

CAS No: 107-49-3
 RTECS No: UX6825000
 UN No: 3018
 EC No: 015-025-00-2

Tetraethyl pyrophosphate
 Diphosphoric acid, tetraethyl ester
 Tetraethyl diphosphate
 $C_8H_{20}O_7P_2 / (C_2H_5O)_2-PO-O-PO-(OC_2H_5)_2$
 Molecular mass: 290.2

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/SYMPTOMS	PREVENTION	FIRST AID/FIRE FIGHTING
FIRE	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Powder, alcohol-resistant foam, water in large amounts, carbon dioxide.
EXPLOSION	Risk of fire and explosion.		In case of fire: keep drums, etc., cool by spraying with water.

EXPOSURE		AVOID ALL CONTACT! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!	IN ALL CASES CONSULT A DOCTOR!
Inhalation	Cough. Nausea. Pupillary constriction, muscle cramp, excessive salivation. Sweating. Laboured breathing. Dizziness. Ataxia. Convulsions. Vomiting. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.
Skin	MAY BE ABSORBED! Skin burns. Pain. (Further see Inhalation).	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Eyes	MAY BE ABSORBED! Redness. Pain. Pupillary constriction. Blurred vision. Headache.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	Abdominal cramps. Diarrhoea. Nausea. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give a slurry of activated charcoal in water to drink. Do NOT induce vomiting. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment.	T+ Symbol N Symbol R: 27/28-50 S: (1/2-)36/37/39-38-45-61 UN Hazard Class: 6.1 UN Pack Group: I Do not transport with food and feedstuffs. Marine pollutant.

EMERGENCY RESPONSE	SAFE STORAGE
Transport Emergency Card: TEC (R)-61GT6-I	Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs. Dry. Keep in a well-ventilated room.

IMPORTANT DATA

Physical State; Appearance

COLOURLESS HYGROSCOPIC LIQUID.

Chemical dangers

The substance decomposes on heating producing above 150°C flammable gas, ethylene and toxic fumes including phosphorus oxides. Attacks some forms of plastic, rubber and coatings, corrosive to most metals.

Occupational exposure limits

TLV: 0.05 mg/m³ as TWA; (skin); BEI issued; (ACGIH 2004).
MAK: 0.005 ppm, 0.06 mg/m³; Peak limitation category: II(2);
skin absorption (H); (DFG 2004).

Routes of exposure

The substance can be absorbed into the body by inhalation, through the skin, by ingestion and and through the eyes.

Inhalation risk

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C, on spraying much faster.

Effects of short-term exposure

The substance is irritating to the eyes and the skin. The substance may cause effects on the central nervous system, resulting in convulsions, respiratory failure and death. Cholinesterase inhibitor. The effects may be delayed. Medical observation is indicated. See Notes.

Effects of long-term or repeated exposure

Cholinesterase inhibitor; cumulative effect is possible: see acute hazards/symptoms.

PHYSICAL PROPERTIES

Decomposes below boiling point at 170°C

Melting point: see Notes

Relative density (water = 1): 1.2

Solubility in water: good

Vapour pressure, Pa at 20°C: 2

Relative vapour density (air = 1): 10

Relative density of the vapour/air-mixture at 20°C (air = 1): 1.00

Flash point: see Notes

Auto-ignition temperature: see Notes

Octanol/water partition coefficient as log Pow: 2.94

ENVIRONMENTAL DATA

This substance may be hazardous to the environment; special attention should be given to mammals, birds, honey bees and aquatic organisms.

NOTES

Melting point: sets to glassy state below 0°C. Auto-ignition temperature is unknown in literature.

The substance is combustible but no flash point is available in literature.

Depending on the degree of exposure, periodic medical examination is suggested.

Specific treatment is necessary in case of poisoning with this substance; the appropriate means with instructions must be available.

Carrier solvents used in commercial formulations may change physical and toxicological properties.

Do NOT take working clothes home.

Bladan, Fosnex, Gy-Tet 40, HETP, Hexaethyltetraphosphate, Killex, Kilmite, Lethalaire, Licophosphate, Nifos T, Pyfos, Pyro-Phos, Teep, Tetradusto 100, Tetron, Tetraspa and Vapotone are trade names.

Card has been partly updated in April 2005. See sections Occupational Exposure Limits, EU classification, Emergency Response.

ADDITIONAL INFORMATION

LEGAL NOTICE

Neither the EC nor the IPCS nor any person acting on behalf of the EC or the IPCS is responsible