

Printing date 23.05.2019

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: 3F MONOMER****Article number: 3FMONO****EC number:**

201-201-8

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**

Flam. Gas 1 H220 Extremely flammable gas.



Acute Tox. 4 H332 Harmful if inhaled.

Press. Gas L 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: Danger**Precautionary statements:**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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

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

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

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

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

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

CAS: 79-38-9 Chlorotrifluoroethylene

100%

Flam. Gas 1, H220

Acute Tox. 4, H332

Press. Gas L, H280

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Trade name: 3F MONOMER**Identification number(s)****EC number: 201-201-8****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.

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.

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

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.

Foam

Sand

Water haze

Fire-extinguishing powder

CO₂**5.2 Special hazards arising from the substance or mixture:**

Hydrogen chloride (HCl)

Hydrogen fluoride (HF)

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

Receptacle may explode when heated.

Extremely flammable; can ignite easily with heat, sparks, fire.

5.3 Advice for firefighters:

If fire extinguishing is impossible, protect the outskirts and burn it until materials disappear.

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:**

Ensure adequate ventilation before entering the area.

Stay on the windward side.

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Keep out unauthorized persons.

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

Avoid contact with eyes and skin.

Do not swallow the product.

6.2 Environmental precautions:

Suppress gases/fumes/haze with water spray.

Must not be emitted into the environment.

6.3 Methods and material for containment and cleaning up:

Ensure adequate ventilation.

Remove ignition sources immediately.

Ground all equipment when the product leaks.

There is a danger of explosion. Prepare fire extinguisher in case of emergency.

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.

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.

Protect against electrostatic charges.

Use flame proof electric/lighting devices and ventilation equipment.

Ground/bond container and receiving equipment.

7.2 Conditions for safe storage, including any incompatibilities:**Storage****Requirements to be met by storerooms and receptacles:**

Store only in unopened original 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

Ingredients with limit values that require monitoring at the workplace:

CAS: 79-38-9 Chlorotrifluoroethylene

WEEL (USA) Long-term value: 5 ppm

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

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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: 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:	Gaseous
Colour:	Colourless
Odour:	Odourless
pH-value:	No further information available.
Melting point/freezing point:	-157.5 °C
Initial boiling point and boiling range:	-27.85 °C

Flash point:	Not applicable.
Ignition temperature:	221 °C
Explosive properties:	Not determined.

Explosion limits:	
Lower explosive limit:	4.6 Vol %
Upper explosive limit:	64.3 Vol %

Vapour pressure at 20 °C:	5600 hPa
Density at 20 °C:	0.00146 g/cm ³ No further information available.

Solubility in / Miscibility with water:	No further information available.
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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.

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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 toxicological effects

Acute toxicity

Harmful if inhaled.

LD/LC50 values relevant for classification:

CAS: 79-38-9 Chlorotrifluoroethylene

Oral LD50 268 mg/kg (Mouse)

Inhalative LC50/4 h 1000 ppm (Rat)

Primary irritant effect

Skin corrosion/irritation No further information available.

Serious eye damage/irritation No further information available.

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.

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.

Not applicable.

vPvB:

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.

Uncleaned packaging

Recommendation: Disposal must be made according to official regulations.

* SECTION 14: Transport information

14.1 UN-Number:

ADR, IMDG, IATA

UN3160

14.2 UN proper shipping name:

ADR:

3160 LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.
(TRIFLUOROCHLOROETHYLENE, STABILIZED)

IMDG, IATA

LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.
(TRIFLUOROCHLOROETHYLENE, STABILIZED)

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14.3 Transport hazard class(es):

ADR



Class: 2.3 2TF
Label: 2.3+2.1
IMDG, IATA



Class: 2.3
Label: 2.3+2.1

14.4 Packing group:

ADR, IMDG, IATA Not applicable

14.5 Environmental hazards:

Marine pollutant: No

14.6 Special precautions for user: Not applicable.

Danger code (Kemler): 263

EMS Number: F-D,S-U

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): 0

Transport category: 1

Tunnel restriction code: B/D

UN "Model Regulation": UN3160, LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S. (TRIFLUOROCHLOROETHYLENE, STABILIZED), 2.3 (2.1)

*** 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

GHS02 GHS07

Signal word Danger

Hazard-determining components of labelling:

Chlorotrifluoroethylene

Hazard statements

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H332 Harmful if inhaled.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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

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

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

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)

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

Flam. Gas 1: Flammable gases – Category 1

Press. Gas L: Gases under pressure – Liquefied gas

Acute Tox. 4: Acute toxicity – Category 4

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