

Printing date 15.04.2021

Version number 1

Revision: 15.04.2016

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Trade name:** FLUOROCARBON GAS PFC-C318 / DAIFLON GAS C318EH / PFC-C318**Article number:** C318**EC number:**

204-075-2

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: CHEMTREC +1-800-424-9300 (Outside US/Canada: +1-703-527-3887)

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 (Liq.) 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:**

CAS: 115-25-3 Octafluorocyclobutane

>99.99%

Press. Gas (Liq.), H280

EC number: 204-075-2

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:

Rinse with warm water.

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.

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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:

Keep ignition sources away - Do not smoke.

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:

No further information available.

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.*

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

Ingredients with limit values that require monitoring at the workplace: *Not required.*

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

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

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*

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SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****General Information****Appearance**

Form:	Liquefied gas
Colour:	Colourless
Odour:	Characteristic
Odour threshold:	Not determined.
pH-value:	No further information available.
Melting point/freezing point:	-41.4 °C
Initial boiling point and boiling range:	-5.85 °C
Flash point:	Not applicable.
Flammability (solid, gas):	No data.
Decomposition temperature:	No further information available.
Auto-ignition temperature:	Not determined.
Explosive properties:	Not determined.
Explosion limits:	
Lower explosive limit:	No further information available.
Upper explosive limit:	No further information available.
Vapour pressure at 20 °C:	0.266 MPa
Density at 25 °C:	1.48 g/cm ³
Relative density	Not determined.
Vapour density	6.95 (Air=1)
Evaporation rate	Not applicable.
Solubility in / Miscibility with water at 20 °C:	0.005 g/100g
Partition coefficient: n-octanol/water:	No further information available.
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:** Alkali or alkaline earth metals - powdered Al, Zn, Mg, etc.**10.6 Hazardous decomposition products:**

Danger of forming toxic pyrolysis products.

Fluorophosgene in contact with naked flame or red hot objects.

Hydrofluoric acid, carbonyl fluoride

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity** Based on available data, the classification criteria are not met.

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LD/LC50 values relevant for classification:**CAS: 115-25-3 Octafluorocyclobutane**

Inhalative LC50/4h >800,000 ppm (Rat)

Primary irritant effect**Skin corrosion/irritation**

No further information available.

No further information available.

Serious eye damage/irritation

No further information available.

No further information available.

after inhalation: No further information available.**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.**Other information (about experimental toxicology):** No further information available.**Subacute to chronic toxicity** No further information available.**Additional toxicological information:****CMR effects****Germ cell mutagenicity** Based on available data, the classification criteria are not met.**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.**SECTION 12: Ecological information****12.1 Toxicity**

Aquatic toxicity: No further relevant information available.

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.**Other information****Ecotoxicological effects:** no data**General notes:** Ozone depletion potential(ODP) : 0**12.5 Results of PBT and vPvB assessment****PBT:**

No further relevant information available.

No further relevant information available.

Not applicable.

vPvB:

No further relevant information available.

No further relevant information available.

Not applicable.

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

UN1976

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Trade name: FLUOROCARBON GAS PFC-C318 / DAIFLON GAS C318EH / PFC-C318

14.2 UN proper shipping name:**ADR:****IMDG, IATA**

1976 OCTAFLUOROCYCLOBUTANE

OCTAFLUOROCYCLOBUTANE

14.3 Transport hazard class(es):**ADR****Class:**

2 2A Gases.

Label:

2.2

IMDG**Class:**

2.2

Label:

2.2

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.

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.

ADR**Limited quantities (LQ):**

120 ml

Transport category:

3

Tunnel restriction code:

C/E

UN "Model Regulation":

UN1976, OCTAFLUOROCYCLOBUTANE (REFRIGERANT GAS RC 318), 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 substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS04

Signal word Warning

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Trade name: FLUOROCARBON GAS PFC-C318 / DAIFLON GAS C318EH / PFC-C318**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:** *<http://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 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 (Liq.): Gases under pressure – Liquefied gas**** Data compared to the previous version altered.**