

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name : Tris[2-chloro-1-(chloromethyl)ethyl] phosphate

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

According to Regulation (EC) No1272/2008

Acute toxicity, Inhalation (Category 3)

Acute toxicity, Oral (Category 4)

Skin irritation (Category 2)

Eye irritation (Category 2)

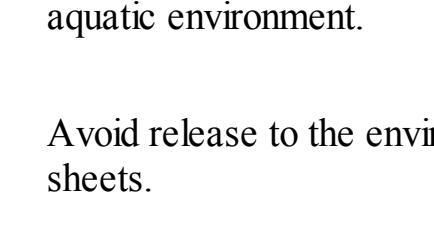
Chronic aquatic toxicity (Category 2)

According to European Directive 67/548/EEC as amended.

Harmful by inhalation. Irritating to skin. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Label elements

Pictogram



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H331 Toxic if inhaled.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

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

P311 Call a POISON CENTER or doctor/physician.

Hazard symbol(s)

Xn Harmful

N

NHazardous for the environment

R-phrase(s)

R20 Harmful by inhalation.

R38 Irritating to skin.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C9H15Cl6O4P
Molecular Weight : 430.91 g/mol

CAS-No.	EC-No.	Classification	Concentration
Tris[2-chloro-1-(chloromethyl)ethyl] phosphate 13674-87-8	237-159-2	Acute Tox. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; Aquatic Chronic 2; H302, H315, H319, H331, H411 Xn, N, R20 - R38 - R51/53	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Normal measures for preventive fire protection.

Conditions for safe storage

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully ressealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Handle with gloves.

Eye protection

Face shield and safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form liquid

Colour colourless

Safety data

pH no data available

Melting point no data available

Boiling point > 200 °C at 1.013 hPa - Decomposes on heating.

Flash point 250 - 252 °C - open cup

Ignition temperature 513 °C

Lower explosion limit no data available

Upper explosion limit no data available

Vapour pressure 9 hPa at 65 °C

Density 1,514 g/cm³

Water solubility no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Phosphorous oxides, Hydrogen chloride gas

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - > 2,000 mg/kg

LD50 Oral - rat - 1,850 mg/kg

LC50 Inhalation - rat - 4 h - > 5,220 mg/m³

LD50 Dermal - rabbit - > 23,700 mg/kg

Remarks: Behavioral/Irritability. Diarrhoea Biochemical/Enzyme inhibition, induction, or change in blood or tissue levels/True cholinesterase.

Skin corrosion/irritation

Skin - rabbit - Skin irritation

Serious eye damage/eye irritation

Eyes - rabbit - Mild eye irritation

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

Genotoxicity in vitro - Ames test - Equivocal evidence.

Genotoxicity in vitro - Hamster - Embryo

Morphological transformation.

Genotoxicity test - mouse - Gavage - negative

Carcinogenicity

Carcinogenicity - Oral - Rat - RTECS criteria. Kidney, Uterus, Bladder, Tumors.

Carcinogenicity - Oral - Rat - RTECS criteria. Liver, Tumors.

No probiotic, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Reproductive toxicity - Rat - Oral - Effects on Embryo or Fetus: Effects on Embryo or Fetus.

Fetal death.

Developmental Toxicity - Rat - Oral - Effects on Fetus: Effects on Fetus.

Effects on Embryo or Fetus: Fetal death.

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation

Harmful if inhaled. May cause respiratory tract irritation.

Skin

May be harmful if swallowed. Causes skin irritation.

Eyes

May cause eye irritation through skin. Causes skin irritation.

Additional Information

RTECS: UB1473000

12. ECOLOGICAL INFORMATION

Toxicity

LC50 - Oncorhynchus mykiss (rainbow trout) - 1,1 mg/l - 96 h

EC50 - Daphnia magna (Water flea) - 4,6 mg/l - 48 h

Biodegradability

Result: Not readily biodegradable.

Bioaccumulative potential

Oryzias latipes - 38 d

Bioconcentration factor (BCF): 50 - 89

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS