

3M™ Novec™ 1230 Fire Protection Fluid	07/25/18
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#### EPCRA 311/312 Hazard Classifications:

<b>Physical Hazards</b>
Not applicable
<b>Health Hazards</b>
Not applicable

#### 15.2. State Regulations

Contact 3M for more information.

#### 15.3. Chemical Inventories

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

#### 15.4. International Regulations

Contact 3M for more information.

**This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.**

### SECTION 16: Other information

#### NFPA Hazard Classification

**Health: 3 Flammability: 0 Instability: 1 Special Hazards: None**

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

The NFPA Health code of 3 is due to emergency situations where the material may thermally decompose and release Hydrogen Fluoride. During normal use conditions, please reference Section 2 and Section 11 of the SDS for additional health hazard information.

#### HMIS Hazard Classification

**Health: 1 Flammability: 0 Physical Hazard: 1 Personal Protection: X - See PPE section.**

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV

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program. HMIS® is a registered mark of the American Coatings Association (ACA).

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**Reason for Reissue**  
Conversion to GHS format SDS.

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3M USA SDSs are available at [www.3M.com](http://www.3M.com)

## Protecting assets today with the future in mind.

### 3M™ Novec™ 1230 Fire Protection Fluid vs. FM-200®

#### FM-200® following the path of halon.

If you are looking for ways to protect your valuable electronic assets and operations, you have already made the smart decision to avoid relying on water for fire protection. Selecting a clean extinguishing agent offers the best opportunity to minimize risk to a business and its critical assets.

However, all clean agents are not the same. For example, HFC-227ea, sold under the FM-200® brand, is a hydrofluorocarbon (HFC) clean agent – which is a potent greenhouse gas. Due to their high global warming potentials (GWP), time is running out for HFCs, including FM-200.

The regulatory path taken by halon provides insight into the future for HFCs. In the past couple years there have been increasing efforts on a global basis to reduce the use of HFCs, including the European Union's implementation of an HFC phase-down under the F-gas Regulation and the U.S.

EPA's advancement of regulations in an effort to reduce use of HFCs. In fact, in December 2015 a collective group of 197 countries at the 27th Meeting of the Parties to the Montreal Protocol committed to act in 2016 to put HFCs on a global phase-down schedule similar to the path taken by halon.

#### Unfazed by the HFC phasedown

What do these regulations mean to users of fire suppression systems? For example, in the event of an FM-200 system discharge, facility owners will face the uncertainty and risk of the future supply and costs of FM-200 to continue to protect their valued assets.

Thankfully there are system options that do not use HFCs. With 3M™ Novec™ 1230 Fire Protection Fluid, owners can avoid the uncertainty associated with HFCs like FM-200 and halons. Novec 1230 fluid is NOT an HFC. Novec 1230 fluid is a sustainable clean agent – enabling a transition from HFCs such as FM-200 and halon to a more environmentally sound solution without compromising

performance. In its approval of Novec 1230 fluid, the U.S. EPA noted that Novec 1230 fluid "is acceptable because it reduces overall risk to public health and the environment in the end use listed." In fact, 3M is so confident that Novec 1230 fluid will continue to meet environmental standards far into the future that 3M backs Novec 1230 fluid with 20-year protection: the 3M™ Blue Sky™ Warranty.

Novec 1230 fluid revolutionized the clean agent market in 2001 and now sets a new standard for sustainable clean agent fire suppression. Its unique dielectric properties and low vapor pressure yields design advantages to satisfy your top priority – protecting your assets. These advantages include ease of handling and the flexibility for higher pressure system innovation that is not practical for halons and HFCs. Specifying Novec 1230 fluid leverages these advances in fire suppression to protect your operations while eliminating future risks associated with HFCs such as FM-200.



## 3M™ Novec™ 1230 Fire Protection Fluid vs. FM-200®

Typical Environmental Properties (Not for specification purposes)

Properties	3M™ Novec™ 1230 Fire Protection Fluid	Chemours FM-200® (HFC-227ea)
Fire Performance vs. Health and Extinguishment Safety (NOAEL)	Class A, B & C* Class A: 4.5% - NOAEL 10%   Safety Margin 122% Class B: 5.9% - NOAEL 10%   Safety Margin 70% Class C: 4.5% - NOAEL 10%   Safety Margin 122%	Class A, B & C* Class A: 6.7% - NOAEL 9%   Safety Margin 34% Class B: 8.7% - NOAEL 9%   Safety Margin 3% Class C: 7.0% - NOAEL 9%   Safety Margin 29%
ODP - Ozone Depletion Potential <sup>1</sup>	0	0
GWP - Global Warming Potential <sup>2</sup>	<1	3,350
Atmospheric Lifetime - Years	0.019	38.9
Global Environmental Warranty on Agent (Years)	Yes 3M™ Blue Sky™ Warranty (20 Years)	None
Subject to Phase-Down under EU F-Gas Regulation	No	Yes
Subject to U.S. Proposals for Global Phase-Down under Montreal Protocol	No	Yes
Subject to Potential U.S. EPA SNAP Status Change Proposals Directed at HFCs	No	Yes
Manufacturer Advocating for Global HFC Phase-Down	Yes	Yes

<sup>1</sup> World Meteorological Organization (WMO) 1998, Model-Derived Method

<sup>2</sup> Intergovernmental Panel on Climate Change (IPCC) 2013 Method, 100-year 1TH

\* NFPA 2001

### The 3M™ Novec™ Brand Family

The Novec brand is the hallmark for a variety of proprietary 3M products. Although each has its own unique formula and performance properties, all Novec products are designed in common to address the need for safe, effective, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, protective coatings, immersion cooling, advanced insulation media replacement solutions and several specialty chemical applications.

3M™ Novec™ Engineered Fluids • 3M™ Novec™ Aerosol Cleaners • 3M™ Novec™ E30 Fire Protection Fluid • 3M™ Novec™ Electronic Grade Coatings • 3M™ Novec™ Electronic Surface Treatments • 3M™ Novec™ Dielectric Fluids

**Regulatory:** For regulatory information about this product, contact your 3M representative.

**Technical Information:** The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

**Product Use:** Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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# 3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid

## Frequently Asked Questions (FAQs)

### Smart Performance FAQs

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**Q: What is 3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid?**

**A:** Novec 1230 fluid is a sustainable fire extinguishing clean agent that helps protect continuity of operations and high value assets. It is a waterless fire suppressant designed to replace high global warming potential (GWP) hydrofluorocarbons (HFCs) like FM-200®.

Novec 1230 fluid is a clean agent included in the NFPA 2001 standard. It is non-conductive and leaves no residue, putting out fires while preserving both assets and operations. Novec 1230 fluid has been sold into clean agent fire suppression for 15 years and into more than a 100 countries. Its proven quality and reliability have provided specifiers and end-users with a smart solution for their clean agent needs.

Download the [3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid brochure](#) (PDF, 1.4 mb), [the technical data sheet](#) (PDF, 510 kb), or visit the [Fire Suppression - Novec 1230 webpage](#) to learn more.

**Q: What operations and valued assets is 3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid used to protect?**

**A:** Novec 1230 fluid is designed to help protect continuity of operations because, unlike water, it does not damage electronic equipment and the critical data stored on it—to keep your business up and running. It also protects valuable assets including everything from paper archives and historical documents to priceless works of art and antiquities. To learn more about specific industry applications, download one of our brochures.

- [3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid for Telecomm & Data Centers](#) 1464.0 kB
- [3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid Oil & Gas](#) 923.0 kB
- [3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid Flightline Applications](#) 699.25 kB
- [3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid Marine Application](#) 1086.0 kB
- [3M<sup>™</sup> Novec<sup>™</sup> 1230 Fire Protection Fluid Museums & Archives](#) 765.0 kB

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**Q: Can I purchase a Novec 1230 fluid fire suppression system from 3M?**

**A:** No. 3M manufactures Novec 1230 fluid but the actual sales and installations of the systems are through our OEM partners and their global distribution networks. Novec 1230 fluid is a recognized component of a listed or approved system, e.g. UL and Factory Mutual.

[Click here](#) for our full list of approved system manufacturers.

**Q: How do I purchase a fire suppression system using 3M Novec 1230 fluid?**

**A:** 3M produces Novec 1230 fluid and sells it to original equipment manufacturers (OEMs). Our OEM partners have third party approvals (such as UL and/or FM) for the fire suppression system, including both hardware and software. Systems can be customized to match the needs of the area being protected. Contact a system manufacturer.

[Click here](#) for our full list of approved system manufacturers.

**Q: How do I specify Novec 1230 fluid for my fire suppression system?**

**A:** When designing a new system, it's important that you specify an agent that's clean, sustainable and reliable. In fire suppression, there are no "equals". To ensure clean, specifications should exclude dry chemicals and water mist. To ensure sustainability, specifications should exclude HFCs, including FM-200® and ECARO-25®. To ensure quality, reliability and safety, specify 3M™ Novec™ 1230 Fire Protection Fluid and not generic descriptions of this agent.

[Download this template](#) (DOC, 85 kb) for help in specifying 3M™ Novec™ 1230 Fire Protection Fluid in a total flooding fire protection system.

**Q: Where is 3M Novec 1230 fluid typically installed?**

**A:** Systems are installed to protect critical operations and high value assets such as data centers, computer rooms, control rooms, museums, archives or any other location where the use of water to control a fire would damage the asset being protected and critical operations.

**Q: How is 3M Novec 1230 fluid applied to a fire?**

**A:** Upon activation from an automatic detection system, Novec 1230 fluid is released into the room and puts out the fire.

**Q: How does 3M Novec 1230 fluid extinguish a fire?**

**A:** Novec 1230 fluid stops the combustion process by absorbing heat. As part of an advanced fire suppression system, it quickly extinguishes the fire. Unlike CO<sub>2</sub> and inert gases, Novec 1230 fluid does not extinguish a fire by displacing the oxygen in an enclosure.

**Q: Is there a requirement to have a dedicated ventilation system to remove Novec 1230 fluid after a discharge?**

**A:** An active mechanical process that is designed to remove Novec 1230 fluid/gas from the protected space is not required by the industry standard, NFPA 2001. That said, the designer of a system using Novec 1230 fluid may consider use of such a ventilation system on a case-by-case basis if conditions warrant, similar to what has been done in the past with halon.

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**Q: Is 3M Novec 1230 fluid a liquid or a gas?**

**A:** Actually, it is both. Novec 1230 fluid is produced and stored as a liquid. However, upon discharge from a properly designed spray nozzle, it floods the protected space as a gas. This fire suppressant evaporates 50 times faster than water, so the energy of the discharge is more than sufficient to convert it to a gas. The gas extinguishes the fire and prevents re-ignition of the potential fire incident. (Note: the term “fluid” can be used to describe either a liquid or a gas.)

Learn more about the science behind [3M Novec 1230 fluid’s transformation from liquid to gas](#) (PDF, 51 kb).

**Q: What is the shelf life of 3M Novec 1230 fluid?**

**A:** Novec 1230 fluid has at least a 30 year shelf life in an installed system when purchased from one of our authorized manufacturers. This means the effectiveness of the fluid in a listed and approved system will not diminish during that time span.

**Q: Does the noise from a system discharging Novec 1230 fluid cause damage to hard disc drives?**

**A:** Damage to hard disc drives has not been observed as a result of a discharge of a system using Novec 1230 fluid.

For inert gas systems, noise at specific decibel levels and frequencies has been tied to HDD damage. Volume, tone and duration of the noise are all important factors. The duration of discharge for inert gas systems is up to 12 times longer than halocarbon systems, such as those that use Novec 1230 fluid. Efforts are now underway to design inert gas systems to minimize noise at the nozzle.

Learn more in the [Clean Extinguishing Agent System Noise and Hard Disk Drive \(HDD\) Failure FAQs](#) (PDF, 111 kb).

**Q: What are the advantages of using 3M Novec 1230 fluid compared to inert gas?**

**A:** Owners of inert gas systems have become keenly aware of the hidden costs of installing, housing, maintaining and recharging inert gas systems.

On a volume basis, inert gas systems must deliver more agent into a room to displace as much as 40% of the air in a protected space—compared to approximately 5% with a system using 3M Novec 1230 fluid. This translates into many more cylinders of inert gas required to protect a given space. In addition, the cylinders store gas at much higher pressures.

Both the greater number of cylinders and the high pressures at which these systems operate represent additional expenses, or “extra” installation costs that may not be readily apparent in the initial bid. For example, the added construction costs associated with over-pressurization may not be included in the cost of system installation, but are necessary expenses associated with installation. In addition, the larger amount of space required for the higher quantity of inert gas cylinders translates to higher real estate or space costs.

The high pressure at which inert gas systems operate also requires more frequent and rigorous maintenance to ensure that it can withstand the high discharge pressures. At regular intervals, maintenance teams validate system pressure and the integrity of the hoses, pressure vents, and cylinders.

Learn more about how [3M Novec 1230 fluid compares to inert gas](#).

**Q: Can I air ship Novec 1230 fluid in bulk?**

**A:** Yes. Unlike other clean agents, Novec 1230 fluid is stored as a liquid in unpressurized containers and can be shipped in bulk quantities by air.

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