



NovecTM

Brand

3MTM NovecTM Fire Protection Fluid

Frequently Asked Questions (FAQs)

Smart performance FAQs

Q What is 3MTM NovecTM 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).

Novec 1230 fluid is a clean agent included in the ISO 15004 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 100 countries. Its proven quality and reliability have provided specifiers and end-users with a smart solution for their clean agent needs.

Download the [3MTM NovecTM 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 Novec 1230 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 – keeping 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 It also protects valuable assets including everything from paper archives and historical documents to priceless works of art and antiquities.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.

- ▶ [3MTM NovecTM 1230 Fire Protection Fluid for Telecomm & Data Centers](#) 1464.0 kB
- ▶ [3MTM NovecTM 1230 Fire Protection Fluid Oil & Gas](#) 923.0 kB
- ▶ [3MTM NovecTM 1230 Fire Protection Fluid Flightline Applications](#) 699.25 kB
- ▶ [3MTM NovecTM 1230 Fire Protection Fluid Marine Application](#) 1086.0 kB
- ▶ [3MTM NovecTM 1230 Fire Protection Fluid Museums & Archives](#) 765.0 kB

Q Where is 3M™ Novec™ 1230 Fire Protection Fluid typically installed?

A Systems are installed to protect critical operations and high value assets such as data centres, computer rooms, control rooms, museums, archives or any other location/critical application in which the use of water to control a fire would damage assets and operations.

Q How is Novec 1230 fluid applied to a fire?

A Upon activation from an automatic fire extinguishing system, Novec 1230 fluid is released through a specially designed extinguishing nozzle, vapourises immediately and distributes as a gas, putting out a fire within seconds.

Q How does Novec 1230 fluid extinguish a fire?

A The extinguishing effect of Novec 1230 fluid is solely based on cooling and not, as with CO₂ and inert gases, on the principle of air displacement and oxygen reduction. If Novec 1230 fluid comes into contact with fire, it removes the heat so combustion reactions can no longer occur.

Q Is 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 [Novec 1230 fluid's transformation from liquid to gas](#) (PDF, 51 kb).

Q What are the advantages of using 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 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-pressurisation 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 [Novec 1230 fluid compares to inert gas](#).

Safety FAQs

Q Is this product safe for human occupancy?

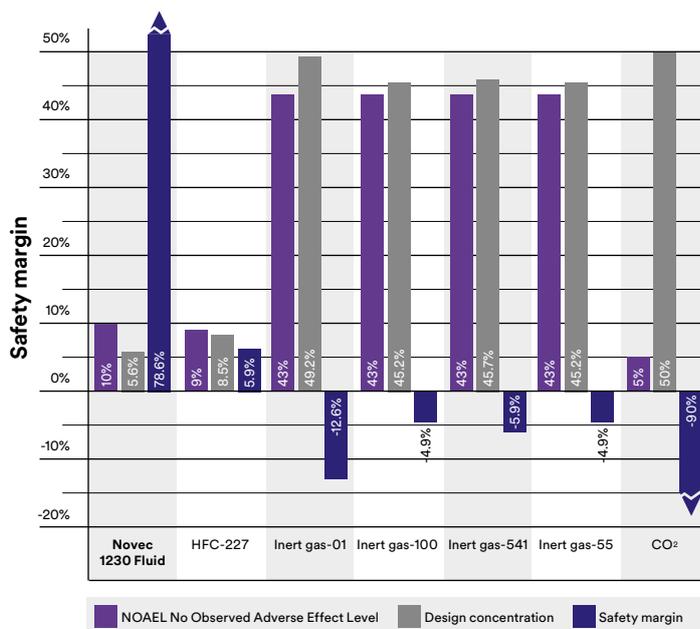
A Yes. 3M™ Novec™ 1230 Fire Protection Fluid currently provides the largest margin of safety of any clean agent.

Reviewing the permitted limit for humans and the design concentration gives the best guide to an agent’s safety margin. The NOAEL (No Observed Adverse Effect Level) is the internationally established limit for the various extinguishing agents. The design concentration is the amount of extinguishing agent required to extinguish the fire safely. The margin of safety for humans arises from the relative difference between the design concentration and the specific NOAEL.

As the chart shows, Novec 1230 fluid offers, by far, the highest human safety margin. It also remains safe in case of future alterations to the free volume of the space (e.g. if integration of additional inventory/equipment reduces air volume and increases design concentration).

3M™ Novec™ 1230 Fire Protection Fluid provides widest safety margin for use in occupied spaces

Based on EN 15004 Higher Hazard Class A, and NFPA 12 for CO₂



Q When designing a fire suppression system using Novec 1230 fluid, how are agent concentrations maintained after discharge?

A Systems using Novec 1230 fluid are designed to flood a space with the gas to a design concentration. This design concentration is maintained by ensuring that the space has integrity (no leaks or minimal leaks) to maintain the required concentration for the required hold time, usually 10 minutes as a minimum. According to the 2015 edition of NFPA 2001, paragraph 5.6, “A minimum concentration of 85 percent of the adjusted minimum design concentration shall be held at the highest height of protected content within the hazard for a period of 10 minutes or for a time period sufficient to allow for response by trained personnel.” This requirement also exists in other, similar standards.

Sustainability FAQs

Q Why should I choose 3M™ Novec™ 1230 Fire Protection Fluid rather than an HFC fire suppression system?

A As of October 2016, HFCs including HFC-227ea and HFC-125 are following the path of halon, in being scheduled for global production phasedown under the Montreal Protocol. Although these HFCs are clean agents that do not deplete the ozone layer, they are potent greenhouse gases – more than 3000 times more potent than CO₂. The European Union's HFC phasedown started in 2015 under the F-Gas regulation. In 2016 at the 28th Meeting of the Parties to the Montreal Protocol in Kigali, Rwanda, nearly 200 nations approved the timetable to phase-down high global warming potential (GWP) HFCs. Known as the [Kigali Amendment](#), this agreement clearly defines the international phasedown paths for HFC production and use.

Because fire suppression systems are often intended to last for 30 years or more, HFCs have become unsustainable clean agents. Novec 1230 fluid provides the fire protection industry with an agent that will stand the test of time based on its safety, performance and environmental properties. Novec 1230 fluid has no ozone depletion potential and a climate impact less than CO₂ and it's not targeted for phasedown or phase-out.

[Learn more](#) about how 3M™ Novec™ 1230 Fire Protection Fluid stacks up against the competition.

Q Can 3M guarantee that Novec 1230 fluid will not be subject to environmental restrictions in the future?

A While no one can accurately predict what the future will bring, 3M is so confident that Novec 1230 fluid will not be affected by any environmental mandates that it offers the 3M™ Blue Sky™ Warranty.

Read the [Blue Sky Warranty flyer](#) (PDF, 248 kb) for more information.

Q What is the 3M™ Blue Sky™ Warranty?

A The 3M™ Blue Sky™ Warranty states, 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 phasedown by the Montreal Protocol, nor subject to the European F-Gas Regulation targeting the phasedown of production and import of HFCs into Europe.

Read the [3M Blue Sky Warranty](#) (PDF, 223 kb) complete terms and conditions.

Q How much will it cost to receive this reinsurance?

A There is no cost for this warranty and it is in effect for 20 years after installation.

To apply, an end user who purchased a newly installed system simply registers it on the [3M Novec website](#) within 30 days of system installation.

Q Why is Novec 1230 fluid considered a 'third' generation fire suppression clean agent?

A The halon family of fire protection products was widely utilised as the first of the new clean agents. These products were popular because they would extinguish a fire without damaging the contents of the space being protected, such as the early computer server rooms. However, in 1987, halons were regulated by the Montreal Protocol because they contributed to the depletion of the ozone layer. In response to the mandates of the Montreal Protocol, manufacturers developed replacement products for halons known as HFCs including FM-200®, the second generation of clean agents. While none of these products contributed to ozone depletion, they do have other environmental concerns such as high global warming potential (GWP) and the resulting regulatory consequences addressed above.

Novec 1230 fluid is a third generation clean agent because it was developed to provide high performance and a large margin of safety without harming the environment.

Q Water is sustainable too. Why would 3M™ Novec™ 1230 Fire Protection Fluid be used rather than water mist?

A Water mist is still water. It is wet and messy, electrically conductive and can require costly clean-up. It can destroy the critical assets that keep businesses running. Because water mist is not a clean agent, it is not covered by NFPA 2001. Instead, it is covered by another standard: NFPA 750 which notes, “The standard does not provide definitive fire performance criteria, nor does it offer specific guidance on how to design a system to control, suppress, or extinguish a fire.”

FM Global’s Data Sheet 5-32 states: “When it is essential to reduce equipment damage from an incipient fire to minimum possible levels, or to facilitate the return to service, provide an FM Approved clean agent fire extinguishing system with detection to protect the data equipment within the data processing equipment room. This is to supplement the automatic sprinkler or water mist system protecting the facility or raised floor.”

Q Where can I learn more about Novec 1230 fluid?

A The quickest way to find accurate and informative material regarding Novec 1230 fluid is on our [Fire Suppression - Novec 1230 Fluid webpage](#).

Specifying 3M™ Novec™ 1230 Fire Protection Fluid

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 recognised component of a listed or approved system, e.g. VdS, LPCB, CNPP and Factory Mutual.

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

Q How do I purchase a fire suppression system using 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 VdS, LPCB, CNPP and/or FM) for the fire extinguishing system, including both hardware and software. Systems can be customised to match the needs of the area being protected.

[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 a clean solution, specifications should exclude dry chemicals and water mist. To ensure sustainability, specifications should exclude HFCs. 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 Is there a requirement to have a dedicated ventilation system to remove Novec 1230 fluid after a discharge?

A Due to the wider margin of safety for people, industry standards do not require an active mechanical process designed to remove Novec 1230 fluid/gas from the protected space. 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 (e.g. to remove fumes or smoke from a possible fire).

Q What is the shelf life of 3M™ Novec™ 1230 Fire Protection Fluid?

A Novec 1230 fluid has at least a 30 year shelf life in an installed system when purchased from one of our authorised 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 minimise noise at the nozzle.

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

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 unpressurised containers and can be shipped in bulk quantities by air.

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 smart, safe and 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™ 1230 Fire Protection Fluid ■ 3M™ Novec™ Electronic Grade Coatings ■ 3M™ Novec™ Electronic Surfactants ■ 3M™ Novec™ Insulating Gases

UK 3M Electronics Materials Solutions Division 0800 032 0841	Germany 3M Germany 49 2131 140	Belgium 3M Belgium 32 3 250 7521	Czech Republic 3M Czech Republic 420 2 6138011	3M East 41 4179 94040	France 3M France 33 1303 16161	Israel 3M Israel 972 9 9561490	Spain 3M Spain 34 91 3216000
Russia 3M Russia 7 495 7847474	Hungary 3M Hungary 36 1 270 7777	Romania 3M Romania 40 21 202 800	Italy 3M Italy 39 2 70351	Poland 3M Poland 48 22 739 6000	Switzerland 3M Switzerland 41 1 7249090	Lithuania 3M Baltics 370 5216 0780	

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.

Warranty, limited remedy, and disclaimer: Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M’s option, replacement of the 3M product or refund of the purchase price.

Limitation of liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



Electronics Materials Solutions Division

3M United Kingdom PLC, 3M Centre, Cain Rd, Bracknell RG12 8HT, United Kingdom
0800 0320841
www.3m.co.uk/novec1230

J402703.
3M and Novec are trademarks of the 3M company. Blue Sky is a service mark of 3M company © 3M 2018. All rights reserved.