

Printing date 03.03.2016

Version number 1

Revision: 27.01.2016

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name:** HEXAFLUOROPROPYLENE OXIDE**Article number:** 6FO**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.



Acute Tox. 4 H332 Harmful if inhaled.

**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:**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

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

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

428-59-1 Trifluoro(trifluoromethyl)oxirane	>98%
Xn R20	
Press. Gas L, H280	
Acute Tox. 4, H332	
Others	<2%

**SECTION 4: First aid measures****4.1 Description of first aid measures****General information:** Seek immediate medical advice.

Printing date 03.03.2016

Version number 1

Revision: 27.01.2016

**Trade name: HEXAFLUOROPROPYLENE OXIDE****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.

**After swallowing:** Not applicable.

**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.

**Information for doctor:**

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

**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:**

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:**

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:** Must not be emitted into the environment.**6.3 Methods and material for containment and cleaning up:**

Stop leakage if possible.

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:**

Ensure good ventilation/exhaustion at the workplace.

Printing date 03.03.2016

Version number 1

Revision: 27.01.2016

**Trade name: HEXAFLUOROPROPYLENE OXIDE**

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.

**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:**

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**

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

**8.1 Control parameters** No further information available.

**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

**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

Printing date 03.03.2016

Version number 1

Revision: 27.01.2016

Trade name: **HEXAFLUOROPROPYLENE OXIDE****SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance**

<b>Form:</b>	Gaseous
<b>Colour:</b>	Colourless
<b>Odour:</b>	No information available.
<b>pH-value:</b>	No further information available.
<b>Melting point/Melting range:</b>	No further information available.
<b>Boiling point/Boiling range:</b>	-27 °C No further information available.

**Flash point:** Not applicable.**Explosion limits:**

<b>Lower explosive limit:</b>	No further information available.
<b>Upper explosive limit:</b>	No further information available.

**Vapour pressure:** No further information available.**Density:** No further information available.**Solubility in / Miscibility with water:**

No further information available.

**Partition coefficient (n-octanol/water):** No further information available.**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:** Hydrofluoric acid, carbonyl fluoride**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity**

Harmful if inhaled.

**LD/LC50 values relevant for classification:** No further information available.**Primary irritant effect****Skin corrosion/irritation** No further information available.**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.**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.**Chronic study** No further information available.

Printing date 03.03.2016

Version number 1

Revision: 27.01.2016

Trade name: **HEXAFLUOROPROPYLENE OXIDE****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.***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**

UN3163

**ADN**

Not applicable

**14.2 UN proper shipping name:****ADR:**

3163 LIQUEFIED GAS, N.O.S.

**ADN**

Not applicable

**IMDG, IATA**

LIQUEFIED GAS, N.O.S.

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

Not applicable

**IMDG, IATA****Class:**

2.2

**14.4 Packing group:****ADR:**

Not applicable

**14.5 Environmental hazards:****Marine pollutant:**

No

**14.6 Special precautions for user:**

Not applicable.

**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.***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

**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":**

UN3163, LIQUEFIED GAS, N.O.S.

Printing date 03.03.2016

Version number 1

Revision: 27.01.2016

**Trade name: HEXAFLUOROPROPYLENE OXIDE****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 GHS07

**Signal word Warning****Hazard-determining components of labelling:**

Trifluoro(trifluoromethyl)oxirane

Hexafluoropropene

**Hazard statements**

H280 Contains gas under pressure; may explode if heated.

H332 Harmful if inhaled.

**Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

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:**

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

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

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

Acute Tox. 4: Acute toxicity, Hazard Category 4