

### Scope

FFT-1230™ Fire Protection Fluid is a highly effective and environmentally benign substitute for halon. It provides exceptional performance, the widest safety margin amongst all clean agents, and an excellent environmental record with **zero ozone depletion potential** and **a global warming potential of less than 1**. It is a fluoroketone chemical named dodecafluoro-2-methylpentan-3-one. It is listed in the National Fire Protection Association and ISO 14520 clean agent standards by its ASHRAE nomenclature, FK-5-1-12.

	Years
Ozone Depletion Potential (ODP)	0
Global Warming Potential (GWP)	1
Atmospheric Lifetime (years)	0.014

FFT 1230 fluid presents an outstanding safety margin, minimal environmental impact, and exceptional extinguishing capabilities. These characteristics make it the sole halon alternative as the viable, long-term, and environmentally sustainable solution for the special hazard fire protection space.

### Attributes

The FFT-1230 Fire Protection Fluid is specifically engineered to put out fires by rapidly dissipating heat. FFT-1230 is electrically non-conductive in either a liquid or gaseous state, which makes it safe to use in environments with sensitive electronic equipment.

	Property
Chemical Name	Dodecafluoro-2-Methylpentane-3-one
Chemical Formula	CF <sub>3</sub> CF <sub>2</sub> C(O)CF(CF <sub>3</sub> ) <sub>2</sub>
Molecular Weight	316.04
Boiling Point (b.p.) @ 1 atm	49°C (120.2°F)
Freezing Point (pour point)	-108°C (-162.4°F)
Density, saturated liquid @25°C	1.60 g/ml (99.9 lbm/ft³)
Density, Gas 1 ATM @ 25°C	0.0136 g/ml (0.851 lbm/ft³)
Specific Volume, Gas 1 ATM @ 25°C	0.07333 g/ml (1.175 lbm/ft³)
Specific Heat, Liquid	1.1030 kJ/kg°C (0.2634 BTU/lb°F)
Specific Heat, Liquid @ 1 ATM	0.891 kJ/kg°C (0.2127 BTU/lb°F)
Heat of vaporization @b.p.	96.4 kJ/kg (41.4 BTU/lb)
Liquid Viscosity @ 0°C/25°C	0.56/0.39 centistokes
Solubility of water in	
FK-5-1-12 Fluid @ 25°C	<0.001% by wt.
Vapor Pressure @ 25°C	0.40 bar (5.87 psig)
Dielectric strength	~60 kV
	Property
Mole %	99.0% Minimum
Acidity, ppm by weight	20 Maximum
Water content, % by weight	0.001% Maximum
Soluble residue, % by volume	0.005 g/100ml Maximum

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**Environmental Impact:**

Below is a chart comparing the environmental impact of FFT-1230.

Properties	FFT-1230	Halon 1211	Halon 1301	HFC-125	HFC-227ea
Ozone depletion potential (ODP) <sup>1</sup>	0.0	4.0	12.0	0.0	0.0
Global warming potential - IPCC <sup>2</sup>	<1	1750	6290	3170	3350
Atmospheric lifetime (Years)	0.019	16	65	28.2	38.9
SNAP (Yes/No)	Yes	N/A	N/A	No	No

FFT-1230 fluid is the most environmentally sustainable clean agent solution in the market. It is a fire suppression solution that offers the widest safety margins amongst clean agents and exceptional extinguishing capabilities.

FFT-1230™ Fire Protection Fluid;

- Evaporates 50x faster than water
- Does not partition to water
- Does not partition to soil
- Will partition to the atmosphere and be broken down and absorbed by UV rays in about a week
- Has NO ozone depletion capabilities
- Has a GWP of less than 1

Overall, FFT 1230 fluid is considered the only viable, long-term, and environmentally sustainable alternative to halon for special hazard fire protection due to its unique combination of safety, environmental sustainability, and effectiveness.

**Operation**

FFT-1230 fluid extinguishes fires by removing heat. The fluid is stored in liquid form in a tank, and when the fire suppression system is activated, it is released through a cylinder valve outlet and travels through a pipe network to be dispersed through a nozzle into the protected area as a gas.

The gas mixes with air to increase its heat capacity and extinguish fires. FFT-1230 has the lowest extinguishing concentration among available options, with the necessary amount varying based on the fire type, area protected, and local requirements. Required concentrations are listed below:

	Extinguishing Concentration	Safety Factor	Design Concentration	Multiplier (lbs/ft <sup>3</sup> )	Multiplier (kg/m <sup>3</sup> )
Class "A"	3.50%	20%	4.50%	0.0379	0.6076
Class "B"	4.50%	30%	5.85%	0.0537	0.8611
Class "C"	3.50%	35%	4.52%	0.0409	0.6561

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### **Application**

FFT-1230 fluid can effectively be applied in total and local flooding suppression and thermal management applications in the following areas:

- Aviation
- Data Center
- Warehouse
- Power Gen
- ESS
- Marine
- Transportation
- Military
- Telecommunications
- Medical
- Museums

### **Commissioning**

Proper fill and maintenance must be in accordance with FFT systems Manuals, as well as applicable ISO and NFPA standards.

### **Certifications/ Listings/ Approvals**

UL Listed

ULC Listed

FM Approved

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