

SECTION 1 - INTRODUCTION

First Aid

Refer to the Novec™ 1230 Material Safety Data Sheet within Appendix C.

Novec™ 1230 Agent Characteristics

Novec™ 1230 is a clean agent containing no particles or oily residues. It is produced under ISO 9002 guidelines to strict manufacturing specifications ensuring product purity. Novec™ 1230 leaves no residue or oily deposits on delicate electronic equipment, and can be removed from the protected space by ventilation.

Novec™ 1230 is thermally and chemically stable, but without the extremely long atmospheric lifetimes associated with some other clean agents. The atmospheric lifetime of Novec™ 1230 has been determined to be 5 days (Reference 3M™). The US EPA SNAP does not consider Novec™ 1230 to be a long lived substance when discharged, and as such has placed no restrictions on its use. (Environmental Protection Agency's Significant New Alternatives Program).

Typical areas that may be protected by a SAPPHIRE system are detailed below; the list is by no means exhaustive:

- Bank Vaults
- Libraries
- Rare Book Stores
- Electronic Data Processing
- Telephone Exchanges
- Studios
- Communication Centres
- Transformer and Switchrooms
- Control Rooms
- Test Laboratories
- Flammable Liquid Stores

The present understanding of the functioning of Novec™ 1230 is that its fire fighting effectiveness is achieved through heat absorption. Complete suppression using Novec™ 1230 has the following advantages:

- Less visual obscurity and minimal risk to personnel.
- Low toxicity.
- Most effective when used with automatic detection to introduce Novec™ 1230 with a 10 second discharge.
- The ability to prevent re-ignition providing concentration levels are maintained.

Novec™ 1230 is stored as a liquid in approved IS 7285 (Part2): 2004 containers and is super-pressurised with dry nitrogen to 25 bar @ 21 °C (360 psi @ 70 °F).

WARNING

Novec™ 1230 shall not be used on fires involving the following materials unless they have been tested to the satisfaction of the authority having jurisdiction:

- Certain chemicals or mixtures of chemicals, such as cellulose nitrate and gunpowder, that are capable of rapid oxidation in the absence of air.
- Reactive metals such as lithium, sodium, potassium, magnesium, titanium, zirconium, uranium and plutonium.
- Metal hydrides.
- Chemicals capable of undergoing autothermal decomposition, such as certain organic peroxidase and hydrazine.

Agent Physical Properties

Table 1: Novec™ 1230 Physical Properties

Agent Physical Properties	FK-5-1-12
Chemical structure	$\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$
Chemical name	Dodecafluoro-2-methylpentan-3-one
Molecular weight	316.04
Boiling point	49.0 °C (120.2 °F)
Freezing point	-108.0 °C (-162.4 °F)
Critical temperature	168.7 °C (335.6 °F)
Critical pressure	18.7 bar (270.4 psi)
Critical volume	494.5 cc/mole (0.0251 ft ³ /lbm)
Critical density	639.1 kg/m ³ (39.91 lb/ft ³)

(Reference: NFPA 2001, 2008 edition)

Table 2: Nitrogen Physical Properties

Agent Physical Properties	
Chemical structure	N ₂
Chemical name	Nitrogen
Molecular weight	28.0
Boiling point	-195.80 °C (-320.4 °F)
Freezing point	-210.00 °C (-346 °F)
Critical temperature	-146.90 °C (-232.4 °F)
Critical pressure	34.0 bar (492.9 psi)

Table 3: Novec™ 1230 Toxicology/Environmental Properties

	Novec™ 1230
Environmental	
Ozone Depletion (ODP)	0
Atmospheric Lifetime (yrs)	0.014
Toxicology	
Acute Exposure LC50	>10.0%
Cardiac Sensitization No Observed Adverse Effect Level (NOAEL)	≤10.0%
Lowest Observed Adverse Effect Level (LOAEL)	>10.0%

(Reference: NFPA 2001, 2008 edition)