



## Safety Data Sheet

### 3M™ NOVEC™ 1230 FIRE PROTECTION FLUID

Issue Date: 16/03/17

Status ISSUED BY: Fire Protection Technologies

#### SECTION 1: Identification

**1.1 Product name:** 3M™ Novec™ 1230 Fire Protection Fluid

**1.2 Importer / Supplier:** Fire Protection Technologies  
**Address:** Unit 1/251 Ferntree Gully Road  
Mt Waverley, Victoria, 3149 Australia.

**1.3 Telephone Number** 1300 742 296

**1.4 Emergency Telephone No.** 24 hours 1300 742 296

**1.5 Emergency Services** Dial 000

**1.6 SDS Preparer:** Fire Protection Technologies

**1.7 Recommended use and restrictions on use**

Streaming and Flooding Fire Protection

For Industrial or Professional use only

#### SECTION 2: Hazard identification

This product is NOT classified as a hazardous chemical according to the Model Work Health and Safety Regulations, 2011.

Refer to Section 14 of this Safety Data Sheets for product Dangerous Goods Classification.

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

Not applicable.

**2.2. Label elements**

**Signal word**

Not applicable.

**Symbols**

Not applicable.

**Pictograms**

Not applicable.

**2.3. Other assigned/identified product hazards**

None known.

**2.4. Other hazards which do not result in classification**

May be harmful if swallowed.

May be harmful in contact with skin.

Harmful to aquatic life with long lasting effects.

### SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Weight
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	> 99.9

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

##### Inhalation

Remove person to fresh air. If you are concerned, get medical advice.

##### Skin contact

Wash with soap and water. If signs/symptoms develop, get medical attention.

##### Eye contact

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

##### If swallowed

Rinse mouth. If you feel unwell, get medical attention.

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

See Section 11.1. Information on toxicological effects.

#### 4.3. Indication of any immediate medical attention and special treatment required

Not applicable

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable extinguishing media

Product is a fire-extinguishing agent. Material will not burn. Use a fire fighting agent suitable for the surrounding fire.

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

Exposure to extreme heat can give rise to thermal decomposition.

#### Hazardous Decomposition or By-Products

##### Substance

Carbon monoxide.  
Carbon dioxide.  
Toxic Vapor/Gas

##### Condition

During combustion.  
During combustion.  
During combustion.

#### 5.3. Special protective actions for fire-fighters

When fire fighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, tunic and trousers (leggings), bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

## SECTION 6: Accidental release measures

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

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

### 6.2. Environmental precautions

Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

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

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. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Contents may be under pressure, open carefully. Avoid inhalation of thermal decomposition products. For industrial or professional use only. Do not use in a confined area with minimal air exchange. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment.

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

Protect from sunlight. Store in a well-ventilated place. Store at temperatures not exceeding 38C/100F. Store away from strong bases. Store away from other materials. Store away from amines.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Manufacturer determined	TWA:150 ppm(1940 mg/m <sup>3</sup> )	

ACGIH : American Conference of Governmental Industrial Hygienists AIHA :

American Industrial Hygiene Association

Australia OELs : Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment

CMRG : Chemical Manufacturer's Recommended Guidelines

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit CEIL: Ceiling

Sen: Sensitiser

Sk: Absorption through the skin may be a significant source of exposure.

### 8.2. Exposure controls

#### 8.2.1. Engineering controls

Provide appropriate local exhaust when product is heated. For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

## 8.2.2. Personal protective equipment (PPE)

### Eye/face protection

Eye protection not required.

### Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Gloves made from the following material(s) are recommended: Nitrile rubber.

Select and use gloves according to AS/NZ 2161.

### Respiratory protection

If thermal degradation products are expected, use a full facepiece supplied-air respirator. If thermal decomposition occurs:

Use a positive pressure supplied-air respirator if there is a potential for over exposure from an uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

## SECTION 9: Physical and chemical properties

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

state	Liquid.
Specific Physical Form:	Liquid.
Appearance/Odour	Clear colorless liquid with low odor
Odour threshold	<i>No data available.</i>
pH	<i>Not applicable.</i>
Melting point/Freezing point	-108 °C
Boiling point/Initial boiling point/Boiling range	49 °C [ @ 101,324.72 Pa ]
Flash point	No flash point
Evaporation rate	> 1 [ <i>Ref Std:BUOAC=1</i> ]
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	None detected
Flammable Limits(UEL)	None detected
Vapour pressure	40.4 kPa [ @ 25 °C ]
Vapour density	11.6 [ <i>Ref Std:AIR=1</i> ]
Density	1.6 g/ml
Relative density	1.6 [ @ 20 °C ] [ <i>Ref Std:WATER=1</i> ]
Water solubility	Nil
Solubility- non-water	<i>No data available.</i>
Partition coefficient: n-octanol/water	<i>No data available.</i>
Autoignition temperature	<i>Not applicable.</i>
Decomposition temperature	<i>No data available.</i>
Viscosity	0.6 mPa-s [ @ 25 °C ]
Molecular weight	<i>No data available.</i>
Volatile organic compounds (VOC)	1,600 g/l [ <i>Test Method:calculated SCAQMD rule 443.1</i> ]
Percent volatile	100 %
VOC less H2O & exempt solvents	1,600 g/l [ <i>Test Method:calculated SCAQMD rule 443.1</i> ]

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

### 10.2 Chemical stability

Stable.

### 10.3. Conditions to avoid

Light.

### 10.4. Possibility of hazardous reactions

Hazardous polymerisation will not occur.

### 10.5 Incompatible materials

Strong  
bases.  
Amines.  
Alcohols.

### 10.6 Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Hydrogen Fluoride	At elevated temperatures. - extreme conditions of heat

If the product is exposed to extreme conditions of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur. Dust created by grinding, sanding, or machining may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

## SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

### 11.1 Information on Toxicological effects Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

#### Inhalation

No known health effects.

#### Skin contact

May be harmful in contact with skin.

#### Eye contact

Contact with the eyes during product use is not expected to result in significant irritation.

#### Ingestion

May be harmful if swallowed.

#### Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

### Acute Toxicity

Name	Route	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Dermal	Rat	LD50 > 2,000 mg/kg
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation-Vapour (4 hours)	Rat	LC50 > 1,227 mg/l
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

### Skin Corrosion/Irritation

Name	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Rabbit	No significant irritation

### Serious Eye Damage/Irritation

Name	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Rabbit	No significant irritation

### Skin Sensitisation

Name	Species	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Guinea pig	Not sensitizing

### Respiratory Sensitisation

For the component/components, either no data are currently available or the data are not sufficient for classification.

### Germ Cell Mutagenicity

Name	Route	Value
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	In Vitro	Not mutagenic
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	In vivo	Not mutagenic

### Carcinogenicity

For the component/components, either no data are currently available or the data are not sufficient for classification.

### Reproductive Toxicity

#### Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	Not toxic to female reproduction	Rat	NOAEL 3,000 ppm	prematuring & during gestation
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	Not toxic to male reproduction	Rat	NOAEL 3,000 ppm	prematuring & during gestation
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	Not toxic to development	Rat	NOAEL 3,000 ppm	prematuring & during gestation

## Target Organ(s)

### Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	nervous system	All data are negative	Rat	NOAEL 100,000 ppm	2 hours
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	cardiac sensitization	All data are negative	Dog	Sensitization Negative	17 minutes

### Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	liver   kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 3,000 ppm	90 days
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	Inhalation	heart   endocrine system   hematopoietic system   muscles   nervous system   respiratory system   vascular system	All data are negative	Rat	NOAEL 3,000 ppm	90 days

#### Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

#### Exposure Levels

Refer Section 8.1 Control Parameters of this Safety Data Sheet.

#### Interactive Effects

Not determined.

## SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

### 12.1. Toxicity

#### Acute aquatic hazard:

GHS Acute 3: Harmful to aquatic life.

#### Chronic aquatic hazard:

GHS Chronic 3: Harmful to aquatic life with long lasting effects.

Material	Organism	Type	Exposure	Test endpoint	Test result
3M™ Novec™ 1230 Fire Protection Fluid	Green algae	Estimated	72 hours	EC50	7.7 mg/l
3M™ Novec™ 1230 Fire Protection Fluid	Zebra Fish	Estimated	96 hours	LC50	>1,200 mg/l
3M™ Novec™ 1230 Fire Protection Fluid	Water flea	Estimated	48 hours	EC50	>1,200 mg/l
3M™ Novec™ 1230 Fire Protection Fluid	Green algae	Estimated	72 hours	NOEC	1.2 mg/l

Material	CAS Number	Organism	Type	Exposure	Test endpoint	Test result
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Green algae	Experimental	96 hours	NOEC	3.71 mg/l
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Fathead minnow	Experimental	96 hours	LC50	>1,070 mg/l
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Water flea Daphnid	Experimental	48 hours	EC50	>1,080 % weight
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Green algae	Experimental	96 hours	LC50	10.6 mg/l

l)-3-pentanone						
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## 12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Experimental Aquatic Biodegrad. - Aerobic	28 days	CO2 evolution	3 % weight	OECD 301B - Modified sturm or CO2
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Experimental Photolysis		Photolytic half-life (in air)	7.3 days (t 1/2)	Other methods
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Experimental Hydrolysis		Hydrolytic half-life	<2.5 minutes (t 1/2)	Other methods

### 12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	Experimental BCF-Carp	28 days	Bioaccumulation factor	<4.8	OECD 305E - Bioaccumulation flow-through fish test

### 12.4. Mobility in soil

Please contact manufacturer for more details

### 12.5 Other adverse effects

Material	CAS Number	Ozone Depletion Potential	Global Warming Potential
1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	0	

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials.

## SECTION 14: Transport Information

### Australian Dangerous Goods Code (ADG) - Road/Rail Transport UN

**No.:** Not applicable.

**Proper shipping name:** Not applicable.

**Class/Division:** Not applicable.

**Sub Risk:** Not applicable.

**Packing Group:** Not applicable.

**Hazchem Code:** Not applicable

**IERG:** Not applicable.

### International Air Transport Association (IATA) - Air Transport UN

**No.:** Not applicable.

**Proper shipping name:** Not applicable.

**Class/Division:** Not applicable.

**Sub Risk:** Not applicable.

**Packing Group:** Not applicable.

### International Maritime Dangerous Goods Code (IMDG)- Marine Transport UN

**No.:** Not applicable.

**Proper shipping name:** Not applicable.

**Class/Division:** Not applicable.

**Sub Risk:** Not applicable. **Packing**

**Group:** Not applicable. **Marine**

**Pollutant:** Not applicable.

## SECTION 15: Regulatory information

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

#### **Australian Inventory Status:**

This product contains a chemical(s) that has been notified to NICNAS and is subject to Secondary Notification requirements. For further information please contact [aucorporate.regulatory@mmm.com](mailto:aucorporate.regulatory@mmm.com)

**Poison Schedule:** This product is intended for Industrial or Professional Use only and therefore is not packaged and labelled in accordance with the requirements of the Standard for the Uniform Scheduling of Medicines and Poisons.

## SECTION 16: Other information

#### **Revision information:**

Complete document review.

**DISCLAIMER:** The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Safety Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

Greenguard<sup>®</sup> is a United States based program. The 'Low VOC' reference related to United States Federal and State regulations exemptions for some solvents.