

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : ReedFOX FM200™
YH-227ea™
MH227™
Substance name : 1,1,1,2,3,3,3-heptafluoropropane
FM No. : PR458007
CAS No. : 431-89-0
EC No. : 207-079-2
UL No. : EX28181-20191031

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Fire-extinguishing agent, it can also be used as refrigerant and medical propellant.
Uses advised against : For professional users only.

1.3. Manufacturer or supplier's details

Importer : PT REEDFOX ULTIMATE INDONESIA
Address : Arcade Business Center 6th Floor, Unit 6-03
Jl. Pantai Indah Utara 2 Kav. C1, Kapuk Muara
Penjaringan, Jakarta Utara 14460
E-mail : halo@reedfox.id
Telephone : +62 (21) 5890-5002
Fax : -
Emergency telephone number : +86 579 266 0119 (China)

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Gases under pressure (Liquefied gases); H280

Classification according to Council Directive 67/548/EEC [DSD]

This product does not meet the criteria for classification in any hazard class according to Directive 67/548/EEC on classification, labelling and packaging of substances.

Additional information

Full text of H-statement(s) : see section 16.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Substance name : 1, 1, 1, 2, 3, 3, 3-heptafluoropropane

Hazard pictogram(s) :



GHS04

Signal word : Warning

Hazard statements : H280 (Contains gas under pressure; may explode if heated.)

Precautionary statements

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

Supplemental Hazard information (EUH)

No information available.

Special rules for supplemental label elements for certain mixtures

No information available.

2.3. Other hazards

Fluorinated greenhouse gases, which has climatic warming potential.

Section 3: Composition/information on ingredients

3.1. Substance information

Substance name	Synonym	CAS No.	EC No.	Molecular formula	Classification according to DSD	% (w/w)
1, 1, 1, 2, 3, 3, 3 – heptafluoropropane	R227, HFC-227ea	431-89-0	207-079-2	C3HF7	No classification	99.6

Substance name	Synonym	CAS No.	EC No.	Molecular formula	Classification according to CLPD	% (w/w)
1, 1, 1, 2, 3, 3, 3 – heptafluoropropane	R227, HFC-227ea	431-89-0	207-079-2	C3HF7	Press. Gas (Liq. Gas); H280	99.6

Remark: The rest unspecified ingredients are impurities, and they are not hazard.

Full text of H-statement(s): see section 16.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

Section 4: First aid measures

4.1. Description of first aid measures

General notes:

In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:

Remove the subject from the contaminated area.

Administer oxygen or cardiopulmonary resuscitation if necessary.

Consult a physician in case of respiratory and nervous symptoms.

Following skin contact:

Allow product to evaporate.

Rinse with lukewarm running water.

Consult a physician in case of persistent pain or redness.

Following eye contact:

Keep eyelids open to allow evaporation of product.

Flush with running water for several minutes, while keeping the eyelids wide open.

Consult an ophthalmologist in case of persistent pain.

Following ingestion:

Ingestion is not considered a potential route of exposure.

Notes for the doctor:

Treat symptomatically and supportively.

Treatment may vary with condition of victim and specifics of incident.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation:

At high concentrations, risk of narcosis, risk of cardiac arrhythmia, and risk of asphyxia by lack of oxygen.

Eyes:

Severe eye irritation, watering, redness and swelling of the eyelids (liquefied gas). Risk of burns (frostbite) (liquefied gas).

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

Skin:

Cold sensation followed by redness of the skin. (liquefied gas). Risk of frostbite. (liquefied gas). In case of repeated contact: dry and chapped skin, risk of chronic dermatitis. (liquefied gas).

4.3. Indication of the immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients symptomatically.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media:

In case of fire in the surroundings: use appropriate extinguishing media.

Unsuitable extinguishing media:

For this substance/mixture no limitations of extinguishing agents are given.

5.2. Special hazards arising from the substance or mixture

Non-flammable. Formation of dangerous gas/vapors in case of decomposition.

5.3. Advice for fire-fighters

Shut off gas supply if this can be done safely. If safe to do so, remove the exposed containers, or cool with large quantities of water. Approach from upwind.

Wear self-contained breathing apparatus when in close proximity or in confined spaces.

Protect intervention team with water spray when approaching the fire.

Stay at a safe distance in a protected location sheltered from possible projectiles.

Never approach containers which have been exposed to fire, without cooling them sufficiently.

After the fire, proceed rapidly to clean the surfaces exposed to the fumes in order to limit the damage to the equipment.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Follow the protective measures given in section 8.

Keep away materials and products which are incompatible with the product (see section 10).

If safe to do so, without overexposing anyone, try to stop the leak.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

In case of leaking container, try to reposition it to get the leak in gaseous phase.
Gas/vapors heavier than air may accumulate in confined spaces, causing possible oxygen depletion.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

Let the product evaporate. Prevent the product from entering sewers or confined places.

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 information on disposal.

Section 7: Handling and storage

7.1. Precautions for safe handling

Prevent product vapors' decomposition from contacting hot spots.
Prevent product vapors' decomposition from electric arc action (welding).
Use only equipment materials which are compatible with the product.
Keep away from ignition and heat sources.
Keep away from reactive products (see section 10).

7.2. Conditions for safe storage, including any incompatibilities Store in a ventilated, cool area.

Keep away from heat sources.
Keep away from reactive products (see section 10).

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8: Exposure controls/personal protection

8.1. Control parameters

There are no currently occupational exposure limit values established for this substance.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

8.2. Exposure controls

Appropriate engineering controls:

DuPont's Acceptable Exposure Limit: 1000 ppm, 8 & 12 h, TWA.

Personal protective equipment:

Eye and face protection : Sufficient eye protection should be worn. When handling compressed gas, at least glasses with side protection should be worn. When handling liquid gas, chemical safety goggles must be used as well as a protective shield.

Skin protection : Body protection:
Use protective boots while handling gas cylinders. Gloves, overalls and boots have to be double-layered (protection against cold temperature).

Hand protection:

Wear leather gloves to prevent frostbite injuries from rapidly expanding gas when handling pressurised gas bottles.

Respiratory protection : In an emergency (e.g.: unintentional release of the substance, exceeding the occupational exposure limit value) respiratory protection must be worn.
Consider the maximum period for wear. Wear self-contained breathing apparatus. Do not use filter respirator.

Environmental exposure controls:

Do not allow material to be released to the environment without the proper governmental permits.

Industrial hygiene:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance : Compressed liquefied gas.
Colour : Clear, colorless
Odour : Ethereal

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

pH	: Neutral
Melting point	: -131 °C (-204 °F)
Boiling point	: -16.5 °C (-2 °F)
Relative Vapor Density	: 4.2 (air = 1)
Specific gravity	: 1.415 at 20 °C (68 °F) (liquid) (H2O = 1)
Vapour pressure	: 3.9 bar at 20 °C (68 °F); 9.16 bar at 50 °C (122 °F)
Partition coefficient (n -octanol/water)	: Log pow = 2.5
Solubility in water	: 0.3 – 0.6 g/ in water at 20 °C (68 °F)
Flash point	: No data available.
Critical Temperature	: 102.8 °C (550.1 °F)
Critical Pressure	: 2.98 Mpa
Flammability	: Non-flammable gas.
Decomposition temperature	: No data available.
Explosive properties	: No data available.
Oxidising properties	: Non oxidizer.
Evaporation rate	: No data available.
Viscosity	: No data available.
Volatile	: 100 WT%

9.2. Other information

No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Decomposes by reaction with high temperature (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid, carbonyl fluorides, carbon monoxide and carbon dioxide.

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Contact with alkaline and alkaline-earth metals provokes violent reactions or explosions.

10.4. Conditions to avoid

Heat / sources of heat.

10.5. Incompatible materials

Alkaline metals and their alloys.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

10.6. Hazardous decomposition products

Hydrofluoric acid, carbonyl fluorides, carbon monoxide and carbon dioxide.

Section 11: Toxicological information

11.1. Toxicokinetics, metabolism and distribution

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

11.2. Information on toxicological effects

Acute toxicity:

Acute Inhalation toxicity	: LC ₅₀ > 788698 ppm/4h (rat) (DUPONT);
Acute Oral toxicity	: Quantitative data on the acute oral/dermal toxicity
Acute Dermal toxicity	: of this product are not available.

Skin corrosion/irritation:

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Serious eye damage/irritation:

Rabbit, non-irritant (eyes). No irritation signs noted during toxicity testing.

Respiratory or skin sensitization:

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

The substance or mixture is not classified as mutagens or toxic to reproduction.

STOT-single exposure and repeated exposure:

The substance or mixture is not classified as specific target organ toxicant, single exposure, repeated exposure.

Additional information:

No data available.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

Section 12: Ecological information

12.1. Toxicity

Acute toxicity to fish	: $LC_0 = 30 \text{ mg/1/96h}$ (<i>Brachydanio rerio</i>);
Acute toxicity to daphnia	: Quantitative data on the acute daphnia toxicity of this product are not available.
Acute toxicity to bacteria	: Quantitative data on the acute daphnia toxicity of this product are not available.

12.2. Persistence and degradability

Aerobic, test ready biodegradability/closed bottle, = 20%, 28 day(s). Not readily biodegradable.

12.3. Bioaccumulative potential

Log $pow = 2.5$. No appreciable bioaccumulation potential is to be expected (log Pow 1-3).

12.4. Mobility in soil

Air, Henry's law constant (H) ca. $264 \text{ GPa.m}^3/\text{mol}$ - considerable volatility.

12.5. Results of PBT and vPvB assessment

PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

12.6. Other adverse effects

Global warming potential (GWP) = 3500
Fluorinated greenhouse gases, which has climatic warming potential.
Product is persistent in air without impact on the ozone layer (atmospheric lifetime: 36.5 yr).
Product is not significantly hazardous for the aquatic environment as: Considerable volatility,
Low bioaccumulation potential.

Section 13: Disposal considerations

13.1. Waste treatment methods

Compressed gas cylinders can normally be returned to the supplier. Pressurised cans are non-returnable and must be disposed of. Do not empty pressure vessels to the point of pressure compensation. Mark empty vessels to avoid confusion with full ones.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

Section 14: Transport information

14.1. Land transport (ADR/RID/GGVSE)

UN-No. : 3296
Official transport designation : HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)
Class : 2.2
Classification Code : 2A
Packing group : –
Hazard label : 2.2

14.2. Sea transport (IMDG-Code/GGVSee)

Proper Shipping Name : HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)
Class : 2.2
UN-No. : 3296
Packing group : –

14.3. Air transport (ICAO-TI/IATA-DGR)

Proper Shipping Name : HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)
Class : 2.2
UN-No. : 3296
Packing group : –

14.4. Additional information

No data available.

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture EU regulation:

Authorisations : No information available.
Restrictions on use : No information available.
EINECS : This substance is listed in the inventory.
DSD (67/548/EEC) : This substance is not listed in the Annex I.
Regulation (EC) No 842/2006 : This substance is listed in the Annex I of Regulation (EC) No 842/2006 on substances that deplete the ozone layer.

Other chemical regulation:

USA – TSCA : This substance is listed in the inventory.
Canada – DSL : This substance is listed in the inventory.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

Australia – AICS	: This substance is listed in the inventory.
Korea – ECL	: This substance is listed in the inventory.
Japan – ENCS	: This substance is listed in the inventory.
China – IECSC	: This substance is listed in the inventory.

15.2. Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

Section 16: Other information

16.1. Revision Information:

Date of the previous revision: Not applicable. Date of this revision: 28/12/2010.
Revision summary: The first new SDS

16.2. Abbreviations and acronyms

CLP	: EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.
CAS	: Chemical Abstracts Service (division of the American Chemical Society).
EINECS	: European Inventory of Existing Commercial Chemical Substances.
IARC	: International agency for research on cancer.
RID	: European Rail Transport.
IMDG	: International Maritime Code for Dangerous Goods.
IATA	: International Air Transport Association.
DSD	: Dangerous Substance Directive (67/548/EEC).
TSCA	: Toxic Substances Control Act, The American chemical inventory.
DSL	: Domestic Substances List, The Canadian chemical inventory.
AICS	: The Australian Inventory of Chemical Substances.
ECL	: Existing Chemicals List, the Korean chemical inventory.
ENCS	: Japanese Existing and New Chemical Substances.
IECSC	: Inventory of existing chemical substances in China.

16.3. Key literature references and sources for data

ESIS IUCLID Dataset: European chemical Substances Information System.
NLM Dataset : United States National library of medicine.

16.4. Relevant H-statements

H-statements (code and full text):

H280: Contains gas under pressure; may explode if heated.

SAFETY DATA SHEET

ReedFOX FM200™ Fire Extinguishing Agent

According to Regulation (EU) No. 1907/2006 (REACH), Annex II



Tradename : ReedFOX FM200™
SDS Number : RFX.FSS-1303126-EN6.2B

Date of last issue : 6/6/2023
Version : 1.0 (EN)

16.5. Training advice

Provide adequate information, instruction and training for operators.

16.6. Declare to reader

The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable. According to REACH Article 31(5), the SDS shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It should also be noted that this SDS is applicable to the countries with English as an official language.

----- End of the SDS -----