

Printing date 16.09.2026

Version number 2

Revision: 16.09.2026

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

1.1 Product identifier

Trade name: FLUOROCARBON GAS R-407C

Article number: R407C STD

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

Sector of Use SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

1.3 Details of the supplier of the safety data sheet DCC-10005

Manufacturer/Supplier:

DAIKIN INDUSTRIES, LTD. CHEMICALS DIVISION:

OSAKA UMEDA TWIN TOWERS SOUTH, 1-13-1 Umeda, Kita-ku, Osaka-shi, Osaka, 530-0001, Japan

Phone: +81-6-6147-9702 Fax: +81-6-6147-9807

1.4 Emergency telephone number: Japan: +81-6-6349-7521

* SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS04

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

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

The product 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

Dangerous components:

CAS: 811-97-2 1,1,1,2-Tetrafluoroethane	50-54%
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 Press. Gas (Liq.), H280

CAS: 354-33-6 Pentafluoroethane	23-27%
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 Press. Gas (Liq.), H280

CAS: 75-10-5 Difluoromethane	21-25%
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 Flam. Gas 1B, H221

 Press. Gas (Liq.), H280

Additional information: For the wording of the listed hazard phrases refer to section 16.

* 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 unconsciousness place patient stably in side position for transportation.

In case of emergency to rescue the victims; be sure to wear supplied-air respirator (SAR) or self-contained breathing apparatus (SCBA).

At high levels, cardiac arrhythmia may occur.

After skin contact:

In cases of frost bites, rinse with plenty of water. Do not remove clothing.

Immediately rinse with warm water and soap.

Consult a doctor in case of complaints.

After eye contact:

Rinse opened eye for several minutes under running water.

Consult an ophthalmologist in case of complaints.

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Trade name: FLUOROCARBON GAS R-407C**After swallowing:** Not applicable.**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.

The examining physician should advise workers taking medications containing catecholamines that they may be at increased risk and should avoid excessive exposure.

4.2 Most important symptoms and effects, both acute and chronic:

Frost bites

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

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:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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.

Receptacle may explode when heated.

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.

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

Remove persons from danger area.

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.

Stay on the windward side.

Keep out unauthorized persons.

6.2 Environmental precautions:

Suppress gases/fumes/haze with water spray.

Do not allow to enter sewers/surface water or groundwater.

Must not be emitted into the environment.

6.3 Methods and material for containment and cleaning up: Ensure adequate ventilation.**6.4 Reference to other sections:**

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:**

Waste air is to be released into the atmosphere only via suitable separators.

Danger of ignition/explosion if mixed with flammable gas.

Do not inhale the gas.

Ensure good ventilation/exhaustion at the workplace.

Handle with care. Avoid jolting, friction and impact.

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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.

Information about fire - and explosion protection:

The product is not flammable.

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

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.

Information about storage in one common storage facility:

See section 10 for information on incompatible materials.

Further information about storage conditions:

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**

8.1 Control parameters No further information available.

Ingredients with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

DNELs:

CAS: 811-97-2 1,1,1,2-Tetrafluoroethane

Inhalative DNEL - worker 13936 mg/m³ (long-term exposure) (systemic effects)

DNEL - consumer 2476 mg/m³ (long-term exposure) (systemic effects)

CAS: 354-33-6 Pentafluoroethane

Inhalative DNEL - worker 16444 mg/m³ (long-term exposure) (systemic effects)

DNEL - consumer 1753 mg/m³ (long-term exposure) (systemic effects)

CAS: 75-10-5 Difluoromethane

Inhalative DNEL - worker 7035 mg/m³ (long-term exposure) (systemic effects)

DNEL - consumer 750 mg/m³ (long-term exposure) (systemic effects)

PNECs:

CAS: 811-97-2 1,1,1,2-Tetrafluoroethane

PNEC 0.1 mg/l (fresh water)

1 mg/l (intermittent release)

0.01 mg/l (marine water)

73 mg/l (sewage treatment plant)

PNEC 0.75 mg/kg dw (fresh water sediment)

CAS: 354-33-6 Pentafluoroethane

PNEC 0.1 mg/l (fresh water)

1 mg/l (intermittent release)

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Trade name: FLUOROCARBON GAS R-407C

PNEC 0.6 mg/kg dw (fresh water sediment)

CAS: 75-10-5 Difluoromethane

PNEC 0.142 mg/l (fresh water)

1.42 mg/l (intermittent release)

PNEC 0.534 mg/kg dw (fresh water sediment)

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Appropriate engineering controls No further data; see section 7.

Individual protection measures, such as personal protective equipment
General protective and hygienic measures:

Do not smoke.

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.

Hand protection


Protective gloves

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

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.

Leather

Eye/face 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
Physical state

Liquefied gas

Colour:

Colourless

Odour:

Odourless

Odour threshold:

Not determined

Melting point/freezing point:

Undetermined

Boiling point or initial boiling point and boiling range -44 °C

Undetermined

Flammability

Product is not flammable.

Lower and upper explosion limit
Lower explosive limit:

No further information available.

Upper explosive limit:

Not determined

Flash point:

Does not flash

Auto-ignition temperature:

No further information available.

Decomposition temperature:

No further information available.

pH

Not applicable

Viscosity:
Kinematic viscosity

Not determined

Dynamic:

Not determined

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Trade name: **FLUOROCARBON GAS R-407C**

Solubility

water:

Insoluble.

Partition coefficient n-octanol/water (log value)

No further information available.

Vapour pressure at 25 °C:

1.19 Mpa

Vapour pressure:

No further information available.

Density and/or relative density

Density:

Not determined

Relative density

Not determined

Vapour density

Not determined

Particle characteristics

No further information available.

9.2 Other information:

Form:

Liquefied gas

Ignition temperature:

Product is not self-igniting.

Explosive properties:

Not determined

Evaporation rate

Not applicable.

Information with regard to physical hazard classes

Explosives

Not applicable

Flammable gases

Not applicable

Aerosols

Not applicable

Oxidising gases

Not applicable

Gases under pressure

Contains gas under pressure; may explode if heated.

Flammable liquids

Not applicable

Flammable solids

Not applicable

Self-reactive substances and mixtures

Not applicable

Pyrophoric liquids

Not applicable

Pyrophoric solids

Not applicable

Self-heating substances and mixtures

Not applicable

Substances and mixtures, which emit flammable gases

in contact with water

Not applicable

Oxidising liquids

Not applicable

Oxidising solids

Not applicable

Organic peroxides

Not applicable

Corrosive to metals

Not applicable

Desensitised explosives

Not applicable

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: Alkali or alkaline earth metals - powdered Al, Zn, Mg, etc.

10.6 Hazardous decomposition products:

Fluorophosgene in contact with naked flame or red hot objects.

Hydrofluoric acid, carbonyl fluoride

* SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:
CAS: 811-97-2 1,1,1,2-Tetrafluoroethane

Inhalative LC50/4h > 500000 ppm (Rat)

LCLo ≥ 567000 ppm (Rat) (OECD 403)

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Trade name: FLUOROCARBON GAS R-407C**CAS: 354-33-6 Pentafluoroethane**

Inhalative LC50/4h > 800000 ppm (Rat)

LC0/4h > 800000 ppm (Rat) (OECD 403)

CAS: 75-10-5 DifluoromethaneInhalative LC50/4h 1107000 mg/m³ (Rat) (OECD 403)**Primary irritant effect****Skin corrosion/irritation:**

No further information available.

CAS: 811-97-2 1,1,1,2-Tetrafluoroethane

Inhalative Development 300000.4 ppm (Rat and rabbit)

CAS: 354-33-6 Pentafluoroethane

Inhalative Development 50000 ppm (Rat and rabbit)

Serious eye damage/irritation: No further information available.**after inhalation:** No further information available.**Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.**Germ cell mutagenicity:** In vitro tests did not show mutagenic effects.**Carcinogenicity:****CAS: 811-97-2 1,1,1,2-Tetrafluoroethane**

Inhalative NOEL 10000 ppm (Rat) (OECD 453)

Reproductive toxicity:**CAS: 811-97-2 1,1,1,2-Tetrafluoroethane**

Inhalative NOEL 50000 ppm (mouse) (OECD 478)

2500 ppm (rabbit) (development) (OECD 414)

CAS: 75-10-5 DifluoromethaneInhalative NOAEC 208000 mg/m³ (mouse) (OECD 478, read across)105000 mg/m³ (Rat)

Developmental Toxicity, rat, no observed effect (1,1,1,2-Tetrafluoroethane)

STOT-single exposure:

No further information available.

CAS: 354-33-6 Pentafluoroethane

Inhalative Inhalation 10 % w/w (Dog) (Risk of cardiac sensitization at high doses.)

Risk of cardiac sensitization at high dose

STOT-repeated exposure:**CAS: 811-97-2 1,1,1,2-Tetrafluoroethane**

Inhalative NOAEC 50000 ppm (Rat) (OECD 453)

CAS: 354-33-6 Pentafluoroethane

Inhalative NOAEL ≥ 50000 ppm (Rat and rabbit)

CAS: 75-10-5 DifluoromethaneInhalative NOAEC 105000 mg/m³ (Rat) (OECD 413)**Aspiration hazard:** Based on available data, the classification criteria are not met.**Chronic study**

No further information available.

CAS: 811-97-2 1,1,1,2-Tetrafluoroethane

Inhalative Subchronic study 50000 ppm (Rat)

Chronic study 10000 ppm (Rat) (two-year study)

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Trade name: **FLUOROCARBON GAS R-407C****CAS: 354-33-6 Pentafluoroethane**

Inhalative Subchronic study 50000 ppm (Rat) (13 weeks)

Other information (about experimental toxicology): No further information available.**Subacute to chronic toxicity:** No further information available.**Additional toxicological information:****CAS: 811-97-2 1,1,1,2-Tetrafluoroethane**

Inhalative Cardiac sensitive 75000 ppm (Dog)

The cardiac sensitization response is observed.

CAS: 354-33-6 Pentafluoroethane

Inhalative Cardiac sensitive 75000 ppm (Dog)

The cardiac sensitization response is observed.

*** SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:****CAS: 811-97-2 1,1,1,2-Tetrafluoroethane**LC50/96h 450 mg/l (fish) (EU Method C.1)
rainbow trout

EC50/48h 980 mg/l (Daphnia) (EU Method C.2)

EC50/72h > 118 mg/l (Alga) (1,1,1,3,3-pentafluorobutane) (EU Method C.3)

CAS: 354-33-6 Pentafluoroethane

LC50/96h 200 mg/l (fish) (semi-static fresh water)

LC50/48h 100 mg/l (Daphnia)

EC50/48h > 200 mg/l (Daphnia)

EC50/72h > 114 mg/l (Alga)

NOEC 13.2 mg/l (Alga)
72h

200 mg/l (Daphnia)

NOEC $\geq 6 \text{ g/m}^3$ (Ter)**CAS: 75-10-5 Difluoromethane**

LC50/96h 1507 mg/l (fish) (QSAR)

LC50/48h 652 mg/l (Daphnia) (QSAR)

EC50/96h 142 mg/l (Alga) (QSAR)

12.2 Persistence and degradability: No further relevant information available.**12.3 Bioaccumulative potential:**

Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.

12.4 Mobility in soil:**CAS: 811-97-2 1,1,1,2-Tetrafluoroethane**Henry's law constant 102 hPa*m³/mol (air) (25 °C)

log Koc 1.57 (soil)

CAS: 354-33-6 PentafluoroethaneHenry's law constant 281.8 hPa*m³/mol (SO)

log Koc 1.3 (soil)

CAS: 75-10-5 DifluoromethaneHenry's law constant 295 hPa*m³/mol (air) (25 °C)

log Koc 0.17 (soil)

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Trade name: **FLUOROCARBON GAS R-407C**

12.5 Results of PBT and vPvB assessment

PBT: No further relevant information available.

vPvB: No further information available.

12.7 Other adverse effects:

Ecotoxicological effects: no data

Behaviour in sewage processing plants:

CAS: 811-97-2 1,1,1,2-Tetrafluoroethane

EC50/6h > 730 mg/ml (Microorganisms)

Additional ecological information:

GWP (Regulation (EU) 2024/573)

Global Warming Potential (GWP): 1774 (100-year integrated value) IPCC 4th Assessment Report)

General notes:

Ozone depletion potential(ODP) : 0

Ingredients:HFC 134a:100-year Global Warming Potential: 1,430

Details: Appendix F - Group I: HFC

HFC 125:100-year Global Warming Potential: 3,500

Details: Appendix F - Group I: HFC

HFC 32:100-year Global Warming Potential: 675

Details: Appendix F - Group I: HFC

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 or ID number

ADR, IMDG, IATA

UN3340

14.2 UN proper shipping name:

ADR, IMDG, IATA

REFRIGERANT GAS R 407C

14.3 Transport hazard class(es):

ADR, IMDG, IATA

Class:

2.2 Gases.

ADN/R Class:

Not applicable

14.4 Packing group:

ADR, IMDG, IATA

Not applicable

14.5 Environmental hazards:

Marine pollutant:

No

14.6 Special precautions for user:

Not applicable

EMS Number:

F-C,S-V

Stowage Category

A

14.7 Maritime transport in bulk according to IMO instruments

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.

ADR

Limited quantities (LQ):

120 ml

Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

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Trade name: **FLUOROCARBON GAS R-407C****IMDG****Limited quantities (LQ)**

120 ml

Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

UN "Model Regulation":

UN 3340 REFRIGERANT GAS R 407C, 2.2

*** SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

Labelling according to Regulation (EC) No 1272/2008

The product 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.

National regulations No further information available.**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**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:** <https://www.daikin.com/>**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord relatif au transport international 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

ELINCS: European List of Notified Chemical Substances

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

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Gas 1B: Flammable gases – Category 1B

Press. Gas (Comp.): Gases under pressure – Compressed gas

Press. Gas (Liq.): Gases under pressure – Liquefied gas

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