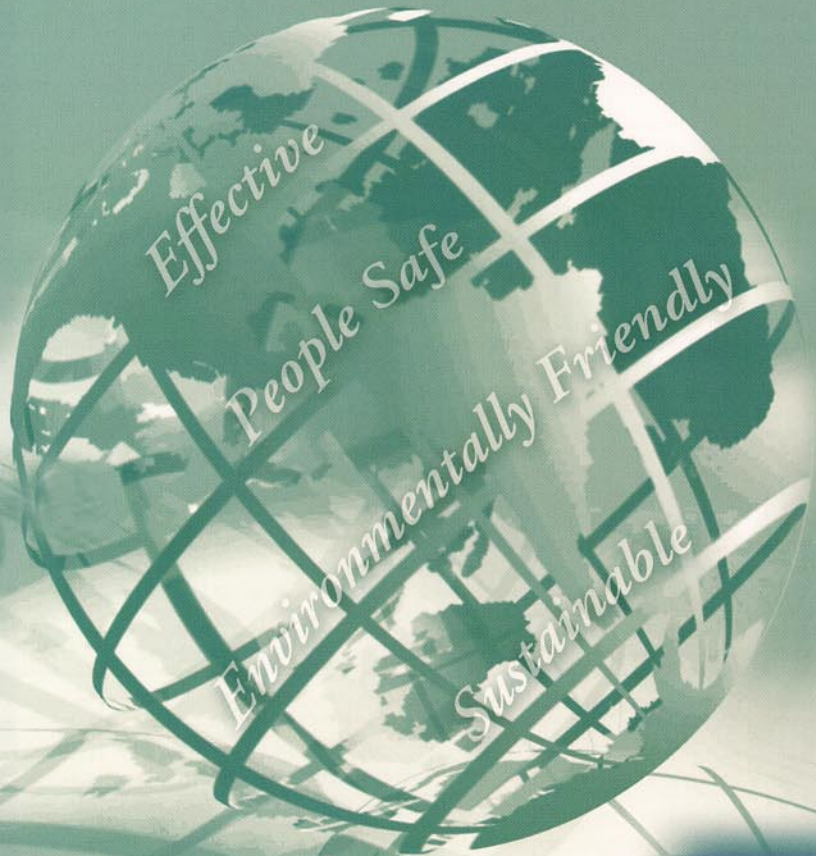
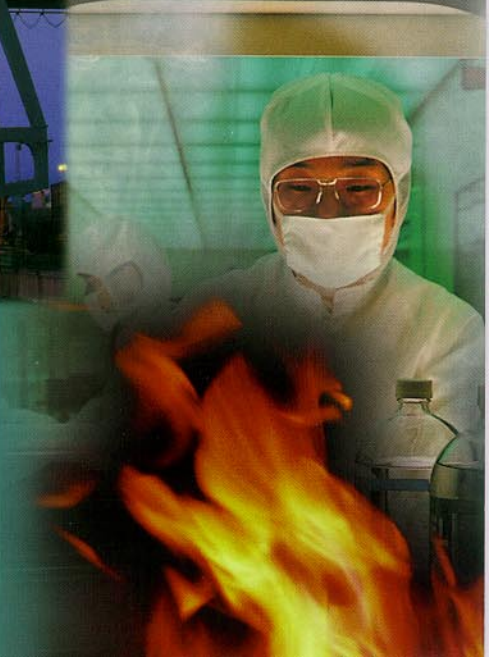
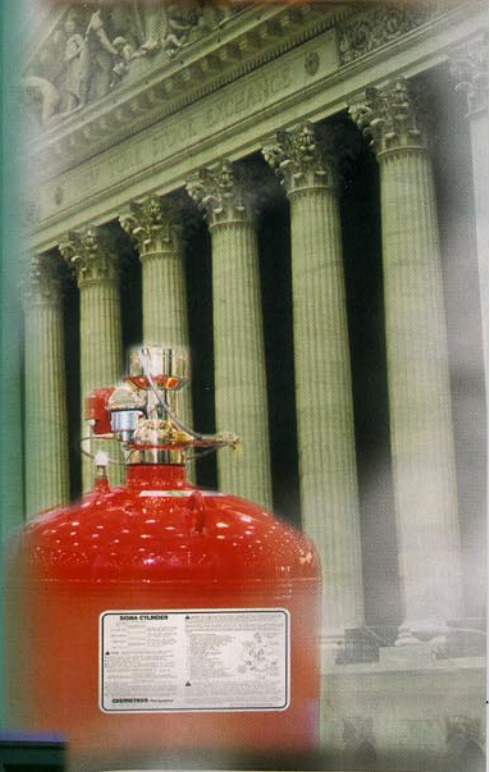
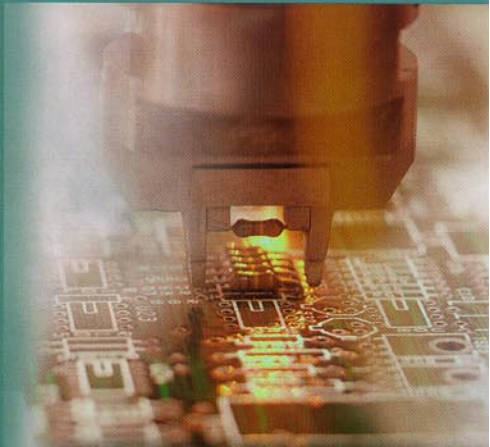


CHEMETRON

Fire Systems™

CLEAN AGENT FIRE SUPPRESSION SYSTEMS

Utilizing 3M™ NOVEC™ 1230
Fire Protection Fluid



A World of Protection

How Would Your Business Survive A Fire?

In today's competitive markets, no company or facility can afford the loss of time, money, and productivity that occur as a result of a fire. That's why the world turns to Chemetron for integrated, start-to-finish solutions for special hazard requirements.

The safety of your personnel is our top priority. Every system we design, install, and maintain is supported by our worldwide network of trained personnel and distributors to ensure safe system operation, to protect your personnel as well as property.

If a fire occurs, your ability to recover quickly from business disruption depends on choosing the best fire protection system and agent for your particular application.

There is a significant need for a clean agent that will not contribute to further loss or downtime when a fire occurs. The use of an environmentally friendly and people safe fire protection system for occupied spaces is critical.

New Technology from a Proven Leader

For more than 65 years Chemetron has offered a single, dependable source for special hazard fire suppression systems and support.

Technology, expertise and customer loyalty have driven Chemetron Fire Systems to the forefront in the global marketplace. Today our core businesses hold a leading share in their specific markets.

The Benefits of Experience

The challenge of new applications and protection of valuable assets continue to advance our technical development. Chemetron is your single source solution for special hazards fire suppression systems by integrating:

- Fire hazard evaluations
- Hardware
- Advanced engineering, technical and service support
- Innovative computer software
- A worldwide distribution and service network
- A commitment to environmental safety
- A commitment to personnel safety



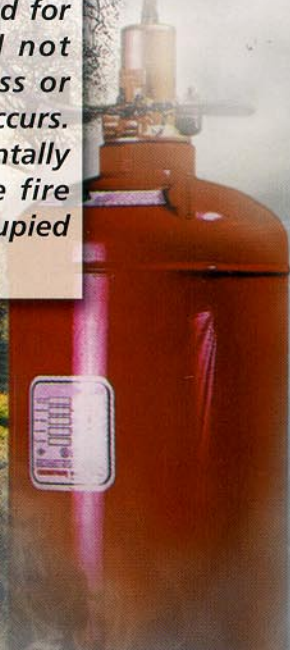
Our growth has not been a matter of chance. It has been built on a history of ideas, service and quality.

1230 Advantages

3M™ Novec™ 1230 fire protection fluid is an environmentally acceptable, people compatible, clean agent for vital facilities with a wide range of hazards. Novec 1230 fluid suppresses the fire by removing the heat energy and interrupting the combustion process.

As a clean agent, Novec 1230 fluid offers these benefits:

- Very low Global Warming Potential (GWP) of just one
- Atmospheric lifetime of approximately 5 days
- Ozone Depleting Potential (ODP) of Zero
- No post-fire residues to clean up
- No damage to protected equipment
- Is electronically non-conductive
- Safe for use in a wide range of normally occupied hazard areas
- SNAP List Approved



Effective

With extinguishment capabilities of 10 seconds or less, Novec 1230 Fire Protection Fluid has the capability to extinguish fires fast and effectively – before any damage is done to your valued assets.

Market Sectors

Chemetron systems engineered for use with Novec 1230 fluid safeguard lives, assets, and reputations. Our capability to engineer solutions that meet challenging business and industry applications is evident in a variety of market sectors served worldwide.

- Telecommunication Facilities
- Computer Operations
- Control Rooms
- Shipboard (Marine Systems)
- Rare Book Libraries
- Universities & Museums
- Art Galleries
- Record & Storage Facilities
- Petrochemical Installations
- Pharmaceutical & Medical Facilities
- Electronics & Data Processing Equipment

Our systems are in service protecting many critical facilities worldwide. We offer custom-designed systems engineered to precise requirements and backed by a global installation and service network.

Multiple Hazard Capability

Chemetron engineered systems combined with Novec 1230 fluid work hand-in-hand with state-of-the-art controls and detection components to detect and extinguish fires, long before substantial fire damage can occur.

Chemetron *integrated* systems protect hazards using Novec 1230 fluid and consist of four basic components and accessories:

• Storage and valve components

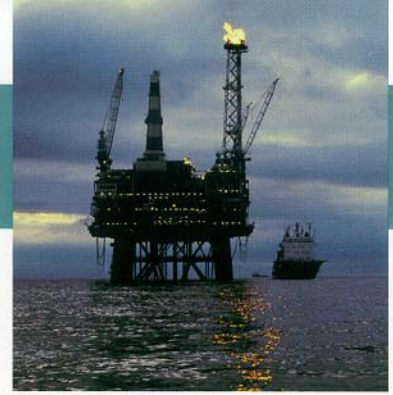
These components consist of agent containers, valve assemblies, piping, and discharge nozzles.

- Novec 1230 fluid is stored as a liquid in steel containers and is super-pressurized by nitrogen. Cylinders can be grouped together for larger hazard areas.
- Storage pressure of 360 PSIG
- Cylinder Sizes:

• 40 lb	• 400 lb
• 55 lb	• 550 lb
• 95 lb	• 600 lb
• 150 lb	• 750 lb
• 250 lb	• 1000 lb

•Completer Kits

This system component consists of warning signs, hoses, connection fittings, pressure gauge, solenoid valve, and the actuator required to manually operate the cylinder valve.



•Control panel

The control panel is the brains of the system and is used to monitor the detection and accessories.

•Detection, alarm devices, and accessories

These are external devices that act as the eyes and voice of the system as they watch for signs of fire or trouble and give audible and visual signals.

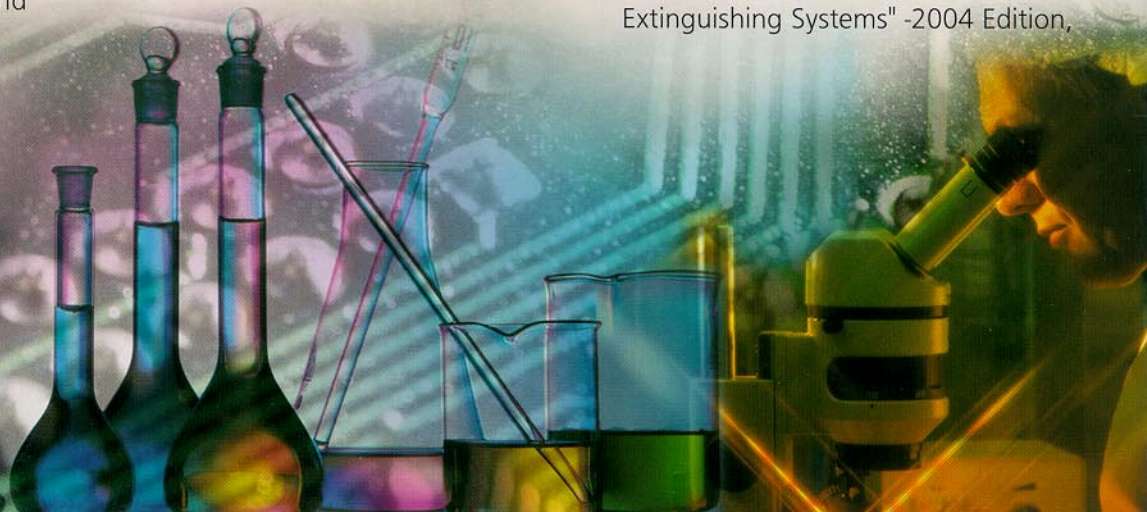
Chemetron equipment designs offer superior redundancy in a well designed package offering three types of actuation:

- automatic
- manual
- remote manual

Without changing your current control panel or detection systems, an existing system can be easily converted to a Chemetron engineered system with Novec 1230 fluid.

Recognized by the top independent listing and approval agencies, Novec 1230 fluid has been found to be an effective, clean, and non-toxic rapid-acting fire suppression agent.

The National Fire Protection Association in their NFPA 2001, "Standard on Clean Agent Fire Extinguishing Systems" -2004 Edition,

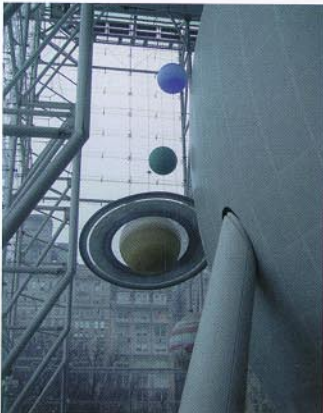


recognizes Novec 1230 Fire Protection Fluid as a clean agent that is an effective substitute for Halon 1301.

The U.S. EPA Significant New Alternatives Policy (SNAP) recognizes Novec 1230 fluid as an efficient, non-ozone depleting Halon 1301 replacement for use as a total flooding agent for the protection of occupied spaces.

Protecting Generations to Come

Safe, non-toxic, and environmentally acceptable for sensitive equipment, Novec 1230 fluid extinguishes fire by physically removing the heat energy from the flame. Novec 1230 fluid responds quickly at low concentrations to eliminate a fire. Novec 1230 fluid offers the greatest margin of safety for use in occupied spaces.



The Chemetron mission is simple – when it comes to fire protection there can be no compromise.

More Experience. More Applications Worldwide.

3M™ Novec™ 1230 Fire Protection Fluid Physical and Chemical Properties and Quality Standards

Novec 1230 fluid ($\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$) is a fluoroketone that consists of carbon, fluorine and oxygen. It is colorless, odorless, electrically non-conductive, and suppresses the fire by removing the heat energy and interrupting the combustion process.

Novec 1230 fluid is clean, efficient, environmentally acceptable, and leaves no residue, thus minimizing any downtime after a fire. If exposed to temperatures greater than 1100°F (600°C), toxic by-products of decomposition (hydrogen fluoride) are formed. Most materials contained in areas protected by Novec 1230 fluid, such as aluminum, brass, rubber, plastics, steel, and electronic components, are unaffected when exposed to Novec 1230 fluid. A properly designed and operating system using Novec 1230 fluid will minimize such formation.

Novec 1230 fluid is stored as a liquid in steel containers and is super-pressurized with nitrogen to 360 psig (2482 kPa) to increase its discharge flow characteristics. When discharged, Novec 1230 fluid will vaporize at the discharge nozzles and effectively mix with the air throughout the protected area.

Novec 1230 fluid is manufactured under ISO 9001 guidelines to strict specifications, insuring product purity. These safeguards give you total confidence that Novec 1230 fluid will leave no residue or oil deposits in your sensitive application area.

Novec 1230 fluid has been proven safe on a global scale, without restriction.



Chemetron. Your Single Source Solution.



PROTECTING YOUR VALUED ASSETS, AND THE ENVIRONMENT.



For more than 65 years Chemetron Fire Systems™ has been committed to providing our customers with the latest in fire suppression technology to protect your valued assets.

Chemetron has already brought you Argonite® (IG-55) - an effective, people safe and environmentally friendly inert gas based suppression system.

And now Chemetron is proud to announce the introduction of the next generation in Clean Agent fire suppression systems utilizing 3M™ Novec™ 1230 Fire Protection Fluid - an agent that volatizes readily to provide rapid fire suppression for occupied spaces, while achieving an excellent environmental profile:

- Very low Global Warming Potential (GWP) of just one
- Atmospheric lifetime of about 5 days
- Ozone Depleting Potential (ODP) of zero

The addition of Novec 1230 fluid and Argonite inert gas suppression systems enables Chemetron to provide you with a full array of sustainable fire suppression systems for all your needs today and into the future.





A World of Protection

Worldwide Applications

FM-200®

- Telecommunication Facilities
- Computer Operations
- Control Rooms
- Shipboard (Marine) Systems
- Rare Book Libraries
- Universities and Museums
- Art Galleries
- Record & Storage Facilities
- Petrochemical Installations
- Pharmaceutical & Medical Facilities
- Electronics & Data Processing Equipment

NOVEC 1230 Fire Protection Fluid

- Telecommunication Facilities
- Computer Operations
- Control Rooms
- Shipboard (Marine) Systems
- Rare Book Libraries
- Universities and Museums
- Art Galleries
- Record & Storage Facilities
- Petrochemical Installations
- Pharmaceutical & Medical Facilities
- Electronics & Data Processing Equipment

ARGONITE®

- Railway & Airport Signal Traffic Controls
- Laboratories
- Control Rooms
- Banking
- Switchgear Rooms
- Museum Archive Storage
- Libraries
- Universities
- Archive Rooms
- Blast Furnace Hydraulic Cellar
- Electrical Rooms
- Stock Exchanges
- Telecommunication Facilities
- Document Records and Currency Counting & Storage Areas
- Computer Operations
- Shipboard (Marine) Systems
- Art Galleries
- Petrochemical Installations
- Pharmaceutical & Medical Facilities
- Electronics & Data Processing Equipment

WATER MIST

- Gas Turbines
- Machinery Spaces
- Steam Turbine Generator Bearings

CO₂

- Power Generation
 - Base Load Plants
 - Co-generation & Combined Cycle Plants
 - Power Peaking Units
 - Upgrading Existing Plants: w/
 - Coal Conversions
 - Coal Storage/Handling/Pulverizing
- Cement Plant/Blast Furnace
 - Indirect Coal Firing Systems
- Metals Production and Processing
 - Electric Furnaces
 - Continuous Casters
 - Rolling Mills (Steel & Aluminum)
 - Coating Lines
- Printing
 - Newspaper Production
 - Periodical Printing
 - Packaging
- Automotive
 - Assembly: Paint Application, Mixing & Storage
 - Parts: Machining, Heat Treating
- Electronics Operations
 - Computer Areas
 - Automated Information Storage Systems
- Electronics/Computer Production
 - Wet Benches
 - Wave Soldering Machines
- Food Processing
- Research Facilities
 - Test Facilities
 - Anechoic Chambers
- Shipboard (Marine) Systems
- Automated Storage and Retrieval Facilities

CHEMETRON

Fire Systems™

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Chemetron. Your Single Source Solution.