A revolution is taking place in Fire Suppression. Developed from solid rocket fuel technology, Pyrogen is the world’s first commercially available Aerosol Fire Extinguishing System. Designed as a safe & practical alternative to Halon, Halocarbons, Chemical Powders and Inert Gases, Pyrogen is available from stock in a wide range of canister sizes. Pyrogen is an inert non-toxic solid that remains stable until electrically or thermally activated, whereupon it produces a gas-like extinguishing aerosol. The aerosol attacks the fire chemically and physically, giving virtual instant extinguishment & preventing re-ignition, and in certain instances, explosions. For many applications Pyrogen is the only practical alternative to Halon.

Simply installed close to the potential hazard.

When electrically or thermally ignited, Pyrogen generates the fire extinguishing aerosol.

Easily reinstalled within minutes.

Some of the sizes available.
**Benefits of Pyrogen**

**3 times more effective than Halon.**  
At a maximum* design concentration of 100g per m³  
Pyrogen exhibits equal or better extinguishing  
properties than Halon 1301 at 330g per m³ volume),  
as certified by Scientific Services Laboratory.  
Pyrogen has the lowest extinguishing concentration  
amongst commercially available agents.  

* Recommended maximum for Class A, B, C, E & F type fires. Refer to table on reverse.

**Compact & Weight Saving.**  
Pyrogen canisters can provide the smallest &  
lightest fire extinguishing system currently available.  
With space requirements of up to 1/40th of Inert  
gases, and weight penalties of often only 10% of  
competing systems, Pyrogen in many cases is the  
only practical Halon replacement.

**Simple to Install & Recommission.**  
Pyrogen canisters are electrically (or automatically  
thermally) activated. Simple wiring & plug in  
connectors can reduce installation times to a 1/3rd  
or less. If discharged, new canisters may be  
reinstalled in minutes* affording minimal downtime  
and eliminate potentially hazardous periods of  
non-active fire suppression.

* Providing all and any necessary safety checks & inspections have been completed.

**Low Toxicity.**  
Unlike some Halon alternatives, Pyrogen produces  
no aggressive acids such as Hydrogen Fluoride  
upon contact with hot surfaces. Pyrogen produces  
no chlorine or bromide and does not deplete  
oxygen to suppress the fire.

**Cost Effective**  
With minimal space & weight requirements, simple  
installation, zero maintenance and up to 10 years  
service life, Pyrogen is arguably the most cost  
effective Halon alternative available.

**Environmentally Friendly**  
Pyrogen has been certified as having Zero Ozone  
Depleting Potential (ODP) & Zero Global Warming  
Potential (GWP). It is officially listed by the US  
Environmental Protection Authority under its  
Halon replacement ‘Significant New Alternatives  
Program’ (SNAP).

**No Pressurised Cylinders or Pipe work.**  
Pyrogen Canisters are self contained, zero pressure  
units. As well as being light & safe to transport, they  
require no additional pipes, nozzles or distribution  
equipment. They cannot leak, burst or deteriorate,  
and can be stored for up to 10 years without  
maintenance.

**Tests & certification**  
Pyrogen has been tested by LPC, Scientific Service  
Laboratories (Australia) and is undergoing further  
certification worldwide. For the latest approval  
lstings and test data please contact your nearest  
Pyrogen dealer.
The principle of extinguishing action employed by Pyrogen is unique - a special solid chemical, when electrically or thermally ignited, produces combustion products - micron size dry chemical particles and gases. Dry chemical particles, (mainly potassium carbonates), and gaseous mixture, (mainly carbon dioxide, nitrogen and water vapour), mix together into a uniform fire extinguishing aerosol. Before being released into a protected area, the hot aerosol propels itself through a unique solid chemical coolant, which decomposes absorbing huge amounts of heat, thus ensuring flameless discharge and uniform distribution of the cool aerosol within the area.

The high rate of aerosol discharge ensures a tremendous knockdown effect. Micron size aerosol particles exhibit gas-like threedimensional qualities that allow the agent to rapidly distribute throughout enclosure and reach even the most concealed and shielded locations. Homogeneous distribution is achieved in a matter of seconds, while long holding times all help to prevent fire re-ignition.

### Principle of the chemical reaction suppressing the fire

**Stage 1**
Fire is propagated by the ‘flame chain carriers’ O, H & OH

**Stage 2**
Pyrogen aerosol introduces potassium radicals (K) into the flame chain reaction

**Stage 3**
K radicals attach themselves to O, H & OH and remove them from the flame chain without depleting Oxygen
Supervision/Monitoring Circuit: 1mA
Activation (Electrical): 400mA @ 6/12/24v for 10mS
Activation (Thermal): ≥175°C
Connector: 4 pin Military Type 2 PMDT Analog MIL-C-5015

Canister Characteristics
Canister Material: Marine Grade Aluminium Alloy
Surface Treatment: Powder Coated (red)
Max/Min Ambient: -50°C ~ +60°C
Shock: Tested at 10g for >13,000 impacts
Vibration: 5g @ 50~250Hz
Corrosion Resistance: Greater than UL 1058
Impact Resistance: IP558
Humidity: <96%

Electrical (Thermal) Characteristics
Supervision/Monitoring Circuit: ≤1mA
Activation (Electrical): ≥400mA @ 6/12/24v for 10mS
Activation (Thermal): ≥175°C
Connector: 4 pin Military Type 2 PMDT

Connector: 4 pin Military Type 2 PMDT Analog MIL-C-5015

Canister Characteristics
Canister Material: Marine Grade Aluminium Alloy
Surface Treatment: Powder Coated (red)
Max/Min Ambient: -50°C ~ +60°C
Shock: Tested at 10g for >13,000 impacts
Vibration: 5g @ 50~250Hz
Corrosion Resistance: Greater than UL 1058
Impact Resistance: IP558
Humidity: <96%

Aerosol Characteristics
Potassium Carbonates, solid: ~ 7g/m3
Nitrogen Gas: ~ 70% by vol.
Carbon Dioxide Gas: ~ 1.2% by vol
Carbon Monoxide Gas: ~ 0.4% by vol
Nitrogen Oxides, Gas: 40 ~ 100 ppm
Ammonia, Gas: ~ 0.075% by vol
Temp at Nozzle + 500mm: ≤75°C
Oxygen (level): 17% to 20% (typical)
Holding time: ≤60 mins

Comparison table
<table>
<thead>
<tr>
<th>Agent</th>
<th>Formula</th>
<th>%</th>
<th>TOXICITY</th>
<th>ODPA</th>
<th>GWP (100yrs vs CO2 =1)</th>
<th>Atmospheric (ys)</th>
<th>Extinguishing concentration (Class B fires)</th>
<th>%v.v.</th>
<th>Mechanism of fire suppression</th>
</tr>
</thead>
<tbody>
<tr>
<td>PYROGEN</td>
<td>KNO₃</td>
<td>62.3%</td>
<td>LOW*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>--</td>
<td>100</td>
<td>chemical</td>
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<tr>
<td></td>
<td>Plasticised Nitrocellulose</td>
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<td>12.7%</td>
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<tr>
<td></td>
<td>Carbon Admixtures</td>
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<td>9%</td>
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<td>0</td>
<td>0</td>
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<tr>
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<tr>
<td>Halon 1301</td>
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<td>10</td>
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<tr>
<td>FM-200</td>
<td>CF₃CH(CF₃)₂</td>
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<td>CHClF₃</td>
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<td>FE-13</td>
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<td></td>
<td>Ar</td>
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<td>37.3</td>
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<td>Ar</td>
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<td>Chemical powders</td>
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<td>1400-1800</td>
<td>chemical or physical</td>
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* Pyrogen has been certified as low toxicity by the Academy of Science & Biophysics Institute, Moscow.
Installation data

Available sizes

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<th>Parameter</th>
<th>MAG-02</th>
<th>MAG-1</th>
<th>MAG-2</th>
<th>MAG-3</th>
<th>MAG-4</th>
<th>MAG-5</th>
<th>MAG-11</th>
<th>MAG-12</th>
<th>MAG-13</th>
<th>MAG-14</th>
<th>MAG-15</th>
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<tr>
<td>Mass of generator, g</td>
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<td>500</td>
<td>700</td>
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<td>14,500</td>
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<td>28,000</td>
<td>38,000</td>
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<td>Mass of aerosol forming composition, g</td>
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<td>200</td>
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<td>3,500</td>
<td>4,000</td>
<td>6,000</td>
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<td>Max protected volume, m³</td>
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<td>2</td>
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<td>17</td>
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<td>46</td>
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<td>@ 100g/m³</td>
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<tr>
<td>Nozzle outlet</td>
<td>bi</td>
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<td>mono-</td>
<td>mono-</td>
<td>mono-</td>
<td>mono-</td>
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<tr>
<td>Length, mm</td>
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<td>95</td>
<td>145</td>
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<td>190</td>
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<td>260</td>
<td>175</td>
<td>227</td>
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<td>Diameter, mm</td>
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<td>306</td>
<td>402</td>
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<td>Discharge time, sec</td>
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<td>&lt;3.0</td>
<td>&lt;3.0</td>
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<td>&lt;15.0</td>
<td>&lt;15.0</td>
<td>&lt;15.0</td>
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</tr>
</tbody>
</table>

Health & Safety Statement

Primarily due to the high obscuration, PYROGEN is designed for use in normally unoccupied areas such as data rooms, machinery and engine spaces, control cabinets and storage areas. Inadvertent exposure to the aerosol should be avoided using normal precautions such as warning signals, pre-discharge alarm and post-discharge warning and venting. Accidental exposure to aerosol should be limited to 5 minutes.

As obscuration may impede the egress of personnel, hold off devices may be required for large areas or those with internal obstructions. Further details on the safe application, installation, operation and recommissioning of PYROGEN systems is given in the design manual and a manufacturers safety data sheet is available upon request.

Pyroshield (UK)

Pyroshield’s New Premises at Trafford Park Manchester.

Fire panels

Part of Pyroshield’s PyroSense Detection, Alarm & Activation Control Panel range, covering both Industrial & Marine Applications

Accessories

A complete range of accessories are available to facilitate complete installations