



# Defoam HB

## 1. PRODUCT AND COMPANY IDENTIFICATION

TETRA Technologies, Inc. 25025 I-45 North The Woodlands, TX 77380	CHEMTREC (24-Hr Emergency Response):	(800) 424-9300
	Poison Control:	(800) 222-1222
	Non-emergency Customer Service:	(281) 367-1983
Substance:	Tributyl Phosphate, Isopropyl Alcohol	
Synonyms:	Defoam HB	
Chemical Family:	Ester/Alcohol	
Product Use:	Emulsion Breaker	
MSDS Creation Date:	May 13, 1996	
MSDS Revision Date:	June 22, 2007	

## 2. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0-4):	Health – 2 Fire – 3 Instability – 0
EMERGENCY OVERVIEW:	Colorless with slight odor liquid. May be harmful if inhaled. Causes respiratory tract, skin, and eye irritation. Do not breathe vapors or mist. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.
Potential Health Effects:	
Inhalation:	May be harmful if inhaled. May cause irritation. Additional effects may include nausea, diarrhea, headache, and twitching.
Skin Contact:	May cause irritation.
Eye Contact:	May cause irritation.
Ingestion:	May cause difficulty breathing, twitching, nausea, lung congestion, paralysis, and coma.
Carcinogen Status:	OSHA – No NTP – No IARC – No

## 3. COMPOSITION, INFORMATION ON INGREDIENTS

CAS Number	Wt. %	Ingredient Name
126-73-8	40-60	Tributyl Phosphate
67-63-0	40-60	Isopropyl Alcohol

## 4. FIRST AID MEASURES

Eye Contact:	Wash eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.
Skin Contact:	Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.
Inhalation:	Remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately. Qualified personnel should consider administering oxygen.
Ingestion:	If the person is conscious and not convulsing, induce vomiting by giving syrup of ipecac followed by water. If vomiting occurs, keep head below hips to prevent aspiration. Repeat in 20 minutes if not effective initially. Treat symptomatically and supportively. Gastric lavage should be performed by qualified personnel. Get



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medical attention if needed.

Notes to Physician:

No specific antidote. Treat symptomatically and supportively.

### 5. FIRE FIGHTING MEASURES

Flash Point: 90° F (32° C)

Extinguishing Media:

Dry chemical, carbon dioxide, water spray, or alcohol-resistant foam. For larger fires, use water spray, fog, or alcohol-resistant foam (1993 Emergency Response Guidebook, RSPA 5800.6).

Fire Fighting:

Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire. Isolate for ½ mile in all directions if tank, rail car, or tank truck is involved in fire (1993 Emergency Response Guidebook, RSPA P 5800.6 Guide Page 26). Cool containers with flooding amounts of water, apply from as far a distance as possible. Avoid breathing vapors, keep upwind. Water may be ineffective (NFPA 325, Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids, 1994).

Fire and Explosion Hazard:

Dangerous Fire Hazard when exposed to heat or flame. Vapor-air mixtures are explosive.

Products of Combustion:

Thermal decomposition products may include toxic and hazardous oxides of phosphorous and carbon.

### 6. ACCIDENTAL RELEASE MEASURES

Evacuation and Safety:

Wear appropriate personal protective equipment when cleaning up spills. Refer to Section 8. Do not enter confined spaces without proper respiratory protection.

Containment of Spill:

Properly protected personnel may stop the source of the release if it can be done without risk. Contain release to prevent further contamination of soil, surface water, or groundwater. Clean up spills as soon as possible, observing precautions in Exposure Controls/Personal Protection.

Cleanup and Disposal:

For small spills, take up with sand or other absorbent material and place into clean, dry containers for later disposal. Keep non-essential people away. Isolate hazard area and deny entry. For a soil spill, dig a pit, pond, lagoon or holding area to contain liquid or solid material. Cover solids with a plastic sheet to prevent dissolving in rain. For a water spill, add a suitable agent to neutralize spilled material to pH 7. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

### 7. HANDLING AND STORAGE

Handling:

Read and observe all precautions on product label. Avoid contact with skin, eyes and clothing. Do not breathe vapors. Do not breathe spray mist. Use respiratory devices and other personal protective equipment required by OSHA 29 CFR 1910. Wash thoroughly after handling. Ground containers to avoid development of static charges.

Storage:

Observe all federal, state, and local regulations when storing this liquid. Keep container tightly closed when not in use. Container should meet the bonding and grounding guidelines specified in NFPA 77-1983. Store away from incompatible substances. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Store in a cool, dry, ventilated area. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly. Store away from oxidizers or materials bearing a yellow "DOT" label.



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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Use in a well-ventilated area. The use of a local exhaust is recommended for ventilation, and a mechanical exhaust is desired in closed areas. The use of local mechanical exhaust ventilation is preferred at sources of air contamination such as open process equipment. Process enclosure recommended meeting published exposure limits.

**Exposure Limits:** No Occupational exposure limits established by OSHA/ACGIH/NIOSH. The occupational exposure limits listed below are for pure tributyl phosphate, pure isopropyl alcohol, and for reference only.

Ingredient	ACGIH-TWA <sup>®</sup>	NIOSH-TWA	OSHA-TWA	NIOSH STEL	ACGIH STEL
Tributyl Phosphate	2.2 mg/m <sup>3</sup>	2.5 mg/ m <sup>3</sup>	5 mg/ m <sup>3</sup>	No data	No data
Isopropyl Alcohol	400 ppm (980 mg/ m <sup>3</sup> )	400 ppm (980 mg/ m <sup>3</sup> )	400 ppm (980 mg/ m <sup>3</sup> )	500 ppm (1,225 mg/ m <sup>3</sup> )	500 ppm (1,230 mg/ m <sup>3</sup> )

### Personal Protective Equipment

<b>Eyes:</b>	Employee must wear safety glasses with splash shields or safety goggles to prevent contact with this liquid.
<b>Hands and Feet:</b>	Employee must wear appropriate protective gloves and shoes to prevent contact with this liquid.
<b>Body:</b>	Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this liquid.
<b>Respiratory:</b>	<p>The specific respirator selected must be based on contamination levels found in the workplace and on the specific incident. They must not exceed the working limits of the respirator. They must also be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA). These respirators are ranked from minimum to maximum respiratory protection as follows: Any dust and mist respirator with a full facepiece; any air-purifying full face piece respirator with a high-efficiency particulate filter; any powered air-purifying respirator with a tight-fitting facepiece and high-efficiency particulate filter; any Type 'C' supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode or with a full facepiece, helmet or hood operated in continuous-flow mode; any self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive-pressure mode.</p> <p><b><u>For firefighting and other immediately dangerous to life or health conditions:</u></b> Any self-contained breathing apparatus that has a full face piece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full face piece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.</p>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Description:</b>	Colorless Liquid
<b>Odor:</b>	Slight Odor
<b>Boiling Point:</b>	Not determined
<b>Melting Point:</b>	Not determined
<b>Molecular Weight:</b>	266.32 for 100% Tributyl Phosphate; 60.10 for 100% Isopropyl Alcohol
<b>Specific Gravity (H<sub>2</sub>O=1):</b>	0.885
<b>pH:</b>	Not determined
<b>Water Solubility:</b>	Miscible
<b>Vapor Density (Air=1):</b>	Not determined
<b>Vapor Pressure:</b>	15 mm Hg
<b>Pour Point:</b>	Not determined



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Freezing Point:	Not determined
Viscosity:	Not determined
Flash Point:	90 ° F (32 ° C)
Lower/Upper Flame Limits:	4.0% / 24.0%
Auto-ignition Temperature:	Not determined

### 10. STABILITY AND REACTIVITY

Stability and Reactivity:	Stable under normal temperatures and pressures.
Incompatibilities:	Incompatible with acids, alkalis, and halogens. Dissolution with aluminum is exothermic. A formation of an explosive compound is yielded with barium perchlorate. 2-Butanone will accelerate the peroxidation of the alcohol. Granular chromium trioxide will react by ignition. And dioxygenyl tetrafluoroborate will ignite at ambient temperatures. Coatings, plastics and rubber may be attacked. Ketones will markedly increase the possibility of peroxidation. Nitroform (trinitromethane) dissolves liberating heat and the possibility of explosion. Strong oxidizers pose a fire and explosion hazard. In the presence of iron salts, phosgene may explode.
Hazardous Decomposition:	Thermal decomposition products may include toxic and hazardous oxides of phosphorous and carbon.
Polymerization:	Hazardous polymerization has not been reported to occur under normal temperatures and pressures.
Conditions to Avoid:	Avoid contact with heat, sparks, flames, or other sources of ignition. Vapors may be explosive and poisonous; do not allow non-essential personnel in area. Do not overheat containers.

### 11. TOXICOLOGICAL INFORMATION

Toxicity Data:	<p>Skin, eye, inhalation irritant. Highly toxic by inhalation. Moderately toxic by ingestion. Slightly toxic by dermal absorption.</p> <p>No toxicity data is available for Defoamer HB. The toxicity data following are for pure tributyl phosphate and pure isopropyl alcohol, and are for reference only.</p> <p><b>Tributyl Phosphate (100%)</b>  LC<sub>50</sub>: 28 g/m<sup>3</sup>, inhalation, rat  LD<sub>50</sub>: 1,189 mg/kg, oral, mouse  LD<sub>50</sub>: 251 mg/kg, intraperitoneal, rat  Mutagenic data – See Registry of Toxic Effects of Chemical Substances (RTECS) file.</p> <p>Acute Exposure - Occupational inhalation exposure to hot vapors has produced severe irritation of the throat; a concentration of 15 mg/m<sup>3</sup> of pure tributyl phosphate caused headache and nausea. Tributyl phosphate is a weak cholinesterase inhibitor. Initial symptoms of cholinesterase inhibition include headache, dizziness, incoordination, muscle twitching, abdominal cramps, diarrhea, and sweating. Skin irritation in rabbit testing ranged from mild to severe. Occupational exposure to hot vapors has produced severe irritation of the eyes. Ingestion of this material produced mild signs of cholinesterase inhibition followed by weakness, muscle twitching, coma, and death in rats.</p> <p>Chronic Exposure - Repeated or prolonged contact with material may cause dermatitis and/or conjunctivitis. Repeated ingestion of this material produced decreased red blood cell and platelet counts, decreased weight gain, and increased liver weight in rats.</p> <p><b>Isopropyl Alcohol (100%)</b>  LC<sub>LO</sub>: 12,800 mg/kg, 3 hours inhalation, mouse  LD<sub>50</sub>: 6,410 mg/kg, oral, rabbit  LD<sub>50</sub>: 4,477 mg/kg, intraperitoneal, mouse  Mutagenic &amp; reproductive effects data – See Registry of Toxic Effects of Chemical</p>
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Substances (RTECS) file.

## 12. ECOLOGICAL INFORMATION

Data from laboratory studies and from scientific literature is noted below if available.

## 13. DISPOSAL INFORMATION

Observe all federal, state and local regulations when disposing of this substance.

## 14. DEPARTMENT OF TRANSPORTATION (DOT) TRANSPORT INFORMATION

Shipping Name:	Flammable Liquids, n.o.s. (Contains Isopropyl Alcohol)
ID Number:	UN1993
Hazard Class or Division:	3
Packing Group:	II
Labeling Requirements:	Flammable Liquid
Packing Authorizations:	
Exceptions:	49 CFR 173.150
Non-bulk Packing:	49 CFR 173.202
Bulk Packing:	49 CFR 173.242
Quantity Limitations:	
Passenger Aircraft:	5L
Cargo Aircraft Only:	60L
Vessel Stowage Req.:	B
Emergency Guide Number:	27

## 15. REGULATORY INFORMATION

Workplace Classification:	Hazardous
SARA Title III:	Section 302-No, Section 304-No, Section 313-Yes
TSCA Status:	Yes
CERCLA:	Section 103-No
Clean Air Act:	Na Data
OSHA Process Safety:	No
California Proposition 65:	No
WHMIS Classification:	No Data
DSL Status	Yes
EINECS Status	Yes
New Jersey SNJ	Yes
Pennsylvania SPA	Yes
SARA Sections 311/312	Acute Hazard -Yes Chronic Hazard -Yes Fire Hazard - Yes Reactivity Hazard - No Sudden Release Hazard - No

## 16. OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.



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This information relates to the specific product designated and may not be valid for such product used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the users' responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

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Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.