



## Safety Data Sheet (SDS)

Revision / Review Date: 12/15/14

### 1. Chemical Product and Company Identification

Product Name:	TOF
Distributed By:	HB Chemical 1665 Enterprise Parkway Twinsburg Oh 44087 Phone - 330-920-8023
SDS Prepared By (w Suppliers Input):	HB Chemical
Chemical Name / Family:	Tri 2-ethylhexyl Phosphate/Trialkyl Phosphates
Common name:	Trioctyl Phosphate, TOP
Molecular Formula:	C24H51O4P
Molecular Weight via GPC, Mn:	434.63 g/mol
Product Use:	Plasticizers
OSHA Status:	Non hazardous
CAS No:	78-42-2
EINECS No:	201-116-6

For emergency health, safety, and environmental information, calls 330-920-8023.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300.

### 2. Hazard(s) Identification

<u>Warning:</u>	Not available.
<u>Signs and Symptoms of Exposure:</u>	Not available.
<u>Primary Routes of Entry:</u>	Not available.
<u>Medical Conditions Generally Aggravated by Exposure:</u>	Not available.
<u>Eye Contact:</u>	Irritating to eyes.
<u>Skin Contact:</u>	Irritating to skin.
<u>NFPA Rating:</u>	Health-1, Fire- 1, Reactivity- 0
<u>HMIS Hazard Ratings:</u>	Health-1, Flammability -1, Reactivity- 0, Personal-C
<u>HMIS limitation statement:</u>	The HMIS hazard ratings numbers are meant to give a quick indication of the relative hazards associated with the product. All of the information contained in the SDS should be consulted to assist with the safe handling of this material.

### 3. Composition / Information on Ingredients

HB Chemical 1665 Enterprise Parkway Twinsburg, Ohio 44087

Phone 330-920-8023 Fax 330-920-0971

[www.hbchemical.com](http://www.hbchemical.com)

Weight Percent / Typical	Component Identity	CAS Registry Number
100%	Phosphoric Acid, tris(2-ethylhexyl) ester	78-42-2

#### 4. First Aid Measures

<u>Inhalation:</u>	Remove to fresh air; give artificial respiration or oxygen if necessary.
<u>Eyes:</u>	Flush eyes with water for 15 minute. Call a physician if irritation develops.
<u>Skin:</u>	Wash skin with soap and water. If in contact with hot product, treat as a burn.
<u>Ingestion:</u>	Do not induce vomiting. Never give anything by mouth to unconscious person. Seek medical attention.

#### 5. Fire-Fighting Measures

<u>Suitable Extinguishing Media:</u>	Use Chemical foam, CO2, dry chemical, water fog.
<u>Special Fire Fighting Procedures:</u>	Treat as burning oil. Keep drums as cool as possible to avoid expansion, explosions, and splattering.
<u>Hazardous Combustion Products:</u>	This product will decompose under extreme temperatures forming oxides of carbon.
<u>Personal protection equipment:</u>	Full eye protection and protective clothing are required for all indoor/outdoor fires and spills.
<u>Unusual fire and explosion hazards:</u>	Not available.

#### 6. Accidental Release Measures

<u>Steps to be taken in case material is spilled:</u>	Contain spill with inert absorbent or earth. Transfer to secure containers and dispose of according to local and state regulations. Thought should always be given to collecting the material in such a manner that it could be recycled. Clean/scrub affected area with detergent.
<u>Environmental Disposal Information:</u>	Prevent run-off into sewers or natural waterways.
<u>Waste Disposal:</u>	All containers should be effectively labeled to facilitate the appropriate disposal or reclaim.

#### 7. Handling and Storage

<u>Precautions to be taken in handling:</u>	Perform drum and tote filling in well-ventilated area wearing protective eye shields and clothing.
<u>Storage:</u>	Store in sealed containers in dry, ambient temperature conditions.
<u>Empty containers:</u>	Empty containers can be rinsed with a suitable solvent/surfactant and steamed to remove residual product and fumes before disposal or reuse in accordance with applicable regulations.

## 8. Exposure Controls / Personal Protection

<u>Exposure Controls:</u>	Contains no substances with occupational exposure limit values.
<u>Respiratory Protection:</u>	Respirators should be selected when TWA exceeded.
<u>Ventilation:</u>	Use only where sufficient ventilation exists to keep exposure levels of fumes and dust below recommended levels.
<u>Hand protection:</u>	Wear gloves.
<u>Eye Protection:</u>	Wear goggles.
<u>Skin and Body Protection:</u>	Wear impervious clothing, boots and apron.
<u>Other Precautions:</u>	Avoid hot vapors when mixing or packaging.
<u>Decontamination Facilities:</u>	There should be a shower facility and eyewash in the building where this product is being stored and handled. Exercise good chemical handling practice.

## 9. Physical and Chemical Properties

<u>Physical Form:</u>	Liquid
<u>Appearance &amp; Odor:</u>	Clear / Pungent
<u>Specific Gravity:</u>	@25°C = 0.923
<u>Softening Point, R&amp;B:</u>	Not available.
<u>pH:</u>	7 at 20 °C (68 °F)
<u>Solubility in Water:</u>	0.00006 g/l at 24 °C (75 °F) - slightly soluble
<u>Flash Point, TAG CC F:</u>	207°C (405°F) COC
<u>Percent Volatiles (by weight):</u>	Not available.
<u>Evaporation Rate (Water ~ 1):</u>	< 1 (butyl acetate=1)
<u>Vapor Pressure ( mm Hg):</u>	@ 20°C: 2.1 mm Hg < 0.01 hPa (< 0.01 mmHg) at 20 °C (68 °F)

<u>Vapor Density (Air ~ 1):</u>	15.01 - (Air = 1.0)
<u>Boiling Point (°F) Initial:</u>	215 °C (419 °F) at 5 hPa (4 mmHg) - lit.
<u>Flammable Limits, %(V):</u>	Not available.
<u>Relative density:</u>	0.92 g/cm <sup>3</sup> at 20 °C (68 °F)
<u>Melting point:</u>	-74 °C (-101 °F)
<u>Auto ignition Temperature, °C:</u>	370 °C (698 °F)
<u>Partition coefficient:</u>	noctanol/water log Pow: 4.2

### **10. Stability and Reactivity**

<u>Stability:</u>	This product is stable under normal conditions.
<u>Incompatibility (Materials to Avoid):</u>	Material reacts with strong oxidizing agents.
<u>Conditions to Avoid:</u>	Extreme heat.
<u>Hazardous Polymerization:</u>	Hazardous polymerization will not occur.
<u>Hazardous Decomposition products:</u>	Carbon monoxide, carbon dioxide, and oxides of phosphor.

### **11. Toxicological Information**

This material is not listed as a carcinogen or potential carcinogen by NTP, IARC, or OSHA.

<u>Skin irritation:</u>	Rabbit- Result: Mild skin irritation (OECD Test Guideline 404).
<u>Dermal LD50:</u>	20,000 mg/kg – Rabbit.
<u>Oral LD50:</u>	37,000 mg/kg – Rat Rat - > 9,260 mg/kg
<u>Inhalation LC50:</u>	Inhalation LC (guinea pig); 450 mg/m <sup>3</sup> for 30 minutes. Rat - 4 h - 447 mg/m <sup>3</sup> Guinea pig - 30 h - 450 mg/m <sup>3</sup>
<u>Acute eye/skin effects:</u>	May cause significant irritation. Also may cause gastrointestinal tract irritation.
<u>Serious eye damage/eye irritation:</u>	Eyes -Rabbit, Result: No eye irritation (OECD Test Guideline 405)
<u>Respiratory or skin sensitization:</u>	No data available.
<u>Germ cell mutagenicity:</u>	Result: Not mutagenic in Ames Test.
<u>Chromosome aberration test in vitro:</u>	Result: Negative.

<u>Mutagenicity (micronucleus test):</u>	Mouse, Result: Negative.
<u>Carcinogenicity:</u>	Mouse – Oral, Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors.
<u>Reproductive toxicity:</u>	No data available.
<u>Specific target organ toxicity:</u>	No data available.
<u>Aspiration hazard:</u>	No data available.
<u>Repeated dose toxicity:</u>	Rat-females- Oral-No observed adverse effect level -1,000 mg/kg, RTECS: MP0770000

## **12. Ecological Information**

<u>Toxicity to fish:</u>	Semi-static test LC50 - <i>Oryzias latipes</i> (Orange-red killifish) - > 40 mg/l - 96 h.
<u>Toxicity to daphnia and other aquatic invertebrates:</u>	EC50 - <i>Daphnia magna</i> (Water flea) - > 0.021 mg/l - 48 h Remarks: No toxicity at the limit of solubility.
<u>Toxicity to algae:</u>	EC50 - <i>Desmodesmus subspicatus</i> (green algae) - > 0.876 mg/l - 72 h (OECD Test Guideline 201) Remarks: No toxicity at the limit of solubility.
<u>Biodegradability:</u>	Result: According to the results of tests of biodegradability this product is not readily biodegradable.
<u>Mobility in soil:</u>	No data available.
<u>Results of PBT and vPvB assessment:</u>	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

## **13. Disposal Considerations**

Reclaim or Dispose of material in accordance with all applicable local, state, and federal regulations.

## **14. Transport Information**

<u>D.O.T. Shipping Name:</u>	Not restricted.
<u>Air - ICAO (International Civil Aviation Organization):</u>	Not restricted.
<u>Sea - IMDG (International Maritime Dangerous Goods):</u>	Not restricted.

## **15. Regulatory Information**

All components of this material are on the TSCA Inventory.

All components of this material are on the Canadian DSL.

California Prop. 65 Components:

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SARA 302 Components:

No chemicals in this material are subject to report.

SARA 313 Components:

This material does not contain any chemical components the need to be reported.

SARA 311/312 Hazards:

No SARA Hazards.

Massachusetts Right To Know Components:

No components are subject to the Massachusetts RTKA.

Pennsylvania Right To Know Components:

Tris(2-ethylhexyl) phosphate, CAS-No. 78-42-2

New Jersey Right To Know Components:

Tris(2-ethylhexyl) phosphate, CAS-No. 78-42-2

**16. Other Information**

The above information has been compiled from what we believe to be credible sources. To our knowledge the information is accurate and reliable, however, it is not guaranteed. Any recommendations issued by HB Chemical personnel or literature is derived from experience and by no means should be taken as fact or construed as a recommendation to violate of any law, regulation or patent. It is the users responsibility to determine the suitability of any HB supplied material in their application. The individual conditions of each customer are well outside of our control and we cannot be held liable for its functionality and use. Please contact our office should you need specific information beyond what is supplied above. As with all Chemical usage safety precautions beyond the stated are highly recommended.