

3M
Novec™

3M™ Novec™ 1230 Fire Protection Fluid

Protect what matters.

You're not just safeguarding people, buildings, equipment and operations, you're helping preserve the world we live in. Protect what matters. All of it.

3M Science. Applied to Life.™

Smart. Safe. Sustainable.

When you specify a system for fire protection, your choices could determine if a person, valuable asset or even an entire business survives a fire. 3M™ Novec™ 1230 Fire Protection Fluid helps give you the peace of mind that you've made a smart choice. Its unique science helps safeguard all the things in your care:

- **People.** A larger safety margin protects people.
- **Operations.** No damage to electronic equipment or the data stored on it.
- **Valuable assets.** Safe for paper archives, historical documents, priceless works of art and antiquities.
- **The planet.** Very low global warming potential and no impact to the ozone layer.



Greater margin of safety¹ and lower environmental impact

A large safety margin means a higher level of safety for people. And you're not just safeguarding people, you're preserving buildings, equipment, data and the world we live in.

| Agent | Novec 1230 | Halon 1301 | HFC-125 | HFC-227ea |
|--|------------------|------------|-----------|-----------|
| Use Concentration | 4.5-6% | 5% | 8.7-12.1% | 6.7-8.7% |
| NOAEL ² | 10% ³ | 5% | 7.5% | 9% |
| Safety Margin ⁴ | 67-122% | Nil | Nil | 3-34% |
| Global Warming Potential ⁵ | <1 | 6290 | 3170 | 3350 |
| Ozone Depletion Potential ⁶ | 0.0 | 12.0 | 0.0 | 0.0 |
| SNAP ⁷ Approved | Yes | No | Yes | Yes |

¹ Adjusted per 2012 NFPA 2001 requirements for minimum values (excluding halon): paragraph 5.4.2.4 and Table A.5.4.2.2(b)

² NOAEL for cardiac sensitization

³ NOAEL for acute toxicity, including cardiac sensitization

⁴ Safety Margin = (NOAEL - Use Concentration) / Use Concentration

⁵ Intergovernmental Panel on Climate Change (IPCC) 2013 Method, 100-year ITH (CO₂=1)

⁶ World Meteorological Organization (WMO) 1998, Model-Derived Method

⁷ Significant New Alternative Policy Program

Specify your system from the inside out.

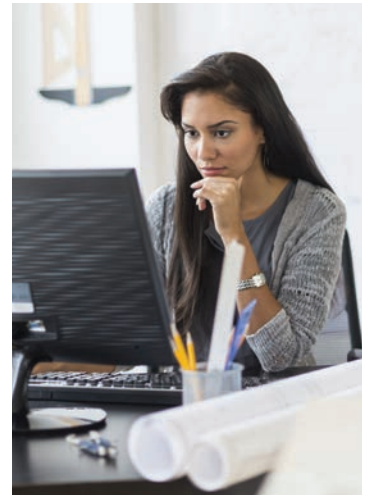
At 3M, we use science to improve lives. We set out to develop 3M™ Novec™ 1230 Fire Protection Fluid with the intention to find a solution with high performance and a large margin of safety that does no harm to the environment.

Extinguish a fire quickly without harming people or equipment and get back to business.

When you specify a fire protection system with Novec 1230 fluid at its center, you have our assurance it is designed to be:

- **Reliable.** Novec 1230 fluid revolutionized the fire protection market 15 years ago. Today, with more than 50,000 system installations in over 90 countries, and the approvals to back up our promises, we continue to move the industry forward with the purpose of delivering a solution that is designed to work now and for years to come.
- **Consistent.** At 3M, we are proud to be known for consistent, quality products, and as a reliable source of supply time and time again.
- **Flexible.** Engineered to accommodate unusual spaces and design configurations while requiring less space than inert gas systems. Systems may also be recharged quickly and efficiently, should the need arise.

And we're there for you when you need us most. With know-how and technical expertise that is recognized throughout the fire protection market, our global team is dedicated and committed to outstanding customer support.



We give you our word — and a warranty.

When you create a specification, you're making a promise that the system you've identified will serve the business for the long term. Your name and your best effort are in that spec. We think that deserves a promise from us.

Here's how the 3M™ Blue SkySM Warranty works: If 3M™ Novec™ 1230 Fire Protection Fluid is banned from or restricted in use as a fire protection agent within 20 years after installation due to its environmental properties, we'll refund the purchase price of the fluid.

It's our legacy to you. So you can leave a legacy of your own.

*3M warrants, for a period of 20 years after original installation and subject to noted requirements, that 3M™ Novec™ 1230 Fire Protection Fluid, installed in an approved fire suppression system, will not be restricted for use in fire protection due to its Ozone Depletion Potential (ODP) or Global Warming Potential (GWP) and is not targeted for phase-down by the Montreal Protocol, nor subject to the European F-Gas Regulations targeting the phase-down of production and import of HFCs into Europe; and will not be affected by U.S. EPA SNAP regulations which would render it either unacceptable or acceptable subject to narrow use limits. For complete terms and conditions, or to register your system for the 3M Blue Sky Warranty, visit 3M.com/blueskywarranty.

Typical physical properties of 3M™ Novec™ 1230 Fire Protection Fluid*

| | |
|--|---|
| Chemical formula | CF ₃ CF ₂ C(O)CF(CF ₃) ₂ |
| Molecular weight | 316.04 |
| Boiling point @ 1 atm | 49.2°C (120.6°F) |
| Freezing point | -108°C (-162.4°F) |
| Density, sat. liquid, 25°C | 1.60 g/ml (99.9 lbm/ft ³) |
| Density, gas @ 1 atm, 25°C | 0.0136 g/ml (0.851 lbm/ft ³) |
| Specific volume @ 1 atm 25°C | 0.0733 m ³ /kg (1.175 ft ³ /lb) |
| Liquid viscosity @ 0°C/25°C | 0.56/0.39 centistokes |
| Heat of vaporization @ BP | 88.0 kJ/kg (37.9 BTU/lb) |
| Solubility of H ₂ O in Novec 1230 fluid | <0.001% by wt. |
| Vapor pressure @ 25°C | 0.404 bar (5.85 psig) |
| Relative dielectric strength @ 1 atm (N ₂ =1.0) | 2.3 |

*Not for specification purposes

With third-party listings and approvals, you can trust Novec 1230 fluid to quickly extinguish a fire while helping protect people and equipment.



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 to address the need for smart, safe, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, lubricant deposition and several specialty chemical applications.

Safety Data Sheet: Consult Safety Data Sheet before use.

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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98-0212-3705-6