Material Safety Data Sheet
Trimethyl phosphate

ACC# 96758

Section 1 - Chemical Product and Company Identification

MSDS Name: Trimethyl phosphate
Catalog Numbers: AC157970500, AC157975000, AC220680500
Synonyms: TMPO; Methyl phosphate; Phosphoric acid, trimethyl ester; Trimethoxypophosphine oxide.
Company Identification:
- Acros Organics N.V.
- One Reagent Lane
- Fair Lawn, NJ 07410
For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>512-56-1</td>
<td>Trimethyl phosphate</td>
<td>&gt;97</td>
<td>208-144-8</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.
Warning! Causes eye and skin irritation. May be harmful if swallowed. May cause respiratory tract irritation. May cause central nervous system effects. May cause adverse reproductive effects based upon animal studies.
Target Organs: Central nervous system, respiratory system, eyes, reproductive system, skin.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation. If absorbed, may cause central nervous system effects.
Ingestion: May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May be harmful if swallowed.
Inhalation: May cause respiratory tract irritation. May cause central nervous system effects.
Chronic: Repeated exposure may cause nervous system abnormalities with muscle weakness and damage, motor incoordination, and sensation disturbances. A number of studies in rodents have shown trimethyl phosphate to produce adverse male reproductive effects. (REPROTOX) Studies suggest that trimethyl phosphate is carcinogenic, neurotoxic, genotoxic, and a male reproductive toxin. (Air Products and Chemicals)

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: > 148 deg C (> 298.40 deg F)
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

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**Section 7 - Handling and Storage**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Use with adequate ventilation. Avoid breathing vapor or mist.

**Storage:** Store in a cool, dry, well-ventilated area away from incompatible substances.

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**Section 8 - Exposure Controls, Personal Protection**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethyl phosphate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Trimethyl phosphate: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

- **Eyes:** Wear chemical splash goggles.
- **Skin:** Wear appropriate protective gloves to prevent skin exposure.
- **Clothing:** Wear appropriate protective clothing to prevent skin exposure.
- **Respirators:** A respiratory protection program that meets OSHA’s 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

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**Section 9 - Physical and Chemical Properties**

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** pleasant odor - sweetish odor

**pH:** Not available.

**Vapor Pressure:** 0.85 mm Hg @ 25 deg C

**Vapor Density:** 6.28 (air=1)

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 197 deg C @ 760 mm Hg

**Freezing/Melting Point:** 46 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 1.2 g/ml

**Molecular Formula:** C₃H₉O₄P

**Molecular Weight:** 140.08

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**Section 10 - Stability and Reactivity**

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:** Ignition sources, excess heat.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong bases, carbon steel.

**Hazardous Decomposition Products:** Phosphine, carbon monoxide, oxides of phosphorus, carbon dioxide.

**Hazardous Polymerization:** Will not occur.

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**Section 11 - Toxicological Information**

**RTECS#:** 512-56-1: TC8225000

**LD50/ LC50:**

- CAS # 512-56-1:
  - Oral, mouse: LD50 = 1470 mg/kg;
  - Oral, rabbit: LD50 = 1275 mg/kg;
  - Oral, rat: LD50 = 840 mg/kg;
  - Skin, rabbit: LD50 = 2830 µL/kg;

**Carcinogenicity:**

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 5/1/96
- **NTP:** Not listed.
- **IARC:** Not listed.
Epidemiology: No data available.
Teratogenicity: No information available.
Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.
Mutagenicity: Mutagenic effects have occurred in experimental animals.
Neurotoxicity: Neurotoxic effects have occurred in humans.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: 7.01g/L(LC50); 96H; Flow-throughFish: Fathead Minnow: 6.74g/L(EC50); 96H; Flow-through No data available.
Environmental: No information available.
Physical: No information available.
Other: This product is an insect chemosterilant.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

<table>
<thead>
<tr>
<th>Shopping Name:</th>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class:</td>
<td>Not regulated as a hazardous material</td>
<td>No information available.</td>
</tr>
<tr>
<td>UN Number:</td>
<td></td>
<td></td>
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<tr>
<td>Packing Group:</td>
<td></td>
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</tr>
</tbody>
</table>

Section 15 - Regulatory Information

US FEDERAL
TSCA
CAS# 512-56-1 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

SARA Codes
CAS # 512-56-1: immediate, delayed.

Section 313
No chemicals are reportable under Section 313.

Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 512-56-1 can be found on the following state right to know lists: Massachusetts.

California Prop 65
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains Trimethyl phosphate, a chemical known to the state of California to cause cancer.
California No Significant Risk Level: CAS# 512-56-1: 24 æg/day NSRL

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:
XN

Risk Phrases:
R 22 Harmful if swallowed.
R 40 Limited evidence of a carcinogenic effect.

**Safety Phrases:**
S 36/37 Wear suitable protective clothing and gloves.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**WGK (Water Danger/Protection)**
CAS# 512-56-1: 1

**Canada - DSL/NDSL**
CAS# 512-56-1 is listed on Canada's DSL List.

**Canada - WHMIS**
This product has a WHMIS classification of D2B, D2A.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**
CAS# 512-56-1 is listed on the Canadian Ingredient Disclosure List.

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**Section 16 - Additional Information**

**MSDS Creation Date:** 5/05/1999
**Revision #5 Date:** 6/05/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.