



SILVER FERN CHEMICAL, INC.

SAFETY DATA SHEET

Tris(1-chloro-2-propyl) Phosphate - TCPP

According to OSHA Hazard Communication Standard 29 CFR 1910.1200 (GHS)
According to Canada WHMIS 2015

Product name	Tris(1-chloro-2-propyl) Phosphate - TCPP
Revision date	07/08/2017

1. Identification of the substance & the company

Product identifier	Tris(1-chloro-2-propyl) Phosphate - TCPP
Chemical name	Tris(2-chloro-1-methylethyl) phosphate (TCPP)
Synonym(s)	2-Propanol, 1-chloro-, phosphate (3:1). Tris(2-chloroisopropyl) phosphate. 2-Propanol, 1-chloro-, 2,2',2"-phosphate. Reaction mass of Tris(2-chloropropyl) phosphate and Tris(2-chloro-1-methylethyl) phosphate and Phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and Phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester.
Chemical formula	C ₉ H ₁₈ Cl ₃ O ₄ P
Chemical family	Alkyl phosphate
Molecular weight	ca.328
Type of product and use	Flame retardant
Distributor	Silver Fern Chemical, Inc. 121 W. De La Guerra Street, Suite B Santa Barbara, CA 93101 USA Phone: 1-866-282-3384 www.silverfernchemical.com
24 Hour Emergency Contact	Infotrac 1-800-535-5053 (USA & Canada) Outside USA & Canada 1-352-323-3500

2. Hazards identification

GHS classification	Acute Tox. 4, H302 Harmful if swallowed
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Signal Word	WARNING
Hazard statements	H302 - Harmful if swallowed

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Precautionary statements

P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
P501 - Dispose of contents/container in accordance with national and international regulations

NFPA Ratings (Scale 0-4) Health = 1, Fire = 1, Reactivity = 0

HMIS Ratings (Scale 0-4) Health = 1, Fire = 1, Reactivity = 0.

3. Composition / information on ingredients

Components	CAS No.	Weight %
2-Propanol, 1-chloro-, 2,2',2"-phosphate	13674-84-5	99.5

4. First-aid measures

Eye contact Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

Skin contact Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before reuse. Get medical attention if irritation occurs.

Inhalation In case of inhalation, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

Ingestion If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink

Most important symptoms and effects, acute or delayed

Harmful if swallowed

Notes to the physician Treat symptomatically and supportively.

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5. Fire - fighting measures

Suitable extinguishing media Material is not combustible. Use extinguishing media appropriate to surrounding fire conditions.

Unusual fire and explosion hazards When heated to decomposition, may release poisonous and corrosive fumes of Carbon Dioxide, Carbon Monoxide, Hydrogen Chloride and Phosphorus Oxides.

Fire fighting procedure Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA). Contain runoff to prevent entry into water or drainage systems.

6. Accidental release measures

Personal precautions Wear appropriate safety clothing and eye/face protection (see Section 8).

Methods for cleaning up Soak up with sand or other suitable absorbent and dispose of as solid waste. Collect in suitable and properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

Environmental precautions Prevent product from entering drains, ditches and rivers. Avoid access to streams, lakes or ponds.

7. Handling and storage

Handling Keep containers tightly closed.
Avoid bodily contact.

Storage Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid"). Maximum recommended storage temperature of 50°C (122°F)

8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	Korea OEL	OSHA (PEL) Data
2-Propanol, 1-chloro-, 2,2',2"-phosphate 13674-84-5	Not determined	Not determined	Not determined

Ventilation requirements Provide adequate ventilation.

Personal protective equipment:

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| <ul style="list-style-type: none">- Respiratory protection- Hand protection- Eye protection- Skin and body protection | In case of insufficient ventilation wear suitable respiratory equipment.
Rubber gloves
Chemical safety goggles
Use protective clothing impervious to this material. |
|--|--|

Hygiene measures Do not eat, smoke or drink where material is handled, processed or stored. Wash hands thoroughly after handling and before eating or smoking. Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance	Clear colorless liquid
Odor	Slightly sweetish.
Melting point/range	-20°C
Boiling point/range	288°C (decomposes)
Flash point	>245°C (closed cup)
Flammable/Explosion limits	Not flammable/Not explosive
Vapor pressure	1.4x10 ⁻⁵ hPa (25°C)
Density	1.290 (20°C)
Solubility:	
- Solubility in water	1.08 g/l at 20°C
Partition coefficient (n-octanol/water)	Log Pow : 2.68
Auto-ignition temperature	> 400°C
Decomposition temperature	245°C
Viscosity	68.5 cP (20°C)
Explosive properties	There are no chemical groups associated with explosive properties present in the molecule
Oxidising properties	The structure indicates non oxidizing properties

10. Stability and reactivity

Stability	Stable under normal conditions
Conditions to avoid	Heating above decomposition temperature.
Materials to avoid	Strong oxidizers, strong acids and strong alkalis. It hydrolyzes slowly at normal temperatures in acidic or alkaline aqueous solutions.
Hazardous decomposition products	Carbon dioxide and carbon monoxide. Hydrogen Chloride,. Phosphorus oxides.

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11. Toxicological information

Acute toxicity:

- Rat oral LD50 630 - 2000 mg/kg

- Rabbit dermal LD50 > 2000 mg/kg

- Rat dermal LD50 >2000 mg/kg

- Rat inhalation LC50 > 7 mg/l (4-hr)

Skin corrosion/irritation Not irritant

Serious eye damage/ irritation Not irritant

Respiratory or skin sensitisation Not a skin sensitizer

Sub-chronic toxicity:

- NOEL > 20,000 ppm (13 weeks oral rat)

Chronic toxicity No data available

Mutagenicity Not mutagenic by the Ames Test.
Mutagenic in the mouse lymphoma L5178Y test system.
Non genotoxic in an in-vivo micronucleus test in mice

Carcinogenicity Not included in NTP 14th Report on Carcinogens
Not classified by IARC
Not classified as a carcinogen by USA OSHA

Reproductive toxicity No significant adverse effects on the reproductive parameters evaluated.

Specific Target Organ Toxicity (STOT) - Repeat exposure No effects on specific target organs have been identified.

Neurotoxicity Not neurotoxic

12. Ecological information

Aquatic toxicity :

- 96 Hour-LC50, Fish 56.2 mg/L

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- 48 Hour-EC50, *Daphnia magna* 131 mg/L

- EC50, Freshwater algae 47 mg/l (96 hr)

- 72 Hour-EC50, Freshwater algae 82 mg/L

Chronic toxicity The No Observed Effect Concentration (NOEC) in *Daphnia magna* is 32 mg/l.

Biodegradation Not readily biodegradable. Inherently biodegradable

Bioaccumulative potential The bioaccumulation potential is expected to be low
Measured BCF of 0.8- <14

Mobility in soil Based on measured results the adsorption coefficient for TCP is derived to be 174, indicating a moderate adsorption potential.

Note: Does not meet the criteria for PBT or vPvB assessment

13. Disposal considerations

Waste disposal Observe all federal, state and local environmental regulations when disposing of this material

14. Transportation information

UN No. Not regulated

DOT Not regulated

IMDG Not regulated

ICAO/IATA Not regulated

15. Regulatory information

USA Reported in the EPA TSCA Inventory.

- **SARA 313** This product does not contain a chemical listed at or above de minimis concentrations

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Canada	Listed in DSL
EU	Reported in EINECS
Australia	Listed in AICS
China - China inventory	Listed in IECSC
Japan	Listed in ENCS
Korea	listed in KECI
Mexico	Listed in the National Inventory of Chemical Substances (INSQ).
New Zealand Inventory	Listed in NZIoC
Philippines	Listed in PICCS
Taiwan	Listed (TCSI)
Vietnam	Listed
Thailand	Listed

16. Other information

This data sheet contains changes from the previous version in section(s)

1, 2, 3, 9, 11, 12, 15

Health, Safety & Environment Policy

We will strive to ensure that our operations and products meet the needs of the present global community without compromising the ability of future generations to meet their needs. We accept that the success of our business is dependent on the supply of products and services that will benefit society whilst ensuring human safety and protection of the environment and natural resources. Within the framework of our commitment to the Responsible Care program, we will provide a healthy and safe work environment for employees and will responsibly manage our products at all stages of their life cycle in order to protect human health and the environment whilst maintaining high production standards of operation.



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DISCLAIMER OF RESPONSIBILITY

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End of safety data sheet