm = 0.0263 N/m at 20°C
9.9 **Liquid Water Interfacial Tension:** 12.86 dynes/cm = 0.01286 N/m at 20°C
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
9.11 **Ratio of Specific Heats of Vapor (Gas):** (est.) 1.110
9.12 **Latent Heat of Vaporization:** 130 Btu/lb = 73 cal/g = 3.1 X 10⁵ J/kg
9.13 **Heat of Combustion:** -9760 Btu/lb = -5420 cal/g = -227 X 10³ 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

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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
35	62.010	40	0.455	42	1.248	52	0.921
40	61.830	50	0.458	44	1.248	54	0.905
45	61.660	60	0.461	46	1.248	56	0.890
50	61.490	70	0.463	48	1.248	58	0.875
55	61.310	80	0.466	50	1.248	60	0.860
60	61.140	90	0.469	52	1.248	62	0.845
65	60.970	100	0.472	54	1.248	64	0.831
70	60.790	110	0.475	56	1.248	66	0.818
75	60.620	120	0.477	58	1.248	68	0.804
80	60.450	130	0.480	60	1.248	70	0.791
85	60.270	140	0.483	62	1.248	72	0.779
90	60.100	150	0.486	64	1.248	74	0.766
95	59.930	160	0.488	66	1.248	76	0.754
100	59.750	170	0.491	68	1.248	78	0.742
		180	0.494	70	1.248	80	0.730
		190	0.497	72	1.248	82	0.719
		200	0.500	74	1.248	84	0.708
		210	0.502	76	1.248	86	0.697
						88	0.687
						90	0.676
						92	0.666
						94	0.656
						96	0.647
						98	0.637
						100	0.628
						102	0.619

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
	I	200	0.647	200	0.01079	90	0.170
	N	210	0.851	210	0.01398	100	0.170
	S	220	1.105	220	0.01789	110	0.170
	O	230	1.418	230	0.02263	120	0.170
	L	240	1.800	240	0.02832	130	0.170
	U	250	2.262	250	0.03507	140	0.170
	B	260	2.814	260	0.04303	150	0.170
	L	270	3.470	270	0.05233	160	0.170
	E	280	4.242	280	0.06311	170	0.170
		290	5.145	290	0.07552	180	0.170
		300	6.192	300	0.08970	190	0.170
		310	7.400	310	0.10580	200	0.170
		320	8.785	320	0.12400	210	0.170
		330	10.360	330	0.14440	220	0.170
		340	12.150	340	0.16720	230	0.170
		350	14.170	350	0.19250	240	0.170
						250	0.170
						260	0.170