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Version number 1

Revision: 24.03.2023

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:

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

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

Japan: +81-6-6349-7521

China: +86-532-8388-9090, +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.



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**Hazard-determining components of labelling:**

Trifluoro(trifluoromethyl)oxirane

Hexafluoropropene

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:**

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

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

After swallowing: Not applicable.**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.

4.2 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:** 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.

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Trade name: HEXAFLUOROPROPYLENE OXIDE*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.***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****8.1 Control parameters** *No further information available.***Ingredients with limit values that require monitoring at the workplace:** *Not required.***8.2 Exposure controls****Appropriate engineering controls** *No further data; see item 7.***Individual protection measures, such as 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.***Hand protection**

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/face protection**

Safety glasses

Body protection: *Protective work clothing*

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

Gaseous

Colour:

Colourless

Odour:

No further information available.

Melting point/freezing point:

Undetermined.

Boiling point or initial boiling point and boiling range -27 °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:

Not applicable.

Decomposition temperature:

No further information available.

pH

Not determined.

Viscosity:**Kinematic viscosity**

No further information available.

Solubility**water:**

No further information available.

Partition coefficient n-octanol/water (log value)

No further information available.

Vapour pressure:

No further information available.

Density and/or relative density**Density:**

Not determined.

Vapour density

No further information available.

Particle characteristics

No further information available.

9.2 Other information:**Form:**

Gaseous

Auto-ignition temperature:

Product is not self-igniting.

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.

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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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Harmful if inhaled.

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

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.

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.

Other information (about experimental toxicology): No further information available.

Subacute to chronic toxicity: No further information available.

11.2 Information on other hazards:

Endocrine disrupting properties:

None of the ingredients is listed.

* 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 information available.

12.6 Endocrine disrupting properties For information on endocrine disrupting properties see section 11.

12.7 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 or ID number

ADR, IMDG, IATA

UN3163

14.2 UN proper shipping name:

ADR:

3163 LIQUEFIED GAS, N.O.S.

IMDG, IATA

LIQUEFIED GAS, N.O.S.

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ADR

Class:
IMDG, IATA

Not applicable

Class:
14.4 Packing group:

2.2 Gases.

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 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

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.

*** 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.

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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.

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)

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

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

Acute Tox. 4: Acute toxicity – Category 4

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