



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

### 1.1. Identification of the preparation

Product Name: "3M™ Novec™ 1230 Fire Protection Fluid  
Chemical Name: 1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone.  
CAS No.: 756-13-8.  
Chemical Formula:  $\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$ .  
EINECS Number: Product complies with chemical notification requirements.  
NOTE: "3M" and "Novec" are Trademarks of the 3M Company.

### 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, 2006

### 1.4. Emergency telephone

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

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. Ingredient Name: 1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone.  
Chemical Formula:  $\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$ .  
CAS No.: 756-13-8.  
EINECS Number: Product complies with chemical notification requirements.  
Concentration, Wt %: > 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.

**NOTE:** Unless a component presents a severe hazard, it does not need to be considered in the MSDS if the concentration is less than 1%. [According to Directive 1999/45/EC.]

## 3. HAZARDS IDENTIFICATION

FOR HUMANS:

EU Classification: This product is not classified as dangerous according to Directive 1999/45/EC.

Limit Values for Exposure:

1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone  
TWA Limit: 150 ppm. Limit set by 3M Company.

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. DO NOT eat, drink or smoke when using this product.

**SIGNS AND SYMPTOMS:****Acute Exposure:**

**Eye Contact:** Contact with the eyes during product use is not expected to result in significant irritation.  
**Skin Contact:** Contact with the skin during product use is not expected to result in significant irritation.  
**Inhalation:** Prolonged or repeated exposure, above recommended guidelines, may be absorbed following inhalation and cause target organ effects.

**Ingestion:** No health effects are expected.

**Chronic Overexposure:** Prolonged or repeated exposure, above recommended guidelines may cause liver effects. Signs or symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness, and jaundice.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** None known.

**FOR ENVIRONMENT:**

NO harm to the environment is expected from an accidental release of this preparation. See Heading 12 ECOLOGICAL INFORMATION.

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**4. FIRST AID MEASURES**

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**Eye Contact:** Flush eyes with large amounts of water. If signs or symptoms persist, get medical attention.  
**Skin Contact:** Wash affected area with soap and water. If signs or symptoms persist, get medical attention.  
**Inhalation:** If signs or symptoms develop, remove person to fresh air. If signs or symptoms persist, get medical attention.  
**Ingestion:** Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. If signs or symptoms develop, get medical attention.

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**5. FIRE-FIGHTING MEASURES**

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This preparation is a fire extinguishing agent.

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

Fire fighters should wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

See Heading 10 STABILITY AND REACTIVITY for hazardous combustion and thermal decomposition information.

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**6. ACCIDENTAL RELEASE MEASURES**

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**For personal protection:** Prevent skin and eye contact, see Heading 8 EXPOSURE CONTROLS/PERSONAL PROTECTION.

**Clean up:** Ventilate the area with fresh air. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue. Place in a metal container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible. See Heading 13 DISPOSAL CONSIDERATIONS.

NO harm to the environment is expected from an accidental release of this preparation. See Heading 12 ECOLOGICAL INFORMATION.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

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**7. HANDLING AND STORAGE**

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**7.1. Handling**

Avoid eye contact with vapors, mists, or spray. Avoid breathing of vapors, mists or spray.

Contents may be under pressure, open carefully.

See incompatibility information in Heading 10 STABILITY AND REACTIVITY.

**7.2. Storage**

Keep container in well-ventilated area.

See incompatibility information in Heading 10 STABILITY AND REACTIVITY.

Store in original container. Keep tightly closed until used.

There is minimal danger to the environment from a storage release. See Heading 12 ECOLOGICAL INFORMATION.

**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

1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone  
TWA Limit: 150 ppm. Limit set by 3M Company.

### 8.2. Exposure controls

Do not eat, drink or smoke when using this product.

#### 8.2.1. Occupational exposure controls

##### 8.2.1.1. Respiratory protection

Avoid breathing of vapors, mists or spray.

Under normal use conditions, airborne concentrations are not expected to be significant enough to require respiratory protection.

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece or fullface air-purifying respirator with organic vapor cartridges.

Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

If thermal decomposition occurs, wear supplied air respiratory protection.

##### 8.2.1.2. Hand protection

Butyl Rubber gloves are recommended.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

##### 8.2.1.3. Eye protection

Indirect Vented Goggles are recommended.

##### 8.2.1.4. Skin protection

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

#### 8.2.2. Environmental exposure controls

There is minimal danger to the environment from a storage release. See Heading 12 ECOLOGICAL INFORMATION.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. General information

Appearance: Clear, colorless liquid.  
Odor: Low odor.

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

pH: Not applicable.  
Boiling point/boiling range: 49.2 °C (120.6 °F).  
Heat of vaporization  
  @ boiling point: 88.0 kJ/kg (37.9 BTU/lb).  
Freezing point: -108 °C (-162.4 °F).  
Flash point: Not applicable.  
Flammability (solid/gas): Not applicable.  
Explosive properties: Not applicable.  
Oxidizing properties: Not an oxidizer.  
Vapor Pressure: 244 mmHg, at 20 °C.  
Relative Density (Water = 1): 1.6.  
Solubility: — Water solubility: <0.001 % by weight.  
          — Fat solubility: Not determined.  
Partition coefficient,  
  n-octanol/water: Not determined.  
Viscosity: 0.6 centipoise, at 25 °C.  
Vapor density (Air = 1): 11.6.  
Evaporation rate  
  (Butyl Acetate = 1): > 1.

### 9.3. Other information

Auto-ignition temperature: Not applicable.

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## 10. STABILITY AND REACTIVITY

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### 10.1. Conditions to avoid

Avoid direct sunlight and ultraviolet light.

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

### 10.2. Materials to avoid

Strong bases, amines, or alcohols.

### 10.3. Hazardous decomposition products

Normally stable.

Hazardous polymerization will NOT occur.

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

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## 11. TOXICOLOGICAL INFORMATION

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Product:

Toxicity Data:	Inhalation LC50 (rat)	>10 % v/v.
	NOAEL for cardiac sensitization	>10 % v/v.

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## 12. ECOLOGICAL INFORMATION

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### 12.1. Ecotoxicity

Not determined.

### 12.2. Mobility

Product is highly insoluble in water and volatile. Normal use would not typically result in releases to aquatic environments.

### 12.3. Persistence and degradability

Photolytic half-life is 3 to 5 days. The persistent photolytic degradation product is trifluoroacetic acid.

### 12.4. Bioaccumulative potential

Not determined.

### 12.5. Other adverse effects

Ozone depletion potential: None.

Photochemical ozone creation potential: None.

Global warming potential: 1.

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## 13. DISPOSAL CONSIDERATIONS

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Not regulated as a hazardous waste by the EPA under RCRA.

Reclaim if feasible.

Incinerate in an industrial or commercial facility in the presence of a combustible material. Combustion products will include HF. Facility must be capable of handling halogenated materials.

As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

Dispose of in compliance with national, regional, and local provisions that may be in force.

No harm to the environment is expected from this preparation. See Heading 12 ECOLOGICAL INFORMATION.

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## 14. TRANSPORT INFORMATION

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Hazard Class or Division: Not hazardous.

Label: No special label required.

Emergency response guide page number: Not applicable.

For additional transport information, contact Pyro-Chem.

No harm to the environment is expected from this preparation. See Heading 12 ECOLOGICAL INFORMATION.

**15. REGULATORY INFORMATION**

EU Classification: This product is not classified as dangerous according to Directive 1999/45/EC.

Exposure Limit Values:

1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone  
TWA Limit: 150 ppm. Limit set by 3M Company.

EINECS Status: The component of this product has been notified to ELINCS (European List of Notified or New Chemical Substances). Certain restrictions apply. Contact your distributor for additional information.

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.

The product also complies with the chemical notification requirements for Korea (KECI), Australia (AICS), Japan (METI), and China (CICS).

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

PROTECTION:

See Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION.

**(WHMIS) CANADIAN WORKPLACE HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS:**

This product is rated: **Not Hazardous.**

Format is from directive 2001/58/EC.

There is no data in EINECS <http://exb.jrc.it/existing-chemicals/>

Data used to compile the data sheet is from 3M Material Safety Data Sheet, Jan. 21, 2004 and other product literature.

The EU Classification is in accordance with Directive 1999/45/EC.

**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.