

**1 Identification of the substance/mixture and of the company/undertaking**

- **Product identifier**
- **Trade name:** PFC-14
- **Article number:** 14
- **CAS Number:**  
75-73-0
- **Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the preparation** Surface active agent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
DAIKIN INDUSTRIES, LTD. CHEMICAL DIVISION:  
Umeda Center Bldg., 4-12, Nakazaki-Nishi2-chome, Kita-Ku, Osaka, JAPAN  
Phone: (+81) 6-6373-4345 Fax: (+81) 6-6373-4281
- **Further information obtainable from:** <http://www.daikin.com/>
- **Emergency telephone number:** +81-6-6349-7521, +1-256-306-5000, +86-512-5232-0973, +49-211-179 225-0

**2 Hazard identification**

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS04 gas cylinder

Press. Gas H280 Contains gas under pressure; may explode if heated.



GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Signal word** Warning
- **Precautionary statements**
  - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
  - P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
  - P312 Call a POISON CENTER or doctor/physician if you feel unwell.
  - P405 Store locked up.
  - P410 Protect from sunlight.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**3 Composition/information on ingredients**

- **Chemical characterization: Substances**
- **CAS No. Description**  
75-73-0 carbon tetrafluoride

**4 First aid measures**

- **Description of first aid measures**
- **General information:** Seek immediate medical advice.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
In cases of frost bites, rinse with plenty of water. Do not remove clothing.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**  
Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.
- **Most important symptoms and effects, both acute and delayed**  
Frost bites  
Causes asphyxiation in high concentrations. May cause an abnormal heart rhythm and prove suddenly fatal.

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- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.  
In case of fire, the following can be released:  
Hydrogen fluoride (HF)
- **Advice for firefighters**
- **Protective equipment:** Do not inhale explosion gases or combustion gases.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Keep people at a distance and stay on the windward side.
- **Environmental precautions:** Inform authorities in case of gas release.
- **Methods and material for containment and cleaning up:** No special measures required.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Protect from heat and direct sunlight.
- **Maximum storage temperature:** 40 °C
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Wash hands before breaks and at the end of work.  
Keep away from tobacco products.
- **Respiratory protection:**  
Wear respirator for organic gases, where leakage may occur.  
Use suitable respiratory protective device in case of insufficient ventilation.
- **Protection of hands:**



Protective gloves

To avoid skin problems reduce the wearing of gloves to the required minimum.

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· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Eye protection:** Safety glasses

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquefied gas

Colour: Colourless

· **Odour:** Odourless

· **Change in condition**

Melting point/Melting range: -184 °C

Boiling point/Boiling range: -128 °C

· **Flash point:** Not applicable.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Vapour pressure at -80 °C:** 1,202 MPa

· **Density:** Not determined.

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

· **Other information** No further relevant information available.

## 10 Stability and reactivity

· **Reactivity**

· **Chemical stability**

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

· **Conditions to avoid** No further relevant information available.

· **Incompatible materials:** alkali or alkaline earth metals--powdered Al, Zn, Mg, etc.

· **Hazardous decomposition products:**

Danger of forming toxic pyrolysis products.

Fluorophosgene on contact with naked flame or red hot objects.

## 11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:** no data

· **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

## 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behaviour in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Ozone depletion potential(ODP) : 0

Global warming potential(GWP) : 6,500

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

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- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**  
Must be specially treated adhering to official regulations.  
Incineration in an adequate incinerator is recommended.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- **UN-Number**
- **ADR, IMDG, IATA** 1982
- **UN proper shipping name**
- **IMDG, IATA** TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)
- **Transport hazard class(es)**
- **ADR**



- **Class** 2 1A Gases.
- **Label** 2.2

- **IMDG, IATA**



- **Class** 2 Gases.
- **Label** 2.2
- **Packing group**
- **ADR, IMDG, IATA** Not applicable
- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Warning: Gases.
- **Danger code (Kemler):** 20
- **EMS Number:** F-C,S-V
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **Transport/Additional information:**
- **ADR**
- **Limited quantities (LQ)** LQ1
- **Transport category** 3
- **Tunnel restriction code** C/E
- **UN "Model Regulation":** UN1982, TETRAFLUOROMETHANE (REFRIGERANT GAS R 14), 2.2

## 15 Regulatory information

- **National regulations:**
  - TSCA INVENTORY:** All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory.
  - CHINA INVENTORY:** All components of this product are in compliance with the inventory listing requirements of the Inventory of Existing Chemical Substances (IECSC)
  - KOREA INVENTORY:** All components of this product are in compliance with the inventory listing requirements of the Korea Existing Chemicals Inventory (KECI)

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**CANADA INVENTORY:** All components of this product are in compliance with the inventory listing requirements of the Canada. Domestic Substances List (DSL).

**AUSTRALIA INVENTORY:** All components of this product are in compliance with the inventory listing requirements of the Australia. Inventory of Chemical Substances (AICS).

**PHILIPPINE INVENTORY:** All components of this product are in compliance with the inventory listing requirements of the Philippines. Inventory of Chemicals and Chemical Substances (PICCS).

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing MSDS:** Toxicology and Product Regulatory

· **Contact:** <http://www.daikin.com/>

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)