

ETHYLHEXALDEHYDE

EHA

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Butylethylacetaldehyde 2-Ethylcaproaldehyde 2-Ethyl hexaldehyde 2-Ethylhexanal Octyl aldehyde		Liquid	White	Mild odor
		Floats on water.		
<p>Keep people away. Avoid contact with liquid. Wear goggles, self-contained breathing apparatus, and rubber overclothing. Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	Combustible. Extinguish with dry chemicals, alcohol foam, or carbon dioxide. Water may be ineffective on fire. Cool exposed containers with water.			
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Irritating to skin and eyes. If swallowed will cause nausea and vomiting. 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. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.			
Water Pollution	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.			

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
 Contain
 Collection Systems: Skim
 Chemical and Physical Treatment: Burn
 Clean shore line

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** 19; Aldehyde
 2.2 **Formula:** C₈H₁₆CH(C₂H₅)CHO
 2.3 **IMO/UN Designation:** 3.3/1191
 2.4 **DOT ID No.:** 1191
 2.5 **CAS Registry No.:** 123-05-7
 2.6 **NAERG Guide No.:** 129
 2.7 **Standard Industrial Trade Classification:** 51622

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Rubber gloves; safety goggles or face shield
 3.2 **Symptoms Following Exposure:** Inhalation may be irritating to mucous membrane; overexposure may cause dizziness and collapse. Ingestion causes irritation of mouth and stomach. Contact with eyes or skin causes irritation.
 3.3 **Treatment of Exposure:** INHALATION: remove victim to fresh air; give oxygen if breathing is difficult; call a doctor. EYES: irrigate immediately for 15 min., then get medical attention. SKIN: flush with water; wash with soap and 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; oral rat LD₅₀ = 3,730 mg/kg
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 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:** Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.
 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:** 127°F O.C. 112°F C.C.
 4.2 **Flammable Limits in Air:** Currently not available
 4.3 **Fire Extinguishing Agents:** Dry chemical, alcohol foam, carbon dioxide
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water may be ineffective
 4.5 **Special Hazards of Combustion Products:** Currently not available
 4.6 **Behavior in Fire:** Currently not available
 4.7 **Auto Ignition Temperature:** 387°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:** 54.7 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 16.0 (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:** May ignite spontaneously when spilled on clothing, paper, or other absorbent materials
 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: T
 Damage to living resources: 3
 Human Oral hazard: 1
 Human Contact hazard: I
 Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial, 95.0+%
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Pressure-vacuum
 7.5 **IMO Pollution Category:** B
 7.6 **Ship Type:** 3
 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).....	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:** 128.22
 9.3 **Boiling Point at 1 atm:** 327°F = 164°C = 437°K
 9.4 **Freezing Point:** Not pertinent
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 0.820 at 20°C (liquid)
 9.8 **Liquid Surface Tension:** Currently not available
 9.9 **Liquid Water Interfacial Tension:** Currently not available
 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:** 164 Btu/lb = 91.2 cal/g = 3.82 X 10⁵ J/kg
 9.13 **Heat of Combustion:** -15,860 Btu/lb = -8,810 cal/g = -369 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

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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
52	51.740		N		N		N
54	51.670		O		O		O
56	51.600		T		T		T
58	51.530						
60	51.460		P		P		P
62	51.390		E		E		E
64	51.320		R		R		R
66	51.260		T		T		T
68	51.190		I		I		I
70	51.120		N		N		N
72	51.050		E		E		E
74	50.980		N		N		N
76	50.910		T		T		T
78	50.840						
80	50.770						
82	50.700						
84	50.630						
86	50.560						

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	70	0.041	70	0.00093		N
	N	80	0.058	80	0.00128		O
	S	90	0.079	90	0.00173		T
	O	100	0.108	100	0.00231		
	L	110	0.146	110	0.00306		P
	U	120	0.195	120	0.00401		E
	B	130	0.257	130	0.00521		R
	L	140	0.337	140	0.00671		T
	E	150	0.437	150	0.00856		I
		160	0.562	160	0.01083		N
		170	0.717	170	0.01361		E
		180	0.908	180	0.01696		R
		190	1.142	190	0.02100		T
		200	1.426	200	0.02582		I
		210	1.769	210	0.03155		N
		220	2.180	220	0.03832		E
		230	2.671	230	0.04626		R
		240	3.253	240	0.05554		T
		250	3.940	250	0.06632		I
		260	4.747	260	0.07879		N
		270	5.690	270	0.09315		E
		280	6.788	280	0.10960		R
		290	8.058	290	0.12840		T
		300	9.523	300	0.14970		I
		310	11.210	310	0.17390		N
		320	13.130	320	0.20120		E