SAPPHIRE NOVEC-1230 AGENT MATERIAL SAFETY DATA SHEET

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1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

1.1 Tradename:	3M Novec 1230 Fire Protection Fluid
1.2 Intended Use of Product:	Streaming and flooding fire protection.
1.3 3M Product ID:	98-0212-3217-2
1.4 Contact Address:	3M UK PLC 3M Ireland 3M Centre, Cain Road, 3M House, Adelphi Centre, Bracknell, Berkshire, RG12 8HT Dun Laoghaire, Co. Dublin
1.5 Emergency Contact Number:	+44 (0)1344 858 000

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient name and classification	CAS number	Percentage
1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone	756-13-8	> 99.9

3M Classification: R52/53

3 HAZARDS IDENTIFICATION

Risk Phrases: R52/53 Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

4 FIRST-AID MEASURES

4.1 Eye Contact:	No need for first aid is anticipated.
4.2 Skin Contact:	No need for first aid is anticipated.
4.3 Inhalation:	If signs/symptoms develop, remove person to fresh air. If signs/symptoms persist, get medical attention.
4.4 Ingestion:	No need for first aid is anticipated.

5 FIRE-FIGHTING MEASURES

5.1 Suitable Extinguishing Media:	Product is a fire-extinguishing agent.
5.2 Unsuitable Extinguishing Media:	Not specified.
5.3 Exposure Hazards:	Not determined.
5.4 Combustion Products from Fire:	Not determined.
5.5 Fire-Fighting Procedures:	Wear full protective equipment and a self-contained breathing apparatus.
5.6 Special Instructions:	Not applicable.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions:	Please observe precautions from other sections of this MSDS.
6.2 Methods for Cleaning up:	Ventilate the area with fresh air. Contain spill. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water. 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. Seal the container. Dispose of collected material as soon as possible.

7 HANDLING AND STORAGE

7.1 Precautions for Safe Handling:	For industrial or professional use only. Contents may be under pressure, open carefully. Avoid inhalation of vapours, mists or spray.

7.2 Precautions for Safe Storage: Store away from strong bases, amines, and alcohols.

- Ventilation: Keep container in a well-ventilated area.
- Incompatible Materials/Conditions: Store out of direct sunlight.
  Store away from heat.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Recommended Ventilation: Provide appropriate local exhaust ventilation on open containers.
Provide appropriate local exhaust when product is heated.

8.2 Exposure Limits: None of the substances in the section 2 ingredient list are listed in the EH40 Exposure Limit Inventory.

8.3 Exposure Controls:

8.3.1 Eye Protection: As a good industrial hygiene practice:
Avoid eye contact with vapours, mists, or spray.

8.3.2 Hand Protection: Gloves are not required.

8.3.3 Skin Protection: Not specified.

8.3.4 Respiratory Protection: Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection. Avoid inhalation of thermal decomposition products.

As a good industrial hygiene practice: Avoid inhalation of vapours, mists or spray. If thermal decomposition occurs, wear supplied air respiratory protection.

8.3.5 Ingestion: Not applicable.

9 PHYSICAL AND CHEMICAL PROPERTIES

- Appearance and Odour: Colourless liquid with no odour.
- pH: Not applicable
- Boiling point/boiling range: 49 °C
- Melting point/melting range: <= -108 °C
- Flash point: Not applicable
- Autoflammability: Not applicable
- Vapour pressure: 32530 Pa (at 20 ºC)
- Water Solubility: Nil
- Specific gravity: 1.6 (Water=1)
- Vapour density: <= 11.6 (Air=1)
- Volatile organic compounds: 1600 g/l (SCAQMD 443.1calculated)
- Evaporation rate: 1
- Viscosity: <= 0.6 mPa.s (at 25 ºC)
- Percent Volatile: 100 %

10 STABILITY AND REACTIVITY

10.1 Stability and Reactivity: Stable. Hazardous polymerisation will not occur.

10.2 Conditions to Avoid: Listed materials to avoid should not be mixed with liquid 3MNovec 1230 fluid.
Avoid direct sunlight and ultraviolet light.

10.3 Materials to Avoid: Strong bases.Amines.Alcohols.

10.4 Hazardous Decomposition: Carbon monoxide - During Combustion.Carbon dioxide - During Combustion.
Hydrogen fluoride - During Combustion.

11 TOXICOLOGICAL INFORMATION

11.1 Effects from Eye Contact: Contact with the eyes during product use is not expected to result in significant irritation.

11.2 Effects from Skin Contact: Contact with the skin during product use is not expected to result in significant irritation.

11.3 Effects from Inhalation:

If thermal decomposition occurs: May be harmful if inhaled.

11.4 Effects from Ingestion: No health effects are expected.

11.5 Other Effects and Information: Hydrogen fluoride has an ACGIH Threshold Limit Value of 3 parts per million (as fluoride) as a Ceiling Limit and an OSHA PEL of 3 ppm of fluoride as an eight hour Time-Weighted Average and 6 ppm of fluoride as a Short Term Exposure Limit. The odour threshold for HF is 0.04 ppm, providing good warning properties for exposure.

12 ECOLOGICAL INFORMATION

12.1 Environmental Data: Not determined.

12.2 Mobility in Soil and Water: Not determined.

12.3 Persistence/Biodegradability: Not determined.

12.4 Bioaccumulation Potential: Not determined.

12.5 Ecotoxicity Data:	This substance has a high Henry's Law constant and therefore will be primarily found in the atmosphere where photolysis will be the dominant reaction pathway. The ultimate degradation products of the photolysis reaction are HF, CO2 and trifluoroacetic acid (TFA). This substance does not contribute to ozone depletion; it has an atmospheric lifetime of approximately 5 days and a Global Warming Potential (GWP) of 1 (IPCC 2001 Method).
12.6 Ecofate Data:	Photolytic half-life: 3-5 days. Photolytic degradation products may include Trifluoroacetic acid (TFA) NOTE: Hydrolysis is not expected to be a significant degradation pathway. Product is highly insoluble in water and volatile, and use as a clean extinguishing agent would not typically result in releases to aquatic environments.
12.7 Special statements for 2001/58/EC:	Not determined.

13 DISPOSAL CONSIDERATIONS

13.1 Product as Sold:	Incinerate in an industrial or commercial facility in the presence of a combustible material. For information on product return, contact your distributor. 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.
13.2 Product in Use:	Not determined.
13.3 Product after Use:	Not determined.
13.4 Product Packaging:	Not determined.
13.5 Potential for Recycling:	Reclaim if feasible.
13.6 Special Instructions:	Since regulations vary, consult applicable regulations or authorities before disposal.

14 TRANSPORT INFORMATION

- UN number: Not restricted for transportation.

15 REGULATORY INFORMATION

Label Version Number:	06.00
Symbol(s):	None.
Risk Phrases:	R52/53 Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic Environment.
Safety Phrases:	S61 Avoid release to the environment. Refer to special instructions/safety data sheets.
Disclosable Ingredients:	1,1,1,2,2,4,5,5,5-Nonafluoro-4-(Trifluoromethyl)-3-Pentanone.

16 OTHER INFORMATION

16.1 Complete list of risk phrases:	R52 Harmful to aquatic organisms. R53 May cause long-term adverse effects in the aquatic environment.
16.2 Limitations on Use of Product:	For industrial or professional use only.
16.3 Reissue date/Reason for reissue:	Complete MSDS revision in accordance with EU directive2001/58/EC.

END