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

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**1.1. Identification of the preparation**

Product Name: "FE-36"  
Chemical Name: 1,1,1,3,3,3-Hexafluoropropane.  
CAS No.: 690-39-1.  
Chemical Formula: C<sub>3</sub>H<sub>2</sub>F<sub>6</sub>.  
EINECS Number: 425-320-1.

**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

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**2. COMPOSITION/INFORMATION ON INGREDIENTS**

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2.1. Ingredient Name: 1,1,1,3,3,3-Hexafluoropropane.  
Chemical Formula: C<sub>3</sub>H<sub>2</sub>F<sub>6</sub>.  
CAS No.: 690-39-1.  
EINECS Number: 425-320-1.  
Concentration, Wt %: 100 %.  
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.

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**3. HAZARDS IDENTIFICATION**

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## 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.

AEL\*: 1000 ppm, 8 and 12 hour TWA (DuPont).

[\*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.]

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:	"Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes.
Skin Contact:	Frostbite can occur if liquid or escaping vapor contacts the skin.
Inhalation:	Based on animal data, this material may cause suffocation (if air is displaced by vapors), irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death.

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: This material may make the heart more susceptible to arrhythmias.

FOR ENVIRONMENT:

Do not allow to enter public sewers and watercourses. See Heading 12.

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#### 4. FIRST AID MEASURES

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Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes while holding lids open. Get medical attention. Treat for frostbite if necessary.

Skin Contact: Flush areas with lukewarm water. If frostbite has occurred do not use hot water. Get medical attention.

Inhalation: Immediately remove victim to fresh air, keep person calm. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Consult medical personnel.

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.

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#### 5. FIRE-FIGHTING MEASURES

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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.

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#### 6. ACCIDENTAL RELEASE MEASURES

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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. See Heading 12.

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#### 7. HANDLING AND STORAGE

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##### 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. See Heading 12.

##### 7.3. Specific use

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

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1. Exposure limit values

There are NO currently occupational exposure limit values for this substance.

### 8.2. Exposure controls

#### 8.2.1. Occupational exposure controls

Use local ventilation to minimize exposure to the substance.

Use mechanical ventilation for general area control.

##### 8.2.1.1. Respiratory protection

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. See Heading 12.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1. General information

Appearance: Colorless gas or liquefied gas.

Odor: None.

### 9.2. Important health, safety, and environmental information

pH: Not determined.

Boiling point/boiling range:  $-1.4\text{ }^{\circ}\text{C}$ .

Flash point: None,

Flammability (solid/gas): Not flammable.

Explosive properties: Not explosive.

Oxidizing properties: Not an oxidizer.

Vapor Pressure: 272.4 kPa at 25  $^{\circ}\text{C}$  (39.9 psia).

Relative Density (Water = 1): 1.370.

Solubility:

– Water solubility: Negligible.

– Fat solubility: Not determined.

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

Viscosity: Not determined.

Vapor density (Air = 1):  $>1$ .

Evaporation rate  
(Butyl Acetate): Not determined.

### 9.3. Other information

Auto-ignition temperature: Does not ignite.

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**10. STABILITY AND REACTIVITY**

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**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**

Strong bases and metallic sodium, potassium, or lithium.

**10.3. Hazardous decomposition products**

Normally stable.

Hazardous polymerization will NOT occur.

Combustion or decomposition products include hydrogen fluoride, carbon monoxide, and carbon dioxide.

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**11. TOXICOLOGICAL INFORMATION**

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Toxicity Data: Inhalation (rat) ALC: >189,000 ppm/4 hrs.

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

Single exposure caused: Narcosis. Cardiac sensitization, a potentially fatal disturbance of heart rhythm associated with a heightened sensitivity to the action of epinephrine (NOAEL, 10%; LOAEL, 15%).

Repeated exposure caused: No significant toxicological effects.

No-Observed-Adverse-Effect-Level (NOAEL): 20,000 ppm.

CARCINOGENIC, DEVELOPMENTAL, REPRODUCTIVE, MUTAGENIC EFFECTS: Limited studies do not suggest developmental toxicity. Specific studies to evaluate the effect on female reproductive performance have not been conducted; however, limited information obtained from studies on developmental toxicity do not indicate adverse effects on female reproductive performance. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures. No animal data are available to define the carcinogenicity of this material .

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**12. ECOLOGICAL INFORMATION**

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**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

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**13. DISPOSAL CONSIDERATIONS**

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Non-contaminated product is reclaimable.

Do not allow to enter public sewers and watercourses. See Heading 12.

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.

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**14. TRANSPORT INFORMATION**

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Proper Shipping Name: Hexafluoropropane.

Hazard Class or Division: 2.2.

UN ID Number:

Label: Nonflammable gas.

For additional transport information, contact PYRO-CHEM.

Do not allow to enter public sewers and watercourses. See Heading 12.

## 15. REGULATORY INFORMATION

EU Classification: Nonflammable Gas.  
 R Phrases: None.  
 S Phrases: 9 Keep container in a well ventilated place.  
 Limit Values for Exposure: None established.  
 AEL\*: 1000 ppm, 8 and 12 hour TWA (DuPont).

[\*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.]

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>1</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 PYRO-CHEM Material Safety Data Sheet, January, 2002.

The EC listing information was obtained from DuPont Company.

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.

N/A = Not Applicable

NDA = No Data Available