

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Trade name: METHYL 2-FLUOROACRYLATE****Article number: MFA****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. Liq. 2 H225 Highly flammable liquid and vapour.



Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 1 H330 Fatal if inhaled.



Repr. 1B H360D May damage the unborn child.

Hazard description:

T Toxic

F Highly flammable

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.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE

Additional information:

Restricted to professional users.

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

Substance or mixture: Substance

Information on ingredients:

CAS: 2343-89-7	Methyl 2-fluoroacrylate T+ R26; T R24/25; F R11 Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 1, H330	>94%
CAS: 68-12-2	N,N-Dimethylformamide T Repr. Cat. 2 R61; Xn R20/21; Xi R36 Flam. Liq. 3, H226 Repr. 1B, H360D Acute Tox. 4, H312; Acute Tox. 4, H332; Eye Irrit. 2, H319	<1%
CAS: 67-56-1	Methanol T R23/24/25-39/23/24/25; F R11 Flam. Liq. 2, H225 Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 STOT SE 1, H370	<2%
CAS: 1634-04-4	tert-Butyl methyl ether Xi R38; F R11 Flam. Liq. 2, H225 Skin Irrit. 2, H315	<1%
CAS: 127-19-5	N,N-Dimethylacetamide T Repr. Cat. 2 R61; Xn R20/21 Repr. 1B, H360D Acute Tox. 4, H312; Acute Tox. 4, H332	<1%
CAS: 96-33-3	Methyl acrylate Xn R20/21/22; Xi R36/37/38; Xi R43; F R11 Flam. Liq. 2, H225 Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	<1%
	Others	<2%

SVHC:

CAS: 68-12-2 N,N-Dimethylformamide

CAS: 127-19-5 N,N-Dimethylacetamide

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: Seek medical treatment.

After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact:

Remove contaminated clothes immediately.

Immediately wash with water and soap and rinse thoroughly.

Consult a doctor in case of complaints.

After eye contact:

Immediately rinse with a lot of water for several minutes. Remove contact lenses if possible. Continue rinsing.

Consult an ophthalmologist in case of complaints.

After swallowing:

Rinse mouth with water. Do not induce vomiting.

Consult a doctor in case of complaints.

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE

4.2 Most important symptoms and effects, both acute and chronic: No further relevant information available.

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:

Alcohol resistant foam

Fire-extinguishing powder

Dry sand

CO₂

For safety reasons unsuitable extinguishing agents: Water with full jet

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.

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

5.3 Advice for firefighters: Remove receptacles from area of fire if possible.

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:

Ensure adequate ventilation before entering the area.

Stay on the windward side.

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: Prevent seepage into sewage system, workpits and cellars.

6.3 Methods and material for containment and cleaning up:

For a small amount of leakage: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders) or collect in an empty container that can be sealed tightly.

For a small amount of leakage: Use clean anti-static tools when absorbing the product.

For a large amount of leakage: Enclose with banks to avoid outflow. Lead the leakage to a safe place and collect.

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.

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 in a cool and dry location.

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE

Keep containers tightly sealed.

Store under 2-8 °C.

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:

CAS: 68-12-2 N,N-Dimethylformamide

IOELV (EU) Short-term value: 30 mg/m³, 10 ppm

Long-term value: 15 mg/m³, 5 ppm

Skin

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

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 filters for organic and acid gas (or airline respirators in some cases) if formation of toxic gases is possible while the product is heated.

Use respiratory protective device with organic gas cartridge.

Protection of hands:



Protective gloves

Material of gloves: Rubber

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:

Liquid

Colour:

Light yellow to light brown

Odour:

Characteristic

Odour threshold:

Not determined.

pH-value:

No further information available.

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE

Melting point/freezing point:	No further information available.
Initial boiling point and boiling range:	94 °C No further information available.
Flash point:	12 °C (TCC)
Flammability (solid, gas):	Not applicable.
Decomposition temperature:	No further information available.
Auto-ignition temperature:	Not determined.
Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
Explosion limits:	
Lower explosive limit:	No further information available.
Upper explosive limit:	No further information available.
Vapour pressure:	No further information available.
Density at 20 °C:	1.111 g/cm ³ No further information available.
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with water:	No further information available.
Partition coefficient: n-octanol/water:	No further information available.
Viscosity:	Dynamic at 20 °C: 0.61 mPa · s (0.61 cP) Kinematic at 20 °C: 0.0055 cm ² /s (0.55 cSt)
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:

This substance has flammable property. Stored at 8 °C or less because there is a possibility of polymerization. This substance decomposes on heating or on burning producing toxic fumes including hydrogen fluoride. 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: Oxidizing agents

10.6 Hazardous decomposition products: Danger of toxic fluorine based pyrolysis products.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

no data

Toxic if swallowed or in contact with skin.

Fatal if inhaled.

LD/LC50 values relevant for classification:

Oral LD50 68 mg/kg (Rat)

Dermal LD50 270 mg/kg (Rat)

Inhalative LC50 500 mg/m³ (Rat)

Exposure: 2 hours

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE**CAS: 2343-89-7 Methyl 2-fluoroacrylate**

Oral LD50 68 mg/kg (Rat)

Dermal LD50 270 mg/kg (Rat)

Inhalative LC50 500 mg/m³ (Rat)

Exposure: 2 hours

CAS: 68-12-2 N,N-Dimethylformamide

Oral LD50 2800 mg/kg (Rat)

Dermal LD50 4720 mg/kg (Rabbit)

Inhalative LC50/4 h 9400 ppm (Mouse)

Primary irritant effect**Skin corrosion/irritation**

No further information available.

Causes severe burns. Toxic in contact with skin.

Serious eye damage/irritation

No further information available.

Causes serious eye damage.

after inhalation: 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**

May damage the unborn child.

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.**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.**Ecotoxicological effects:** no data**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.**Uncleaned packaging****Recommendation:** Disposal must be made according to official regulations.*** SECTION 14: Transport information****14.1 UN-Number:****ADR, IMDG, IATA**

UN3286

14.2 UN proper shipping name:**ADR:****IMDG, IATA**3286 FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.
FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE**14.3 Transport hazard class(es):****ADR****Class:**

3 Flammable liquids.

IMDG, IATA**Class:**

3 Flammable liquids.

14.4 Packing group:**ADR, IMDG, IATA**

II

14.5 Environmental hazards:**Marine pollutant:**

No

14.6 Special precautions for user:

Warning: Flammable liquids.

EMS Number:

F-E,S-D

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):**

1L

Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

UN "Model Regulation":

UN3286, FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S., 3,

II

*** 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

GHS02 GHS06 GHS08

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

Methyl 2-fluoroacrylate

N,N-Dimethylformamide

Hazard statements

H225 Highly flammable liquid and vapour.

H301+H311 Toxic if swallowed or in contact with skin.

H330 Fatal if inhaled.

H360D May damage the unborn child.

Precautionary statements

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

Printing date 06.06.2018

Version number 1

Revision: 06.06.2018

Trade name: METHYL 2-FLUOROACRYLATE

- P301+P310 *IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*
P303+P361+P353 *IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*
P320 *Specific treatment is urgent (see on this label).*
P405 *Store locked up.*
P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

National regulations No further information available.

Other regulations, limitations and prohibitive regulations: 1

Substances of very high concern (SVHC) according to REACH, Article 57:

CAS: 68-12-2 N,N-Dimethylformamide

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

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 1: Acute toxicity – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Repr. 1B: Reproductive toxicity – Category 1B

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