

Section 1. Product and Company Identification

Product Name Triethyl Phosphate
CAS Number 78-40-0

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Section 2. Hazards Identification

Classification of the substance or mixture

Hazard Classification

Health Hazards

Acute toxicity (Oral) - Category 4
Serious Eye Damage/Eye Irritation - Category 2A

OSHA Specified Hazards: not applicable

GHS Label Elements

Pictograms:



Signal word: WARNING

Hazard and precautionary statements

Hazard Statements

H302: Harmful if swallowed.
H319: Causes serious eye irritation.

Precautionary Statements

Prevention

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear eye protection/face protection.

Response

P301+P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P330: Rinse mouth.



P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

Disposal

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazards not otherwise classified (HNOC): None known.

Section 3. Composition / Information on Ingredients

Common Name Triethyl Phosphate
CAS Number 78-40-0

COMPONENT	CAS NUMBER	CONCENTRATION
Triethyl Phosphate	78-40-0	100%

Section 4. First Aid Measures

Description of first-aid measures

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin contact: Wash with soap and water. Get medical attention if symptoms occur.

Ingestion: Seek medical advice.

Most important symptoms and effects, both acute and delayed: Serious eye irritation

Indication of any immediate medical attention and special treatment needed

Hazards: Causes serious eye irritation.

Treatment: Treat symptomatically.

Section 5. Firefighting Measures

General Fire Hazards: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Keep upwind. In case of fire and/or explosion do not breathe fumes.

Extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder, or carbon dioxide.

Unsuitable extinguishing media: Avoid water in straight hose stream; will scatter and spread fire.

Special hazards arising from the substance or mixture: May ignite at high temperature. During fire, gases hazardous to health may be formed. Risk of chemical pneumonia after aspiration. Hazardous Combustion Products: carbon dioxide, carbon monoxide, oxides of phosphorus .



Advice for firefighters

Special firefighting procedures: In case of fire: Evacuate area. Move container from fire area if it can be done without risk. Use water spray to keep fire-exposed containers cool. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: Wear appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Keep unauthorized personnel away. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Ventilate closed spaces before entering them. Avoid inhalation of vapors and spray mists. Wear appropriate personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Caution: Contaminated surfaces may be slippery. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Clear up spills immediately and dispose of waste safely. Do not contaminate water sources or sewer.

Methods and material for containment and cleaning up: Small Liquid Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Large Spillages: Dike for later disposal. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Otherwise, absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Prevent runoff from entering drains, sewers, or streams. For waste disposal, see section 13 of the SDS.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Section 7. Handling and Storage

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid heat, sparks, open flames and other ignition sources. An eye wash bottle must be available at the work site. Wear appropriate personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Do not taste or swallow. Avoid inhalation of vapors and spray mists. In case of inadequate ventilation, use respiratory protection. Do not get in eyes and avoid contact with skin and clothing. Wash promptly with soap and water if skin becomes contaminated. Remove contaminated clothing and wash it before reuse. Destroy or thoroughly clean contaminated shoes. Drain or remove substance from equipment prior to break-in or maintenance.



Handle in accordance with good industrial hygiene and safety practice. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Keep container tightly closed and in a well-ventilated place. Keep upright. Do not store in open or unlabelled containers. Store away from incompatible materials. Keep away from food, drink and animal feeding stuffs. Store in accordance with local/regional/national/international regulations.

Section 8. Exposure Controls / Personal Protection

Control Parameters

Occupational Exposure Limits: Country specific exposure limits have not been established or are not applicable unless listed below.

Exposure controls

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information: Eye bath. Washing facilities.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommendations: Wear safety glasses with side shields (or goggles). Use safety goggles and face shield in case of splash risk.

Skin protection

Hand Protection: It is a good industrial hygiene practice to minimize skin contact. If prolonged or repeated contact is likely, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations.

Other: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommendations: Apron or other light protective clothing and boots. If prolonged or repeated contact is likely, chemical resistant clothing is recommended. Promptly remove non-impervious clothing that becomes wet or contaminated.

Respiratory Protection: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where

applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures: Observe good industrial hygiene practices. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Wash at the end of each work shift and before eating, smoking and using the toilet. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs.

Environmental Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Do not contaminate water sources or sewer.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance

Physical state: Liquid

Form: Liquid

Color: Colorless

Odor: Mild

Odor Threshold: Not determined.

pH: No data available.

Melting Point -56.4°C

Boiling Point: 209°C

Flash Point (Pensky-Martens Closed Cup): 99°C

Evaporation Rate: 4.54 g/1000 cm²/h @ 100°C

Flammability (solid, gas): Not applicable

Flammability Limit - Upper: 10% (V)

Flammability Limit - Lower: 1.7% (V)

Vapor pressure: 1.33 mbar (40°C)

Vapor density (Air=1): 6.3

Specific Gravity: 1.07 (15.6°C)

Solubility(ies)

Solubility in Water: Completely Soluble

Solubility (other): No data available.

Partition coefficient (n-Octanol/water): log Pow: 1.11

Autoignition Temperature: 227°C (452°C)

Decomposition Temperature: (DTA) No exotherm to 500°C

Dynamic viscosity: 1.76 mPa*s (20°C) | 0.82 mPa*s (71°C)



Kinematic viscosity: Not determined.

Explosive properties: Not classified.

Oxidizing properties: Not classified.

Section 10. Stability and Reactivity

Reactivity: None known.

Chemical Stability: Stable

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: None at ambient temperatures. Will decompose at temperatures exceeding 200°C.

Incompatible Materials: Strong oxidizing agents.

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

Section 11. Toxicological Information

Information on likely routes of exposure

Inhalation: None known.

Ingestion: None known.

Skin contact: None known.

Eye contact: Causes eye irritation.

Information on toxicological effects

Oral

Oral LD-50: (Rat): 1,311 mg/kg Harmful if swallowed.

Dermal

Dermal LD-50: (Rat): > 2,000 mg/kg

Inhalation

LC50 (Rat, 6 h): > 2050 ppm

Repeated dose toxicity

NOAEC (Rat (Male.), Inhalation - dust and mist, 84 d): 366 mg/m³

NOAEL (Rat (Male.), in diet, 120 d): 335 mg/kg

NOAEL (Rat (Female.), in diet, 150 d): 335 mg/kg

Skin Corrosion/Irritation

(Guinea Pig, 24 h): Slight

Serious Eye Damage/Eye Irritation

(Rabbit): moderate

Respiratory or Skin Sensitization

Skin Sensitization (Guinea Pig): Non-sensitizing

Carcinogenicity: This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.



Toxicity to reproduction: No data available.

Developmental toxicity: No data available.

Germ Cell Mutagenicity

In vitro: Mutagenicity - Bacterial (Bacterial Reverse Mutation Assay): negative

In vivo: Chromosomal aberration intraperitoneal injection (Mouse, Male and Female): negative

Specific Target Organ Toxicity - Single Exposure: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure: No data available.

Aspiration Hazard: Not classified.

Other effects: No data available.

Section 12. Ecological Information

Ecotoxicity

Acute hazards to the aquatic environment

Fish: LC-50 (golden orfe, 96 h): > 100 mg/l

Aquatic Invertebrates: EC-50 (Water Flea, 24 h): 2,705 mg/l

Chronic hazards to the aquatic environment

Fish: No data available.

Aquatic Invertebrates: NOEC (Water Flea, 21 d): 31.6 mg/l

Toxicity to Aquatic Plants: EC-50: No data available.

Persistence and Degradability

Biodegradation: Readily biodegradable

BOD/COD Ratio: No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF): Common Carp, Bioconcentration Factor (BCF): 1.3 (OECD Guideline Test No. 305: Bioaccumulation in Fish: Aqueous and Dietary Exposure)

Partition Coefficient n-Octanol/water (log Kow): Log Kow: 1.11

Mobility in Soil: No data available.

Other Adverse Effects: No data available.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.



Section 14. Transport Information

DOT: Class not regulated

IMDG - International Maritime Dangerous Goods Code: Class not regulated

IATA: Class not regulated

Section 15. Regulatory Information

Safety, health, and environmental regulations/legislation specific for the substance or mixture

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status: Controlled

WHMIS (Canada) Hazard Classification: D/2/B

SARA 311-312 Hazard Classification(s): Immediate (acute) health hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List: None

OSHA: Hazardous

TSCA (US Toxic Substances Control Act): The intentional components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): All intentional components of this product are listed on the DSL. Any impurities present in this product are exempt from listing.

AICS/NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): The intentional components of this product are listed on AICS or otherwise complies with NICNAS. Any impurities present in this product are exempt from listing.

MITI (Japanese Handbook of Existing and New Chemical Substances): This product is listed in the Handbook or has been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): The intentional components of this product are listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.KE-28646

Philippines Inventory (PICCS): The intentional components of this product are listed on the Philippine Inventory or otherwise comply with PICCS.

Inventory of Existing Chemical Substances in China: All intentional components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

HMIS Rating

Health: 2

Flammability: 1

Reactivity: 0



Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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