



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA

Revision date 20-Aug-2019

Supersedes Date: 07-Aug-2017

Revision Number 8

1. Identification

Product identifier

Product Name FYROL PCF

Other means of identification

Product Code(s) 7002

Chemical name Tris(2-chloro-1-methylethyl) phosphate (TCPP)

Chemical Family Alkyl phosphate

Synonyms 2-Propanol, 1-chloro-, phosphate (3:1)
Tris(2-chloroisopropyl) phosphate
2-Propanol, 1-chloro-, 2,2',2"-phosphate
Reaction products of phosphoryl trichloride and methyloxirane

Recommended use of the chemical and restrictions on use

Recommended use Flame retardant

Restrictions on use No information available

Details of the supplier of the safety data sheet

Supplier Address

ICL-IP America Inc.
622 Emerson Road - Suite 500
St. Louis, Missouri 63141, USA
Tel:(314)983-7884 Fax:(314)983-7607
e-mail:msdsinfo@icl-group.com

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300
Medical: PROSAR 1-888-875-1685 (24HRS)

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral

Category 4

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

**Signal word**

Warning

Hazard statements

Harmful if swallowed

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product

Precautionary Statements - Response

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
Rinse mouth

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other information

Not applicable

3. Composition/information on ingredients**Substance**

Chemical name	CAS No.	Weight-%
Tris(2-chloro-1-methylethyl) phosphate	13674-84-5	99.5

4. First-aid measures**Description of first aid measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
Ingestion	Do NOT induce vomiting Never give anything by mouth to an unconscious person Call a physician

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical May emit toxic fumes under fire conditions.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions Ensure adequate ventilation.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Environmental precautions Should not be released into the environment. See Section 12 for additional Ecological Information.

Reference to other sections See section 8 for more information. See section 13 for more information.

7. Handling and storage**Precautions for safe handling**

Advice on safe handling Keep containers tightly closed.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Maximum recommended storage temperature of 50°C (122°F).

8. Exposure controls/personal protection**Control parameters**

Exposure Limits The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	-	-	-

Appropriate engineering controls

Engineering controls Showers
 Eyewash stations
 Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical safety goggles.

Hand protection Rubber gloves

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Skin and body protection Wear suitable protective clothing.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state Liquid
 Appearance Clear colorless liquid
 Color Colourless
 Odor Slightly sweetish

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	-20°C / -4 °F	
Boiling point / boiling range	288 °C / 550.4 °F	
Flash point	>245 °C / 473 °F	CC (closed cup)
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	1.4x10 ⁽⁻⁵⁾ hPa (25°C)	
Vapor density	No data available	None known
Relative density	1.290 (20°C)	
Water solubility	1.08 g/l at 20°C	
Solubility in other solvents	No data available	
Partition coefficient	No data available	
Autoignition temperature	> 400	
Decomposition temperature	245°C	
Kinematic viscosity	No data available	None known
Dynamic viscosity	68.5 cP (20°C)	
<u>Other information</u>		
Oxidizing properties	No data available	
Explosive properties	No data available	
Molecular weight	ca.328	

10. Stability and reactivity

Reactivity It hydrolyzes slowly at normal temperatures in acidic or alkaline aqueous solutions.

Chemical stability Stable under normal conditions.

- Possibility of hazardous reactions** None under normal processing.
- Conditions to avoid** Heating above decomposition temperature.
- Incompatible materials** Strong oxidizing agents, strong acids, and strong bases.
- Hazardous decomposition products** Carbon dioxide and carbon monoxide. Phosphorus oxides. Hydrogen chloride.

11. Toxicological information

Information on likely routes of exposure

Product Information

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	630 - 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 7 mg/l (4-hr) (Rat)

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Non-irritant.

Serious eye damage/irritation Non-irritant.

Respiratory or skin sensitization Not a skin sensitizer.

Germ cell mutagenicity Not mutagenic in AMES Test. Non genotoxic in an in-vivo micronucleus test in mice. Mutagenic in the mouse lymphoma L5178Y test system.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	ACGIH	IARC	NTP	US OSHA
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	-	-	-	-

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

Developmental toxicity NOAEL 650 mg/kg bw/day (rat, oral)
Does not meet classification criteria.

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met

Chronic toxicity	No data available
Neurological effects	Not neurotoxic.
Aspiration hazard	Not expected to occur.

12. Ecological information

Ecotoxicity .

Component Information

Chemical name	Algae/aquatic plants	Fish	Crustacea	Toxicity to microorganisms
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	EC50: 47 mg/L, 96hr 82 mg/L 72h	LC50: 56.2 mg/L 96h	EC50: 131 mg/L (Daphnia magna, 48h)	-

Persistence and degradability Not readily biodegradable
Inherently biodegradable.

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

Bioconcentration factor (BCF) 0.8- <14

Component Information

Chemical name	Partition coefficient
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	2.68

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations.

Contaminated packaging Dispose of in a safe manner in accordance with local/national regulations.

14. Transport information

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not relevant

ICAO/IATA Not regulated

DOT Not regulated

15. Regulatory information

International Inventories

TSCA Listed or exempted

DSL/NDSL	Listed or exempted
ENCS	Listed or exempted
IECSC	Listed or exempted
KECL	Listed or exempted
PICCS	Listed or exempted
AICS	Listed or exempted
TCSI	Listed or exempted
NCI	Listed or exempted
TECI	Listed or exempted
NSQ	Listed or exempted

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
TCSI - Taiwan Chemical Substance Inventory
NCI - Vietnam National Chemicals Inventory
TECI - Thailand Inventory FDA Existing Chemicals
NSQ - Mexico National Inventory of Chemical Substances

US Federal Regulations

Chemical name	U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)
Tris(2-chloro-1-methylethyl) phosphate - 13674-84-5	-

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	-	-	-	-

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	-	-

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations**US State Regulations**

This product does not contain any substances regulated by state right-to-know regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Tris(2-chloro-1-methylethyl) phosphate 13674-84-5	-	-	-

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

NFPA	Health hazards 1	Flammability 1	Instability 0	Physical and chemical properties -
HMIS	Health hazards 1	Flammability 1	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 European Chemicals Agency
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGl(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan GHS Classification
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 RTECS (Registry of Toxic Effects of Chemical Substances)
 World Health Organization

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Revision Note The symbol (*) in the margin of this SDS indicates that this line has been revised. Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, we make no representations as to the completeness or accuracy thereof. Information is supplied to you upon the condition that the persons receiving the information will make their own determination as to its safety and suitability for their purposes prior to use. In no event will we be responsible for damages of any nature whatsoever resulting from the use of or reliance upon the information. In addition, we shall not be liable for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

End of Safety Data Sheet