



# 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**

|                       |   |
|-----------------------|---|
| <b>General advice</b> | Show this safety data sheet to the doctor in attendance.  |
| <b>Inhalation</b>     | Remove to fresh air.  |
| <b>Eye contact</b>    | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.<br>Consult a physician. |
| <b>Skin contact</b>   | Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.                    |
| <b>Ingestion</b>      | Do NOT induce vomiting<br>Never give anything by mouth to an unconscious person<br>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<br>13674-84-5 | -         | -        | -          |

**Appropriate engineering controls**

|                      |  |
|----------------------|--|
| Engineering controls | Showers<br>Eyewash stations<br>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 <sup>-5</sup> 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)                  |                         |
| <b>Other information</b>               |                                 |                         |
| 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<br>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<br>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<br>13674-84-5 | EC50: 47 mg/L, 96hr<br>82 mg/L 72h | LC50: 56.2 mg/L 96h | EC50: 131 mg/L<br>(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<br>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/NDL | 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/NDL** - 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)<br>- 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<br>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<br>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<br>13674-84-5 | -          | -             | -            |

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

**16. Other information**

|             |                         |                       |                           |   |
|-------------|-------------------------|-----------------------|---------------------------|---|
| <b>NFPA</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 1 | <b>Instability</b> 0      | <b>Physical and chemical properties</b> - |
| <b>HMIS</b> | <b>Health hazards</b> 1 | <b>Flammability</b> 1 | <b>Physical hazards</b> 0 | <b>Personal protection</b> 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

**Prepared By**

HERA  
 telephone: +/972-8-6297835  
 www.icl-group.com  
 e-mail:msdsinfo@icl-group.com



Revision date 20-Aug-2019

**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