

# ETHYLBENZENE

ETB

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b>		Liquid	Colorless	Sweet, gasoline-like odor
EB Phenylethane		Floats on water. Flammable, irritating vapor is produced.		
<p>Keep people away. Avoid contact with liquid and vapor.                  Avoid inhalation.                  Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).                  Shut off ignition sources and call fire department.                  Stay upwind and use water spray to "knock down" vapor.                  Notify local health and pollution control agencies.                  Protect water intakes.</p>				
<b>Fire</b>	<p><b>FLAMMABLE.</b>                  Flashback along vapor trail may occur.                  Vapor may explode if ignited in an enclosed area.                  Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).                  Extinguish with dry chemical, foam, or carbon dioxide.                  Water may be ineffective on fire.                  Cool exposed containers with water.</p>			
<b>Exposure</b>	<p><b>CALL FOR MEDICAL AID.</b></p> <p><b>VAPOR</b>                  Irritating to eyes, nose and throat.                  If inhaled, will cause dizziness or difficult breathing.                  Move to fresh air.                  If breathing has stopped, give artificial respiration.                  If breathing is difficult, give oxygen.</p> <p><b>LIQUID</b>                  Will burn 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.                  DO NOT INDUCE VOMITING.</p>			
<b>Water Pollution</b>	<p><b>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.</b>                  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: Skin  
 Clean shore line  
 Salvage waterfowl

### 2. CHEMICAL DESIGNATIONS

**2.1 CG Compatibility Group:** 32; Aromatic Hydrocarbon  
**2.2 Formula:** C<sub>8</sub>H<sub>10</sub>  
**2.3 IMO/UN Designation:** 3.3/1175  
**2.4 DOT ID No.:** 1175  
**2.5 CAS Registry No.:** 100-41-4  
**2.6 NAERG Guide No.:** 129  
**2.7 Standard Industrial Trade Classification:** 51126

### 3. HEALTH HAZARDS

**3.1 Personal Protective Equipment:** Self-contained breathing apparatus; safety goggles.  
**3.2 Symptoms Following Exposure:** Inhalation may cause irritation of nose, dizziness, depression. Moderate irritation of eye with corneal injury possible. Irritates skin and may cause blisters.  
**3.3 Treatment of Exposure:** INHALATION: if ill effects occur, remove victim to fresh air, keep him warm and quiet, and get medical help promptly; if breathing stops, give artificial respiration. INGESTION: induce vomiting only upon physician's approval; material in lung may cause chemical pneumonitis. SKIN AND EYES: promptly flush with plenty of water (15 min. for eyes) and get medical attention; remove and wash contaminated clothing before reuse.  
**3.4 TLV-TWA:** 100 ppm  
**3.5 TLV-STEL:** Not listed.  
**3.6 TLV-Ceiling:** 125 ppm  
**3.7 Toxicity by Ingestion:** Grade 2; LD<sub>50</sub> = 0.5 to 5 g/kg (rat)  
**3.8 Toxicity by Inhalation:** Currently not available.  
**3.9 Chronic Toxicity:** Currently not available  
**3.10 Vapor (Gas) Irritant Characteristics:** Vapors cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.  
**3.11 Liquid or Solid Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.  
**3.12 Odor Threshold:** 140 ppm  
**3.13 IDLH Value:** 800 ppm  
**3.14 OSHA PEL-TWA:** 100 ppm  
**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:** 80°F O.C. 59°F C.C.  
**4.2 Flammable Limits in Air:** 1.0%-6.7%  
**4.3 Fire Extinguishing Agents:** Foam (most effective), water fog, carbon dioxide or dry chemical.  
**4.4 Fire Extinguishing Agents Not to Be Used:** Not pertinent  
**4.5 Special Hazards of Combustion Products:** Irritating vapors are generated when heated.  
**4.6 Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to the source of ignition and flash back.  
**4.7 Auto Ignition Temperature:** 860°F  
**4.8 Electrical Hazards:** Not pertinent  
**4.9 Burning Rate:** 5.8 mm/min.  
**4.10 Adiabatic Flame Temperature:** Currently not available  
**4.11 Stoichiometric Air to Fuel Ratio:** 50.0 (calc.)  
**4.12 Flame Temperature:** Currently not available  
**4.13 Combustion Molar Ratio (Reactant to Product):** 13.0 (calc.)  
**4.14 Minimum Oxygen Concentration for Combustion (MOCC):** N<sub>2</sub> diluent: 9.0%

### 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:** 29 ppm/96 hr/bluegill/TL<sub>m</sub>/fresh water  
**6.2 Waterfowl Toxicity:** Currently not available  
**6.3 Biological Oxygen Demand (BOD):** 2.8% (theor.), 5 days  
**6.4 Food Chain Concentration Potential:** None  
**6.5 GESAMP Hazard Profile:**  
 Bioaccumulation: 0  
 Damage to living resources: 3  
 Human Oral hazard: 1  
 Human Contact hazard: I  
 Reduction of amenities: XX

### 7. SHIPPING INFORMATION

**7.1 Grades of Purity:** Research grade: 99.98%; pure grade: 99.5%; technical grade: 99.0%  
**7.2 Storage Temperature:** Ambient  
**7.3 Inert Atmosphere:** No requirement  
**7.4 Venting:** Open (flame arrester) or 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:** II  
**8.4 Marine Pollutant:** No  
**8.5 NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Instability (Yellow)	0

**8.6 EPA Reportable Quantity:** 1000 pounds  
**8.7 EPA Pollution Category:** C  
**8.8 RCRA Waste Number:** Not listed  
**8.9 EPA FWPCA List:** Yes

### 9. PHYSICAL & CHEMICAL PROPERTIES

**9.1 Physical State at 15° C and 1 atm:** Liquid  
**9.2 Molecular Weight:** 106.17  
**9.3 Boiling Point at 1 atm:** 277.2°F = 136.2°C = 409.4°K  
**9.4 Freezing Point:** -139°F = -95°C = 178°K  
**9.5 Critical Temperature:** 651.0°F = 343.9°C = 617.1°K  
**9.6 Critical Pressure:** 523 psia = 35.6 atm = 3.61 MN/m<sup>2</sup>  
**9.7 Specific Gravity:** 0.867 at 20°C (liquid)  
**9.8 Liquid Surface Tension:** 29.2 dynes/cm = 0.0292 N/m at 20°C  
**9.9 Liquid Water Interfacial Tension:** 35.48 dynes/cm = 0.03548 N/m at 20°C  
**9.10 Vapor (Gas) Specific Gravity:** Not pertinent  
**9.11 Ratio of Specific Heats of Vapor (Gas):** 1.071  
**9.12 Latent Heat of Vaporization:** 144 Btu/lb = 80.1 cal/g = 3.35 X 10<sup>5</sup> J/kg  
**9.13 Heat of Combustion:** -17,780 Btu/lb = -9877 cal/g = -413.5 X 10<sup>5</sup> 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:** 0.4 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	54.990	40	0.402	-90	1.065	40	0.835
50	54.680	50	0.404	-80	1.056	50	0.774
60	54.370	60	0.407	-70	1.047	60	0.719
70	54.060	70	0.409	-60	1.037	70	0.670
80	53.750	80	0.412	-50	1.028	80	0.626
90	53.430	90	0.414	-40	1.018	90	0.586
100	53.120	100	0.417	-30	1.009	100	0.550
110	52.810	110	0.419	-20	1.000	110	0.518
120	52.500	120	0.421	-10	0.990	120	0.488
130	52.190	130	0.424	0	0.981	130	0.461
140	51.870	140	0.426	10	0.971	140	0.436
150	51.560	150	0.429	20	0.962	150	0.414
160	51.250	160	0.431	30	0.953	160	0.393
170	50.940	170	0.434	40	0.943	170	0.374
180	50.620	180	0.436	50	0.934	180	0.356
190	50.310	190	0.439	60	0.924	190	0.340
200	50.000	200	0.441	70	0.915	200	0.325
210	49.690	210	0.443	80	0.906	210	0.311
				90	0.896		
				100	0.887		
				110	0.877		
				120	0.868		
				130	0.859		
				140	0.849		
				150	0.840		
				160	0.830		

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
68	0.020	80	0.202	80	0.00370	-400	-0.007
		100	0.370	100	0.00654	-350	0.026
		120	0.644	120	0.01099	-300	0.060
		140	1.071	140	0.01767	-250	0.093
		160	1.713	160	0.02734	-200	0.125
		180	2.643	180	0.04087	-150	0.157
		200	3.953	200	0.05926	-100	0.187
		220	5.747	220	0.08363	-50	0.217
		240	8.147	240	0.11520	0	0.246
		260	11.290	260	0.15510	50	0.274
		280	15.320	280	0.20490	100	0.301
		300	20.410	300	0.26570	150	0.327
		320	26.730	320	0.33910	200	0.353
		340	34.460	340	0.42620	250	0.377
		360	43.800	360	0.52850	300	0.401
		380	54.950	380	0.64720	350	0.424
						400	0.446
						450	0.467
						500	0.487
						550	0.507
						600	0.525