

# TRIETHYL PHOSPHATE

TPS

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> Ethyl phosphate Phosphoric acid, triethyl ester TEP		Liquid	Colorless
<p>Keep people away. Avoid contact with liquid and vapor. Wear self contained breathing apparatus and protective clothing. Call fire department. Notify local health and pollution control agencies.</p>			
<b>Fire</b>	Combustible. Extinguish with dry chemical, alcohol foam, or CO <sub>2</sub> . Cool exposed containers with water.		
<b>Exposure</b>	CALL FOR MEDICAL AID.  VAPOR OR MIST May cause irritation. Move to fresh air. If breathing has stopped give artificial respiration. If breathing is difficult give oxygen.  LIQUID May cause irritation. May be harmful if swallowed. Remove contaminated clothing. Flush affected areas with soap and plenty of water for 15 minutes. If in eyes hold eyelids open and flush with plenty of water for 15 minutes.		
<b>Water Pollution</b>	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

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

### 2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 34; Esters  
2.2 Formula: (C<sub>2</sub>H<sub>5</sub>O)<sub>3</sub>PO  
2.3 IMO/UN Designation: Currently not available  
2.4 DOT ID No.: 2783  
2.5 CAS Registry No.: 78-40-0  
2.6 NAERG Guide No.: 152  
2.7 Standard Industrial Trade Classification: 51631

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Protective gloves, safety glasses, rubber gloves & rubber boots.  
3.2 **Symptoms Following Exposure:** May be harmful by inhalation, ingestion or absorption. May cause irritation.  
3.3 **Treatment of Exposure:** INHALATION: Call for medical help. Low hazard. Move to fresh air. If breathing has stopped give artificial respiration. If breathing is difficult, give oxygen. SKIN: Low hazard. Flush with soap and plenty of water. EYES: Immediately flush eyes with plenty of water for 15 minutes.  
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; LD<sub>50</sub> = 1.6 g/kg (mouse)  
3.8 **Toxicity by Inhalation:** Currently not available.  
3.9 **Chronic Toxicity:** In male rats, oral administration of TD<sub>01</sub> 12.6 g/kg for 63 days adversely affected reproductive organs and in female rats, oral administration of TD<sub>01</sub> 5.7 g/kg for 92 days before mating and 1-22 days during gestation adversely affected live birth index. Mutagenic in D. melanogaster at oral dose of 10 mmole/L.  
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are non-irritating to eyes and throat.  
3.11 **Liquid or Solid Characteristics:** No appreciable hazard. Practically harmless to skin.  
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:** 240°F C.C.  
4.2 **Flammable Limits in Air:** 1.7 - 10%  
4.3 **Fire Extinguishing Agents:** Dry chemical, carbon dioxide, alcohol foam.  
4.4 **Fire Extinguishing Agents Not to Be Used:** Ordinary foam and water may cause frothing.  
4.5 **Special Hazards of Combustion Products:** May produce hazardous decomposition products such as carbon dioxide, carbon monoxide and oxides of phosphorus.  
4.6 **Behavior in Fire:** Currently not available  
4.7 **Auto Ignition Temperature:** 845°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:** 42.8 (calc.)  
4.12 **Flame Temperature:** Currently not available  
4.13 **Combustion Molar Ratio (Reactant to Product):** 14.0 (calc.)  
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

### 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Slight decomposition  
5.2 **Reactivity with Common Materials:** No reaction  
5.3 **Stability During Transport:** Stable  
5.4 **Neutralizing Agents for Acids and Caustics:** Currently not available  
5.5 **Polymerization:** Will not occur  
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:** Currently not available  
6.5 **GESAMP Hazard Profile:**  
Bioaccumulation: 0  
Damage to living resources: 1  
Human Oral hazard: 1  
Human Contact hazard: II  
Reduction of amenities: XX

### 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Approx. 100%  
7.2 **Storage Temperature:** Ambient  
7.3 **Inert Atmosphere:** Currently not available  
7.4 **Venting:** Currently not available  
7.5 **IMO Pollution Category:** D  
7.6 **Ship Type:** Data not available  
7.7 **Barge Hull Type:** Currently not available

### 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison B  
8.2 **49 CFR Class:** 6  
8.3 **49 CFR Package Group:** Not listed.  
8.4 **Marine Pollutant:** No  
8.5 **NFPA Hazard Classification:**
- |                           |                |
|---------------------------|----------------|
| Category                  | Classification |
| Health Hazard (Blue)..... | 0              |
| Flammability (Red).....   | 1              |
| 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:** 182.16  
9.3 **Boiling Point at 1 atm:** 408°F = 209°C = 482.2°K  
9.4 **Freezing Point:** Currently not available  
9.5 **Critical Temperature:** Currently not available  
9.6 **Critical Pressure:** Currently not available  
9.7 **Specific Gravity:** 1.068  
9.8 **Liquid Surface Tension:** Currently not available  
9.9 **Liquid Water Interfacial Tension:** Currently not available  
9.10 **Vapor (Gas) Specific Gravity:** 6.28  
9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available  
9.12 **Latent Heat of Vaporization:** Currently not available  
9.13 **Heat of Combustion:** Currently not available  
9.14 **Heat of Decomposition:** Currently not available  
9.15 **Heat of Solution:** Currently not available  
9.16 **Heat of Polymerization:** Currently not available  
9.17 **Heat of Fusion:** Currently not available  
9.18 **Limiting Value:** Currently not available  
9.19 **Reid Vapor Pressure:** 0.01648 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
	C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E

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
	S O L U B I L I T Y	68 104 154 180 208 240 259 287 327 369 412	0.005 0.019 0.097 0.193 0.387 0.774 1.160 1.934 3.867 7.735 14.696	68	6.28000		C U R R E N T L Y  N O T  A V A I L A B L E