



1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance

Product Name: "PYRO-CHEM FM-200"
Chemical Name: 1,1,1,2,3,3,3-Heptafluoropropane.
CAS No.: 431-89-0.
Chemical Formula: C₃HF₇.
EINECS Number: 207-079-2.

1.2. Use of the preparation

The intended or recommended use of this preparation is as a FIRE EXTINGUISHING AGENT.

1.3. Company identification

Manufacturer/Supplier: PYRO-CHEM
Address: One Stanton Street, Marinette, WI 54143-2542
Prepared by: Safety and Health Department
Phone: 715-732-3465
Internet/Home Page: <http://www.pyrochem.com>
Date of Issue: September, 2009

1.4. Emergency telephone

CHEMTREC 800-424-9300 or 703-527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. Ingredient Name: 1,1,1,2,3,3,3-Heptafluoropropane.
Chemical Formula: C₃HF₇.
CAS No.: 431-89-0.
EINECS Number: 207-079-2.
Concentration, Wt %: > or = 99.9 %.
Hazard Identification: See Heading 3.

- 2.2. (i) There are NO substances presenting a health or environmental hazard within the meaning of Directive 67/548/EEC, in concentrations equal to or greater than those laid down in the table set out in Article 3(3) of Directive 1999/45/EC, nor with lower limits given in Annex I to Directive 67/548/EEC or in Annexes II, III or V to Directive 1999/45/EC.
- (ii) There are NO substances for which there are Community workplace exposure limits, which are not already included in (i) above.

3. HAZARDS IDENTIFICATION

FOR HUMANS:

EU Classification: Nonflammable Gas.
R Phrases: None.
S Phrases: 9 Keep container in a well ventilated place.

Limit Values for Exposure: None established.

Neither this preparation nor the substances contained in it have been listed as carcinogenic by National Toxicology Program, I.A.R.C., or OSHA.

AS PART OF GOOD INDUSTRIAL AND PERSONAL HYGIENE AND SAFETY PROCEDURE, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes, and clothing.

SIGNS AND SYMPTOMS:

Acute Exposure:

Eye Contact: Chilling or possible frostbite effects may occur if the liquid or escaping vapors contact the eyes.

Skin Contact: Chilling or frostbite can occur if liquid or escaping vapor directly contacts the skin.

Inhalation: Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation and/or heart irregularities (arrhythmias). Misuse of the product by deliberately inhaling high concentrations of this gas could cause death without warning.

Ingestion: Ingestion is not likely to occur since this material is a gas at room temperature.

Chronic Overexposure: No data available.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Persons with preexisting cardiac, respiratory, or central nervous system disorders may be more susceptible to effects of an overexposure. The use of epinephrine or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of compounds.

FOR ENVIRONMENT:

Do not allow to enter public sewers and watercourses.

4. FIRST AID MEASURES

Eye Contact: Wash with water for a minimum of 15 minutes. Seek medical attention.
Skin Contact: Wash affected area with water. If frost-bite occurs, seek medical attention.
Inhalation: Remove from exposure. If breathing is difficult, give oxygen. Seek medical attention.
Ingestion: Not applicable.

NOTES TO PHYSICIANS: The use of epinephrine (adrenaline) or similar compounds can increase susceptibility to heart irregularities caused by excessive exposure to these types of substances.

5. FIRE-FIGHTING MEASURES

This substance is an extinguishing media.

There are NO extinguishing media which must not be used for safety reasons.

Though gas cylinders are equipped with pressure and temperature relief devices, they should be removed from high temperatures of fire or cooled with water to avoid risk of rupture.

Substance evolves toxic fumes, fire-fighters should wear self-contained breathing apparatus.

See Heading 10.3 for decomposition products.

Do not allow reentry into areas where this substance has been released without first ventilating to remove products of combustion/decomposition.

6. ACCIDENTAL RELEASE MEASURES

Evacuate the area and ventilate. Do not enter areas where high concentrations may exist (especially confined or poorly ventilated areas) without appropriate protective equipment including a self-contained breathing apparatus.

For personal protection: Prevent direct skin and eye contact, see Heading 8.

Clean up: Allow substance to evaporate.

Do not allow to enter public sewers and watercourses.

7. HANDLING AND STORAGE

7.1. Handling

Care should be taken in handling all chemical substances and preparations.

Use the same precautions as in handling any cryogenic gas.

See incompatibility information in Heading 10.

7.2. Storage

Store in a cool, dry, well-ventilated area.

See incompatibility information in Heading 10.

Store in original container. Keep tightly closed until used.

When the material is used as a firefighting agent in fixed or portable extinguishing systems, follow manufacturer's instructions for inspection, maintenance, repair, and operation.

Do not allow to enter public sewers and watercourses.

7.3. Specific use

The intended or recommended use of this preparation is as a FIRE EXTINGUISHING AGENT.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

FM-200

AEL * (DuPont) : 1000 ppm, 8 & 12 Hr. TWA

*AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

8.2. Exposure controls

8.2.1. Occupational exposure controls

8.2.1.1. Respiratory protection

Use local ventilation to minimize exposure to the substance.

Use mechanical ventilation for general area control.

Wear an approved self-contained breathing apparatus in emergency situations.

8.2.1.2. Hand protection

Use lined neoprene gloves when handling the liquid.

8.2.1.3. Eye protection

Wear chemical goggles when handling liquid.

8.2.1.4. Skin protection

Standard fire fighting equipment should provide all protection which is necessary.

8.2.2. Environmental exposure controls

Do not allow to enter public sewers and watercourses.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information

Appearance: Colorless gas.

Odor: None.

9.2. Important health, safety, and environmental information

pH: Not applicable.

Boiling point/boiling range: -16.4 °C (3 °F).

Flash point: None.

Flammability (solid/gas): Not flammable.

Explosive properties: Not explosive.

Oxidizing properties: Not an oxidizer.

Vapor Pressure: 65.7 psia at 77 °F (25 °C).

Relative Density (water =1): 1.386 77 °F (25 °C).

Solubility:

– Water solubility: 260 mg/L.

– Fat solubility: Not determined.

Partition coefficient, n-octanol/water: Not determined.

Viscosity: Not determined.

Vapor density (Air = 1): 6.04.

Evaporation rate

(Butyl Acetate = 1): Not determined.

9.3. Other information

Auto-ignition temperature: Does not ignite.

10. STABILITY AND REACTIVITY

10.1. Conditions to avoid

There are NO known conditions such as temperature, pressure, light, shock, etc., which may cause a dangerous reaction.

10.2. Materials to avoid

Powdered metals (example Al, Mg, or Zn) and strong alkalis, oxidizers or reducing agents are not compatible with this and most other halogenated organic compounds

10.3. Hazardous decomposition products

Normally stable.

Hazardous polymerization will NOT occur.

Combustion or decomposition products include hydrofluoric acid, carbonyl fluorides, carbon monoxide, and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Toxicity Data:

Inhalation LC₅₀ (rat): >7,200 mg/L/4 hr; >788,696 ppm/4 hr.

(This is about 80 %.)

Direct contact with eyes or skin by liquid can cause frost-bite.

Cardiac sensitization in dogs found a No Observable Adverse Effect Level (NOAEL) to be 9.0%.

A 90 day inhalation study did not find any exposure related effects at 105,000 ppm (10.5% vol/vol), the highest level tested.

Inhalation studies on developmental effects in pregnant rabbits and rats or their offspring did not show any exposure related effects up to the highest level tested, 105,000 ppm.

Mutagenicity (Ames test): Negative.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

Not determined.

12.2. Mobility

Not determined.

12.3. Persistence and degradability

Not determined.

12.4. Bioaccumulative potential

Not determined.

12.5. Other adverse effects

Ozone depletion potential: None.

Photochemical ozone creation potential: None

Global warming potential: None

13. DISPOSAL CONSIDERATIONS

Non-contaminated product is reclaimable.

Do not allow to enter public sewers and watercourses.

Dispose of waste in an approved chemical incinerator equipped with a scrubber in compliance with national, regional, and local provisions that may be in force.

14. TRANSPORT INFORMATION

Proper Shipping Name: Heptafluoropropane.

Hazard Class or Division: 2.2.

UN ID Number: UN3296

Label: Nonflammable gas.

For additional transport information, contact PYRO-CHEM.

Do not allow to enter public sewers and watercourses.

15. REGULATORY INFORMATION

EU Classification: Nonflammable Gas.

R Phrases: None.

S Phrases: 9 Keep container in a well ventilated place.

Exposure Limit Values: None.

EINECS Status: All components are included in EINECS inventories or are exempt from listing.

EPA TSCA Status: All components are included in TSCA inventories or are exempt from listing.

Canadian DSL (Domestic Substances List): All components are included in the DSL or are exempt from listing.

Environmental restrictions: None are known.

Restrictions on Marketing and Use: None are known.

Refer to any other national measures that may be relevant.

16. OTHER INFORMATION

(HMIS) HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS:

HEALTH:	<u>1</u>	4. Severe Hazard
FLAMMABILITY:	<u>0</u>	3. Serious Hazard
REACTIVITY:	<u>0</u>	2. Moderate Hazard
		1. Slight Hazard
		0. Minimal Hazard

(WHMIS) CANADIAN WORKPLACE HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS:

This product is rated **Class A – Compressed gas**.

Format is from directive 2001/58/EC.

EINECS data is from <http://exb.jrc.it/existing-chemicals/>

Data used to compile the data sheet is from DuPont Material Safety Data Sheet, February, 2008.

The EU Classification has been given in accordance with Directive 1999/45/EC and information in the EINECS ESIS files (Existing Substances Information System).

A rating under WHMIS has been added, following the Canadian guidelines.

17. DISCLAIMER

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. PYRO-CHEM SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT.