

A Kidde Fire Protection FM-100 System protecting computer server and data rooms at CDMA, a mobile telecom operator of The Communication Authority of Thailand in Chiangmai in Northern Thailand.



Suppression Solutions

Clean agent systems are used extensively around the world to protect business-critical computer and telecoms rooms, and also precious artefacts in archives, museums and art galleries. They don't cause collateral damage to whatever they are protecting from fire because they don't leave behind any oily residues, particulates, water or corrosive materials.

By Lee James

Kidde Fire Protection

No single clean agent currently available is suitable for all applications, and so the unique properties of each agent must be carefully matched to each application. Factors that need to be considered are the physical dimensions of the risk; whether or not it is occupied by personnel; weight/space limitations for suppressant storage; fire fighting performance; environmental credentials; and of course the overall cost of the system.

Latest technology

The latest arrival on the fire suppression market is 3M™ Novec™ 1230 Fire Protection Fluid. It differs from conventional chemical agents in that it is stored as a liquid and, thanks to efficient nozzle technology, is discharged into the hazard zone as a colourless, non-conductive and non-corrosive gas. The agent does not disrupt the operation of electronic equipment even when in its liquid state. This has been graphically demonstrated by mobile



phones being shown to work even when fully immersed in the fluid!

The big advantage of Novec 1230 fluid is that it has negligible impact on the environment. Known chemically as a fluoroketone, its greatest appeal is with companies where environmental considerations are high on the corporate agenda. Its impressive "environmental footprint" credentials include a zero ODP, an GWP of just one and a remarkably low atmospheric lifetime of only 5 days. It satisfies not only today's environmental regulations, but also meets all of those in the foreseeable future.

Novec 1230 fluid puts fires out quickly by reaching its extinguishing concentration in 10 seconds or less. It works by absorbing heat from the fire rather than oxygen depletion. It has the highest heat capacity of any commercially available chemical agent, giving it the lowest extinguishing concentration of 4 to 6 percent.

Novec 1230 fluid is people-friendly too. It presents no risk to personnel in occupied spaces at normal design concentrations. The US EPA Significant New Alternatives Program (SNAP) has classified it as acceptable for use as a total flooding agent in occupied spaces. In fact, its low extinguishing concentration (4-6%) in combination with a high No Observable Adverse Effect Level (NOAEL) of 10 percent means that it provides a safety margin of nearly 100 percent. This is by far the largest safety margin of any clean fire suppression agent currently available.

Novec 1230 fluid systems are available in 42 and 25 bar versions. While 25 bar systems are the most cost-effective, 42 bar systems offer increased design flexibility for large or complex pipe runs.

Chemical gases

With hundreds of thousands of systems installed in over seventy countries world wide, the most

widely used Halon replacement is a hydrofluorocarbon (HFC) called HFC-227ea.

HFC-227ea works by absorbing heat from the flame and the fuel, reducing the temperature to a point where the flame can not sustain itself and the fire is extinguished. It provides rapid suppression, with a short discharge time of typically 6 to 10 seconds after fire detection. With a relatively small cylinder storage footprint HFC-227ea is ideally suited to use in areas where space is at a premium or weight restrictions apply.

The largest manufacturer of HFC-227ea is the US-based Great Lakes Chemical Corporation, recently re-named Chemtura. Known as FM-200™, its product is the most comprehensively tested clean agent in history. Over \$20 million has been spent by Great Lakes on toxicology and safety testing. It is completely safe for use in occupied areas within prescribed concentrations and exposure times. It is so safe that it has even been designated as a replacement for CFCs as a propellant for pharmaceutical metered-dose inhalers (MDI).

HFC-227ea has a zero ODP, a low GWP and a short atmospheric lifetime of only 29 years. Since its environmental impact is negligible, it is likely to remain a viable agent for many years to come. Perhaps the best evidence for this is the fact that the US Environmental Protection Agency recently installed HFC-227ea systems to protect sensitive equipment at its National Computer Center in North Carolina.

Inert gases

These are a blend of gases that occur naturally in the atmosphere. Those most commonly used are argon, nitrogen and carbon dioxide. They are popular with organisations that prefer to use a non-chemical suppression agent. With zero ODP, zero GWP and zero atmospheric life time, inert gases have excellent environmental characteristics.



Ginge-Kerr

Argonite

Argonite inert gas fire suppression systems from Ginge-Kerr are used extensively around the world to protect high value assets. Ginge-Kerr is part of UTC Fire & Security, a unit of United Technologies Corp. (NYSE:UTX)

Clean Agent Technology

Argonite is ideal for protecting business-critical computer and telecoms rooms, and also precious artefacts in archives, museums and art galleries. It gets organisations back to normal quickly with minimal damage, disruption and clean-up costs. It does not cause collateral damage to whatever it is protecting from fire because it does not leave behind any water or particulates.

Naturally Superior

Argonite is an inert gas blend consisting of a 50:50 mixture of the two gases Argon and Nitrogen that occur naturally in the atmosphere. With zero Ozone Depletion Potential (ODP), zero Global Warming Potential (GWP) and zero atmospheric life time, Argonite has excellent environmental credentials.

High Performance

Argonite is effective against fires in almost all combustible materials and flammable liquids. It works by displacing oxygen from the atmosphere and reducing it from the normal 21% to a level below 15% that will not support combustion. A typical design concentration of 40% will reduce the oxygen level to 12.5% within 60 seconds.

Low Space Requirement

Argonite systems consist of one or more cylinders, usually at 300 bar pressure, connected via a common manifold. System actuation can be manual or automatic and the gas is distributed through a pipe network and enters the protected area through special discharge nozzles.

A range of cylinders is available offering a choice of fills and pressures. The latest LPCB approved systems with cylinder storage pressures of 300 bar offer 30% space savings over previous

200 bar systems. The cylinders are mounted in rows and may be stored in any suitable location, even over 100 metres away from the protected areas.

If more than one area in a building needs to be protected, then a single Argonite system, designed to protect the largest room, can be used, with automatic valves directing the appropriate amount of Argonite into the required protected space. Provided that there is a low risk of more than one fire in the facility at any one time, this can provide significant cost and space savings.

Reliable & Affordable

Ginge-Kerr has over ten years design and installation experience. Factory trained and certified design engineers offer flexible design packages for the most cost-effective fire protection solutions. System design, the quantity of gas used, together with computer calculated pipe and nozzle dimensions ensure that the correct amount of Argonite is released effectively.

The Argonite system has been tested and approved by independent regulatory bodies throughout the world. In addition, system components are manufactured in accordance with ISO 9001:2000 Quality Management System and comply with all relevant legislative requirements such as US DOT and EU Transportable Pressure Equipment Directive (TPED) for cylinders and Pressure Equipment Directive (PED) for pressure components.

Argonite systems have low recharge and maintenance costs. The cylinder valves are designed to ensure reduced pipe sizes and low installation costs as well as optimum system performance. The valve design also allows a worldwide network of distributors to re-charge the cylinders easily without the need for replacement parts.

Global Reach

Argonite systems have a proven track record of success with more than 15,000 installed worldwide since 1993. Originally manufactured in Denmark, they are today produced at a new advanced fire suppression system facility at Bentham in the UK. System design and customer support is provided from Thame, near Oxford, with a world wide network of factory trained distributors. Ginge-Kerr is a UTC Fire & Security Company, which provides fire safety and security solutions to more than one million customers around the world. UTC Fire & Security is headquartered in Connecticut, USA.

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