

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Environmental hazard. Harmful compound, minimize exposure.	   

Section I. Chemical Product and Company Identification

Chemical Name	Triphenyl Phosphate		
Catalog Number	P0272	Supplier	TCl America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	Phosphoric acid, triphenyl ester (CA INDEX NAME); Phosphoric Acid Triphenyl Ester		
Chemical Formula	C ₁₈ H ₁₅ O ₄ P		
CAS Number	115-86-6	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Triphenyl Phosphate	115-86-6	Min. 99.0 (GC)	Not available.	Rat LD ₅₀ (oral) 3500 mg/kg Mouse LD ₅₀ (oral) 1320 mg/kg Rabbit LD ₅₀ (dermal) >7900 mg/kg

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	220°C (428°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂). Phosphates		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release MeasuresSpill Cleanup
Instructions

Environmentally hazardous material. Harmful material.
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and StorageHandling and Storage
Information

ENVIRONMENTAL HAZARD. HARMFUL. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Always store away from incompatible compounds such as oxidizing agents.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Splash goggles. Lab coat. Dust respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.



Exposure Limits

Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White, Flakes ~ Powder.)	Solubility	Very soluble in Carbon Tetrachloride. Soluble in Alcohol, Ether, Benzene, Toluene, Chloroform, Acetone. Insoluble in water.
Specific Gravity	Not available.		
Molecular Weight	326.28	Partition Coefficient	Lot P _{ow} = 4.59
Boiling Point	220°C (428°F) @ 11 mmHg	Vapor Pressure	1 Pa (@ 20°C)
Melting Point	50°C (122°F)	Vapor Density	1.19 (Air = 1)
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Nearly odorless.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability

This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability

Avoid excessive heat and light.

Incompatibilities

Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number

TC8400000

Routes of Exposure

Eye Contact. Ingestion. Inhalation.

Toxicity Data

Rat LD₅₀ (oral) 3500 mg/kg
Mouse LD₅₀ (oral) 1320 mg/kg
Rabbit LD₅₀ (dermal) >7900 mg/kg

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY Not available.
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects

Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity Not available.

Environmental Fate Triphenyl phosphate's production and use as a fire retardant, a component in hydraulic fluids, and plasticizer for cellulose acetate and nitrocellulose may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 6.28X10⁻⁶ mm Hg at 25 deg C indicates triphenyl phosphate will exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase triphenyl phosphate will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 35 hours. Particulate-phase triphenyl phosphate will be removed from the atmosphere by wet and dry deposition. If released to soil, triphenyl phosphate is expected to have slight mobility based upon Koc values in the range of 2,514-3,561. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 4X10⁻⁸ atm-cu m/mole. Biodegradation in soil is expected to be an important environmental fate process based on mineralization half-lives of 37 and 32 days in a loamy sand under aerobic and anaerobic conditions, respectively. If released into water, triphenyl phosphate is expected to adsorb to suspended solids and sediment based upon the Koc. Volatilization from water is not expected to be an important environmental fate process based on the estimated Henry's Law constant. River die-away tests indicate that biodegradation will occur in water, with half-lives of about 2-4 days. Hydrolysis is also expected to occur, particularly under alkaline conditions. Hydrolysis half-lives of 19 and 3 days were observed for triphenyl phosphate in buffered solutions at pH 7 and pH 9, respectively. Bioconcentration factors in the range of 132-573 measured in fish, suggest that bioconcentration in aquatic organisms is high. Occupational exposure to triphenyl phosphate may occur through inhalation and dermal contact with this compound at workplaces where triphenyl phosphate is produced or used. Monitoring data indicate that the general population may be exposed to triphenyl phosphate via inhalation of ambient air and ingestion of food and drinking water.

Section XIII. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification DOT Class 9: Miscellaneous hazardous material.

PIN Number UN3077

Proper Shipping Name Environmentally hazardous substance, solid, n.o.s.

Packing Group (PG) III

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) On DSL

EINECS Number (EEC) 204-112-2

EEC Risk Statements R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.

Japanese Regulatory Data ENCS No. 3-1372; 3-2522; 3-3363

Section XVI. Other Information

Version 1.0
Validated on 6/23/2008.
Printed 6/23/2008.

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.