

Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)

Company Information

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Product Identification

【Product Name】

Fyrol FR 2

【Synonyms】

1,3-Dichloro-2-propanol phosphate (3:1)
2-Propanol, 1,3-dichloro-phosphate (3:1)
Phosphoric acid tris(1,3-dichloro-2-propyl)ester
tris(1,3-Dichloroisopropyl)phosphate
tris(1-Chloromethyl-2-chloroethyl)phosphate
tris(2-Chloro-1-(chloromethyl)ethyl)phosphate

【CAS】

[13674-87-8](#)

【Formula】

C₉H₁₅Cl₆O₄P

【Molecular Weight】

430.91

【EINECS】

237-159-2

【RTECS】

UB1473000

【RTECS Class】

Tumorigen; Mutagen; Reproductive Effector

【Merck】

12,4342

【Beilstein/Gmelin】

1715458

【Beilstein Reference】

3-01-00-01473

Physical and Chemical Properties

【Appearance】

Clear colorless viscous liquid. Generally a super-cooled liquid at room temperature but may occasionally solidify when held at low temperatures for prolonged periods.

【Solubility in water】

7 mg/L @ 24 C

【Boiling Point】

236

【Vapor Pressure】

10

【Density】

1.5182 g/cm³ (20 C)

【Partition Coefficient】

3.65

【Usage】

Flame retardant formerly used in children's sleepwear, once considered as a potential replacement for tris(2,3-dibromo-1-propyl) phosphate.

【Refractive Index】

1.4997 (20 C)

First Aid Measures

【Ingestion】

DO NOT INDUCE VOMITING. If the victim is conscious and not convulsing, administer a slurry of activated charcoal in water and simultaneously call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.

【Inhalation】

IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used.

【Skin】

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.

【Eyes】

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

Handling and Storage

【Storage】

Keep in a cool, dry, dark location in a tightly sealed container or cylinder. Keep away from incompatible materials, ignition sources and untrained individuals. Secure and label area. Protect containers/cylinders from physical damage.

【Handling】

All chemicals should be considered hazardous. Avoid direct physical contact. Use appropriate, approved safety equipment. Untrained individuals should not handle this chemical or its container. Handling should occur in a chemical fume hood.

Hazards Identification

【Ingestion】

See inhalation.

【Inhalation】

Symptoms of exposure to this compound may include irritation of the skin and respiratory tract, breathing difficulty and pulmonary edema.

【Skin】

See inhalation.

【Eyes】

See inhalation

Exposure Controls/Personal Protection

【Personal Protection】

If Tyvek-type disposable protective clothing is not worn during handling of this chemical, wear disposable Tyvek-type sleeves taped to your gloves.

【Respirators】

Wear a NIOSH-approved half face respirator equipped with an organic vapor/acid gas cartridge (specific for organic vapors, HCl, acid gas and SO₂) with a dust/mist filter.

【Poison Class】

1*

Fire Fighting Measures

【Autoignition】

【Fire Fighting】

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used.

【Fire Potential】

This chemical is combustible.

Accidental Release Measures

【Small spills/leaks】

If you spill this chemical, FIRST REMOVE ALL SOURCES OF IGNITION. Then, use an absorbent paper to pick up all liquid spill material. Your contaminated clothing and absorbent paper should be sealed in a vapor-tight plastic bag for eventual disposal. Solvent wash all contaminated surfaces with 60-70% ethanol followed by washing with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

Stability and Reactivity

【Stability】

Resistant to chlorination in aqueous solution; it has an extremely low rate of hydrolysis and resists attack by bases.