



## **FM-200™**

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

This Safety Data Sheet adheres to the standards and regulatory requirements of Iceland and may not meet the regulatory requirements in other countries.

### **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

#### **1.1. Product identifier**

Product name : FM-200™

Registration number : 01-2119485489-18-0001

Synonyms : 1,1,1,2,3,3,3-Heptafluoropropane  
HFC-227ea

Identification number : CAS-No. 431-89-0 EC-No. 207-079-2

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

Use of the Substance/Mixture : Fire extinguishing agent, For professional users only.

#### **1.3. Details of the supplier of the safety data sheet**

Company : Chemours Netherlands B.V.  
Baanhoekweg 22  
NL-3313 LA Dordrecht  
Netherlands

Telephone : +31-(0)-78-630-1011

Telefax : +31-78-6163737

E-mail address : sds-support@chemours.com

#### **1.4. Emergency telephone number**

Emergency telephone number : +(44)-870-8200418 (CHEMTREC - Recommended)  
: 543 2222 (Poison center phone number - Landspítal)

### **SECTION 2: Hazards identification**

#### **2.1. Classification of the substance or mixture**

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

#### **2.2. Label elements**



**FM-200™**

Version 3.0 (replaces: Version 2.1)  
Revision Date 04.02.2016

Ref. 130000036866



**Warning**

H280	Contains gas under pressure; may explode if heated.
Special labelling of certain substances and mixtures	Kyoto: Contains fluorinated greenhouse gas covered by the Kyoto Protocol.,HFC-227ea,
P410 + P403	Protect from sunlight. Store in a well-ventilated place.

**2.3. Other hazards**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).  
This substance is not considered to be very persistent and very bioaccumulating (vPvB).  
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.  
Rapid evaporation of the liquid may cause frostbite.  
Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.  
May cause cardiac arrhythmia.

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

**3.1. Substances**

Registration number	Classification according to Regulation (EU) 1272/2008 (CLP)	Concentration (% w/w)
<b>1,1,1,2,3,3,3-Heptafluoropropane (CAS-No.431-89-0) (EC-No.207-079-2)</b>		
01-2119485489-18-0001	Press. Gas Liquefied gas; H280	>= 99 %

**3.2. Mixtures**

Not applicable

The above products are compliant to REACH registration obligations; Registration number(s) may not be provided because substance(s) are exempted, not yet registered under REACH or are registered under another regulatory process (biocide uses, plant protection products), etc.



**FM-200™**

Version 3.0 (replaces: Version 2.1)  
Revision Date 04.02.2016

Ref. 130000036866

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

- General advice : If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician.
- Inhalation : Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary.
- Skin contact : Wash off with warm water. Take off all contaminated clothing immediately.
- Eye contact : Rinse thoroughly with plenty of water, also under the eyelids. Call a physician.

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

- Symptoms : For further information see Section 11.

**4.3. Indication of any immediate medical attention and special treatment needed**

- Treatment : Do not give adrenaline or similar drugs.

**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**5.2. Special hazards arising from the substance or mixture**

- Specific hazards during firefighting : Pressure build-up.

**5.3. Advice for firefighters**

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
- Further information : Cool containers/tanks with water spray.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**



## FM-200™

Version 3.0 (replaces: Version 2.1)  
Revision Date 04.02.2016

Ref. 130000036866

Personal precautions : Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.

### 6.2. Environmental precautions

Environmental precautions : Should not be released into the environment.  
In accordance with local and national regulations.

### 6.3. Methods and materials for containment and cleaning up

Methods for cleaning up : Evaporates.

### 6.4. Reference to other sections

For disposal instructions see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.

Advice on protection against fire and explosion : No special protective measures against fire required.

### 7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Store in original container.

Advice on common storage : No materials to be especially mentioned.

### 7.3. Specific end use(s)

no data available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

If sub-section is empty then no values are applicable.

### Derived No Effect Level (DNEL)

- 1,1,1,2,3,3,3-Heptafluoropropane : Type of Application (Use): Workers  
Exposure routes: Inhalation  
Health Effect: Chronic effects, Systemic toxicity



## FM-200™

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

Value: 61279 mg/m<sup>3</sup>

: Type of Application (Use): Consumers  
Exposure routes: Inhalation  
Health Effect: Chronic effects, Systemic toxicity  
Value: 6533 mg/m<sup>3</sup>

### Predicted No Effect Concentration (PNEC)

- 1,1,1,2,3,3,3-Heptafluoropropane
  - : Value: 0,1 mg/l  
Compartment: Fresh water
  - : Value: 1 mg/l  
Compartment: Water  
Remarks: Intermittent use/release
  - : Value: 1,3 mg/kg  
Compartment: Fresh water sediment
  - : Value: 1,73 mg/kg  
Compartment: Water  
Remarks: Sewage treatment plants

### 8.2. Exposure controls

- Engineering measures : Ensure adequate ventilation, especially in confined areas.
- Eye protection : Safety glasses
- Hand protection : Material: Heat insulating gloves
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
- Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

- Form : Liquefied gas
- Colour : colourless
- Odour : slight, ether-like
- Freezing point : -129,5 °C



## FM-200™

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

Boiling range	: -18 - -16 °C
Flammability (solid, gas)	: The product is not flammable.
Explosive properties	: Not explosive
Lower explosion limit/ lower flammability limit	: Type: lower flammability limit, Not applicable
Upper explosion limit/ upper flammability limit	: Type: upper flammability limit, Not applicable
Vapour pressure	: 540 hPa at -30 °C : 29 360 hPa at 123 °C
Density	: 1,4 - 1,5 g/cm <sup>3</sup> at 25 °C, (as liquid)
Water solubility	: 0,23 g/l at 25 °C
Partition coefficient: n-octanol/water	: Pow: 2,289
Relative vapour density	: 5,8

### 9.2. Other information

Phys.-chem./other information : No other data to be specially mentioned.

## SECTION 10: Stability and reactivity

10.1. Reactivity	: Decomposes on heating.
10.2. Chemical stability	: The product is chemically stable.
10.3. Possibility of hazardous reactions	: Stable at normal temperatures and storage conditions.
10.4. Conditions to avoid	: The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions.
10.5. Incompatible materials	: Alkali metals Alkaline earth metals Powdered metals Powdered metal salts



**FM-200™**

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

**10.6. Hazardous decomposition products** : Hazardous thermal decomposition products may include:  
Hydrogen halides  
Carbon oxides  
Fluorocarbons  
Carbonyl halides

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

Acute inhalation toxicity

- 1,1,1,2,3,3,3-Heptafluoropropane  
LC50 / 4 h Rat :> 788696 ppm  
Method: OECD Test Guideline 403  
Central nervous system effects Respiratory effects

No Observed Adverse Effect Concentration / Dog :90000 ppm  
Cardiac sensitization

Low Observed Adverse Effect Concentration (LOAEC) / Dog :105000 ppm  
Cardiac sensitization

Sensitisation

- 1,1,1,2,3,3,3-Heptafluoropropane  
human  
Classification: Does not cause respiratory sensitisation.  
Result: Does not cause respiratory sensitisation.

Repeated dose toxicity

- 1,1,1,2,3,3,3-Heptafluoropropane  
Inhalation Rat  
NOAEL: 731,69 mg/l  
No toxicologically significant effects were found.

Mutagenicity assessment

- 1,1,1,2,3,3,3-Heptafluoropropane  
Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity assessment

- 1,1,1,2,3,3,3-Heptafluoropropane  
Not classifiable as a human carcinogen. Animal testing did not show any carcinogenic effects.

Toxicity to reproduction assessment



## FM-200™

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

- 1,1,1,2,3,3,3-Heptafluoropropane  
No toxicity to reproduction Animal testing showed no reproductive toxicity.

### Assessment teratogenicity

- 1,1,1,2,3,3,3-Heptafluoropropane  
Animal testing showed no developmental toxicity.

### Human experience

Excessive exposures may affect human health, as follows:

#### Inhalation

Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects., Other symptoms potentially related to misuse or inhalation abuse are:., Anaesthetic effects, Light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness

#### Skin contact

Frostbite

#### Eye contact

Frostbite

### Further information

Cardiac sensitisation threshold limit : 730190 mg/m3

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Toxicity to fish

- 1,1,1,2,3,3,3-Heptafluoropropane  
LC50 / 96 h / Danio rerio (zebra fish): > 200 mg/l  
Method: OECD Test Guideline 203  
Information given is based on data obtained from similar substances.

#### Toxicity to aquatic plants

- 1,1,1,2,3,3,3-Heptafluoropropane  
ErC50 / 72 h / Pseudokirchneriella subcapitata (green algae): > 114 mg/l  
Method: OECD Test Guideline 201  
Information given is based on data obtained from similar substances.

NOEC / 72 h / Pseudokirchneriella subcapitata (green algae): 13,2 mg/l  
Method: OECD Test Guideline 201





## FM-200™

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

Information given is based on data obtained from similar substances.

### Toxicity to aquatic invertebrates

- 1,1,1,2,3,3,3-Heptafluoropropane  
EC50 / 48 h / Daphnia magna (Water flea): > 200 mg/l  
Method: OECD Test Guideline 202  
Information given is based on data obtained from similar substances.

### 12.2. Persistence and degradability

#### Biodegradability

- 1,1,1,2,3,3,3-Heptafluoropropane  
Method: OECD Test Guideline 301D  
Not biodegradable

### 12.3. Bioaccumulative potential

no data available

### 12.4. Mobility in soil

no data available

### 12.5. Results of PBT and vPvB assessment

#### PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). / This substance is not considered to be very persistent and very bioaccumulating (vPvB).

### 12.6. Other adverse effects

#### Ozone depletion potential

0

#### Global warming potential (GWP)

3500

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product : Can be used after re-conditioning.

Contaminated packaging : Empty pressure vessels should be returned to the supplier.



**FM-200™**

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

**SECTION 14: Transport information**

**ADR**

- |                                     |   |
|-------------------------------------|---|
| 14.1. UN number:                    | 3296                                    |
| 14.2. UN proper shipping name:      | HEPTAFLUOROPROPANE                      |
| 14.3. Transport hazard class(es):   | 2                                       |
| 14.4. Packing group:                | Not applicable                          |
| 14.5. Environmental hazards:        | For further information see Section 12. |
| 14.6. Special precautions for user: |   |
| Tunnel restriction code:            | (C/E)                                   |

**IATA\_C**

- |                                     |   |
|-------------------------------------|---|
| 14.1. UN number:                    | 3296                                    |
| 14.2. UN proper shipping name:      | Heptafluoropropane                      |
| 14.3. Transport hazard class(es):   | 2.2                                     |
| 14.4. Packing group:                | Not applicable                          |
| 14.5. Environmental hazards :       | For further information see Section 12. |
| 14.6. Special precautions for user: |   |
| no data available                   |   |

**IMDG**

- |                                     |   |
|-------------------------------------|---|
| 14.1. UN number:                    | 3296                                    |
| 14.2. UN proper shipping name:      | HEPTAFLUOROPROPANE                      |
| 14.3. Transport hazard class(es):   | 2.2                                     |
| 14.4. Packing group:                | Not applicable                          |
| 14.5. Environmental hazards :       | For further information see Section 12. |
| 14.6. Special precautions for user: |   |
| no data available                   |   |

**14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code**

Not applicable

**SECTION 15: Regulatory information**

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

Other regulations : Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**15.2. Chemical Safety Assessment**

A Chemical Safety Assessment has been carried out for this substance.  
An Exposure Scenario (ES) is not required.

**SECTION 16: Other information**

**Full text of H-Statements referred to under section 3.**

H280 Contains gas under pressure; may explode if heated.



## **FM-200™**

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866

### **Abbreviations and acronyms**

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
CAS-No.	Chemical Abstracts Service number
CLP	Classification, Labelling and Packaging
EbC50	Concentration at which 50% reduction of biomass is observed
EC50	Median effective concentration
EN	European Norm
EPA	Environmental Protection Agency
ErC50	Concentration at which a 50% inhibition of growth rate is observed
EyC50	Concentration at which 50 % inhibition of yield is observed
IATA_C	International Air Transport Association (Cargo)
IBC	International Bulk Chemical Code
ICAO	International Civil Aviation Organization
ISO	International Standard Organization
IMDG	International Maritime Dangerous Goods
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
LOEC	Lowest Observed Effect Concentration
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No observed adverse effect level
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
OPPTS	Office of Prevention, Pesticides and Toxic Substances
PBT	Persistent, Bioaccumulative and Toxic
STEL	Short term exposure limit
TWA	Time Weighted Average (TWA):
vPvB	very Persistent and very Bioaccumulative

### **Further information**

Chemours™ and the Chemours Logo are trademarks of The Chemours Company.  
Before use read Chemours safety information., For further information contact the local Chemours office or nominated distributors.

Significant change from previous version is denoted with a double bar.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.



***FM-200***<sup>™</sup>

Version 3.0 (replaces: Version 2.1)

Revision Date 04.02.2016

Ref. 130000036866