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Version number 1

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Trade name:** PFC-14**Article number:** DF14**EC number:**

200-896-5

1.2 Relevant identified uses of the substance or mixture and uses advised against:

No further relevant information available.

1.3 Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

DAIKIN INDUSTRIES, LTD. CHEMICALS DIVISION:

Umeda Center Bldg., 4-12, Nakazaki-Nishi 2-chome, Kita-Ku, Osaka, JAPAN

Phone: (+81) 6-6373-4345 Fax: (+81) 6-6373-4281

Further information obtainable from: <http://www.daikin.com/>**1.4 Emergency telephone number:**

Japan: +81-6-6349-7521

China: +86-512-5-232-0949, +86-21-34151689

South Korea: +82-2-568-1722

Americas: +1-256-306-5000

Europe: +49-211-179 225-0

SECTION 2: Hazard identification**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008***Press. Gas C H280 Contains gas under pressure; may explode if heated.***2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008:**

The substance is classified and labelled according to the CLP regulation.

Signal word: Warning**Precautionary statements:**

P410+P403 Protect from sunlight. Store in a well-ventilated place.

SECTION 3: Composition/information on ingredients**Information on ingredients:**

75-73-0 Carbon tetrafluoride

>99,9%

Press. Gas C, H280

Identification number(s)**EC number:** 200-896-5**SECTION 4: First aid measures****4.1 Description of first aid measures****General information:** Seek immediate medical advice.**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult a doctor if symptoms persist.

In case of inhaling decomposed gases: supply fresh air and consult a doctor in case of complaints.

After skin contact:

Rinse with warm water.

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:** Not applicable.**4.2 Most important symptoms and effects, both acute and chronic:**

Frost bites

Printing date 15.04.2016

Version number 1

Revision: 15.04.2016

Trade name: PFC-14

High concentrations cause asphyxiation. May cause an abnormal heart rhythm and prove suddenly fatal.

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.

4.3 Indication of any immediate medical attention and special treatment needed:

No further relevant information available.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing agents: Use fire extinguishing methods suitable for surrounding conditions.

5.2 Special hazards arising from the substance or mixture:

In case of fire, the following can be released:

Hydrogen fluoride (HF)

Formation of toxic gases is possible during heating or in case of fire.

5.3 Advice for firefighters:

Move receptacle to a safe place immediately if possible. If not, spray water on the receptacles and surrounding equipment to cool.

If receptacle catches fire: cool them with plenty of water.

If possible, close valves of receptacles to shut off the gas supply.

Protective equipment:

Wear self-contained breathing apparatus and protective suit.

Do not inhale explosion gases or combustion gases.

Wear fully protective suit.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures:**

Stay on the windward side.

Wear appropriate protective devices (See Section 8 Exposure Controls/Personal Protection).

Avoid contact with eyes and skin.

Do not inhale the product.

Ensure adequate ventilation before entering the area.

Keep out unauthorized persons.

6.2 Environmental precautions:

Must not be emitted into the environment.

Suppress gases/fumes/haze with water spray.

6.3 Methods and material for containment and cleaning up:

Ensure adequate ventilation.

Turn the container to discharge gas (not liquid) if possible.

Cool the container to prevent evaporation. Spray water to diffuse the generated vapor cloud.

6.4 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.

SECTION 7: Handling and storage**7.1 Precautions for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Handle with care. Avoid jolting, friction and impact.

For heating receptacle, use hot compresses or lukewarm water below 40 °C.

Do not use heaters.

Stay on the windward side when working outdoors.

Be careful of leakage when attaching/detaching receptacles.

Inhaling large quantities may cause cardiac arrhythmia or asphyxiation or both.

Keep away from naked flame or metal heated over 300 - 400 °C to prevent thermal decomposition that may form toxic gases.

Do not handle until all safety precautions have been read and understood.

Danger of ignition/explosion if mixed with flammable gas.

Printing date 15.04.2016

Version number 1

Revision: 15.04.2016

Trade name: PFC-14

Do not inhale the gas.

Information about fire - and explosion protection: Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities:

Storage

Requirements to be met by storerooms and receptacles:

Store in a cool and dry location.

Keep containers tightly sealed.

Store material at:

Store material at 5 °C to 25 °C.

Information about storage in one common storage facility: No further information available.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacle.

Protect from heat and direct sunlight.

Store containers in a well ventilated area.

Store locked up.

7.3 Specific end use(s): No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

8.1 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.

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures:

Wash hands before breaks and at the end of work.

Do not eat or drink while working.

Keep away from tobacco products.

Respiratory protection: Use respiratory protective device with organic gas cartridge.

Protection of hands:



Protective gloves

Material of gloves: Leather

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:



Safety glasses

Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance

Form:	Liquefied gas
Colour:	Colourless
Odour:	Odourless
Odour threshold:	Not determined.
pH-value:	Not determined.
Melting point/Melting range:	-184 °C

Printing date 15.04.2016

Version number 1

Revision: 15.04.2016

Trade name: PFC-14

Boiling point/Boiling range:	-128 °C
Flash point:	Not applicable.
Flammability (solid, gaseous):	No data.
Decomposition temperature:	Not determined.
Self-igniting:	Not determined.
Danger of explosion:	Not determined.
Explosion limits:	
Lower explosive limit:	No further information available.
Upper explosive limit:	No further information available.
Vapour pressure at -80 °C:	1.202 MPa
Density:	No further information available.
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not applicable.
Solubility in / Miscibility with water at 25 °C:	0,0015g/100g (Atmospheric pressure)
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
9.2 Other information:	No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.

10.2 Chemical stability

Thermal decomposition / conditions to be avoided: To avoid thermal decomposition do not overheat.

10.3 Possibility of hazardous reactions: No dangerous reactions known under normal conditions of use.

10.4 Conditions to avoid: Keep away from heat, sparks, flame, high temperature.

10.5 Incompatible materials: No further relevant information available.

10.6 Hazardous decomposition products:

Danger of forming toxic pyrolysis products.

Fluorophosgene in contact with naked flame or red hot objects.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity LCLo 15H Rat: 895000 ppm

LD/LC50 values relevant for classification: No further information available.

Primary irritant effect

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

CMR effects

Carcinogenicity Based on available data, the classification criteria are not met.

Reproductive toxicity Based on available data, the classification criteria are not met.

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.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic study No further information available.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: No further relevant information available.

Printing date 15.04.2016

Version number 1

Revision: 15.04.2016

Trade name: PFC-14

12.2 Persistence and degradability: No further relevant information available.

12.3 Bioaccumulative potential: No further relevant information available.

12.4 Mobility in soil: No further relevant information available.

Ecotoxicological effects: no data

Additional ecological information:

General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Ozone depletion potential(ODP) : 0

Global warming potential(GWP) : 6500

12.5 Results of PBT and vPvB assessment

PBT: No further relevant information available.

vPvB: No further relevant information available.

12.6 Other adverse effects: No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation:

Disposal must be made according to official regulations.

Incineration in an adequate incinerator is recommended.

Uncleaned packaging

Recommendation: Disposal must be made according to official regulations.

* SECTION 14: Transport information

14.1 UN-Number:

ADR, IMDG, IATA

UN1982

14.2 UN proper shipping name:

ADR:

1982 TETRAFLUOROMETHANE

IMDG, IATA

TETRAFLUOROMETHANE

14.3 Transport hazard class(es):

ADR



Class:

2 1A Gases.

Label:

2.2

IMDG, IATA



Class:

2 Gases.

Label:

2.2

14.4 Packing group:

ADR, IMDG, IATA

Not applicable

14.5 Environmental hazards:

Marine pollutant:

No

14.6 Special precautions for user:

Warning: Gases.

Danger code (Kemler):

20

EMS Number:

F-C,S-V

14.7 Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code:

Not applicable.

Transport/Additional information:

Avoid direct sunlight. Make sure of no damage, corrosion, leaks on the receptacles.

Take necessary measures for preventing cargo shift.

Printing date 15.04.2016

Version number 1

Revision: 15.04.2016

Trade name: PFC-14**ADR**

Limited quantities (LQ): 120 ml
Transport category: 3
Tunnel restriction code: C/E
UN "Model Regulation": UN1982, TETRAFLUOROMETHANE (REFRIGERANT GAS R 14), 2.2

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS04

Signal word Warning**Hazard statements**

H280 Contains gas under pressure; may explode if heated.

Precautionary statements

P410+P403 Protect from sunlight. Store in a well-ventilated place.

SECTION 16: Other information

The product is for the industrial use only. We do not guarantee the safety in case the product is used for the other purposes. When using the product for health-care application or food/feed application, consult us in advance. 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 SDS: EHS Department

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 Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Press. Gas C: Gases under pressure: Compressed gas

* **Data compared to the previous version altered.**