

ETHYL LACTATE

ELT

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Ethyl dl-lactate Ethyl 2-hydroxypropanoate Ethyl 2-hydroxypropionate Ethyl alpha-hydroxypropionate Lactic acid, ethyl ester	Liquid Colorless Mild odor
Mixes with water.	
<p>Keep people away. Avoid inhalation. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Combustible. Extinguish with water, dry chemicals, foam, or carbon dioxide. Cool exposed containers with water.
Exposure	Call for medical aid. LIQUID Harmful if swallowed. 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

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: CH₃CHOHCOOC₂H₅
- 2.3 IMO/UN Designation: 3.3/1192
- 2.4 DOT ID No.: 1192
- 2.5 CAS Registry No.: 97-64-3
- 2.6 NAERG Guide No.: 129
- 2.7 Standard Industrial Trade Classification: 51391

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Goggles or face shield; rubber gloves.
- 3.2 **Symptoms Following Exposure:** Inhalation of concentrated vapor may cause drowsiness. Contact with liquid causes mild irritation of eyes and (on prolonged contact) skin. Ingestion may cause narcosis.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim to fresh air. EYES and SKIN: flush well with water. INGESTION: induce vomiting; 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 2; oral LD₅₀ = 2,580 mg/kg (mouse)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
- 3.11 **Liquid or Solid Characteristics:** Currently not available
- 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:** 158°F O.C. 115°F C.C.
- 4.2 **Flammable Limits in Air:** 1.5%-11.4%
- 4.3 **Fire Extinguishing Agents:** Water, dry chemical, alcohol foam, carbon dioxide
- 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:** 752°F
- 4.8 **Electrical Hazards:** Currently not available
- 4.9 **Burning Rate:** Currently not available
- 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:** 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:** 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)/B
Human Oral hazard: 1
Human Contact hazard: 0
Reduction of amenities: 0

7. SHIPPING INFORMATION

- 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:** 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).....	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 FWPCA List:** Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 118.1
- 9.3 **Boiling Point at 1 atm:** 309°F = 154°C = 427°K
- 9.4 **Freezing Point:** Not pertinent
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 1.03 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** 29.20 dynes/cm = 0.0292 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):** Not pertinent
- 9.12 **Latent Heat of Vaporization:** Not pertinent
- 9.13 **Heat of Combustion:** (est.) -11,600 Btu/lb = -6,500 cal/g = -270 X 10³ 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:** 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	65.549	52	0.441	51	1.048	51	9.018
40	65.360	54	0.442	52	1.048	52	8.773
45	65.169	56	0.443	53	1.048	53	8.535
50	64.980	58	0.444	54	1.048	54	8.305
55	64.790	60	0.446	55	1.048	55	8.082
60	64.599	62	0.447	56	1.048	56	7.865
65	64.410	64	0.448	57	1.048	57	7.656
70	64.219	66	0.449	58	1.048	58	7.452
75	64.030	68	0.450	59	1.048	59	7.255
80	63.840	70	0.451	60	1.048	60	7.064
85	63.650	72	0.452	61	1.048	61	6.879
90	63.460	74	0.453	62	1.048	62	6.699
95	63.260	76	0.454	63	1.048	63	6.524
100	63.070	78	0.456	64	1.048	64	6.355
105	62.880	80	0.457	65	1.048	65	6.190
110	62.690	82	0.458	66	1.048	66	6.031
115	62.500	84	0.459	67	1.048	67	5.876
120	62.310	86	0.460	68	1.048	68	5.726
125	62.120	88	0.461	69	1.048	69	5.580
130	61.930	90	0.462	70	1.048	70	5.438
135	61.740	92	0.463	71	1.048	71	5.301
140	61.550	94	0.464	72	1.048	72	5.167
145	61.360	96	0.466	73	1.048	73	5.037
150	61.170	98	0.467	74	1.048	74	4.911
155	60.980	100	0.468	75	1.048	75	4.789
		102	0.469	76	1.048	76	4.670

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	268	7.681	268	0.11610		N
	I	270	7.941	270	0.11970		O
	S	272	8.209	272	0.12340		T
	C	274	8.483	274	0.12720		
	I	276	8.766	276	0.13110		P
	B	278	9.056	278	0.13510		E
	L	280	9.354	280	0.13910		R
	E	282	9.660	282	0.14330		T
		284	9.974	284	0.14760		I
		286	10.300	286	0.15190		N
		288	10.630	288	0.15640		E
		290	10.970	290	0.16100		N
		292	11.320	292	0.16570		T
		294	11.680	294	0.17050		
		296	12.050	296	0.17540		
		298	12.420	298	0.18040		
		300	12.810	300	0.18550		
		302	13.210	302	0.19080		
		304	13.610	304	0.19610		
		306	14.030	306	0.20160		
		308	14.460	308	0.20720		
		310	14.900	310	0.21300		
		312	15.350	312	0.21880		
		314	15.810	314	0.22480		
		316	16.280	316	0.23090		
		318	16.770	318	0.23720		