

## Proven Performance

### Power Substation, Malaysia

- Flashover at switchgear cabinet
- **Pyrogen** successfully extinguished fire by flooding the enclosed area with **Pyrogen** Aerosol, preventing the fire from spreading to other cabinet.



### Telecommunication Room, Malaysia



Cable tray at ceiling level



Discharged Pyrogen Generator in front of failed A/C unit

- Fire in communications equipment room.
- Air-con cable shorted - causing the mains blower unit to combust.
- Fire activated and discharged all 3 **Pyrogen** generators which successfully extinguished the fire. No collateral damage nor downtime was reported.



Communications Equipment powered and working normally after extinguishment.

### Server Room, Thailand



- Fire at the Server Room of Ministry Of Interior.
- **Pyrogen** successfully extinguished the fire thus preventing the fire from spreading to adjacent rooms.



## How Pyrogen Works

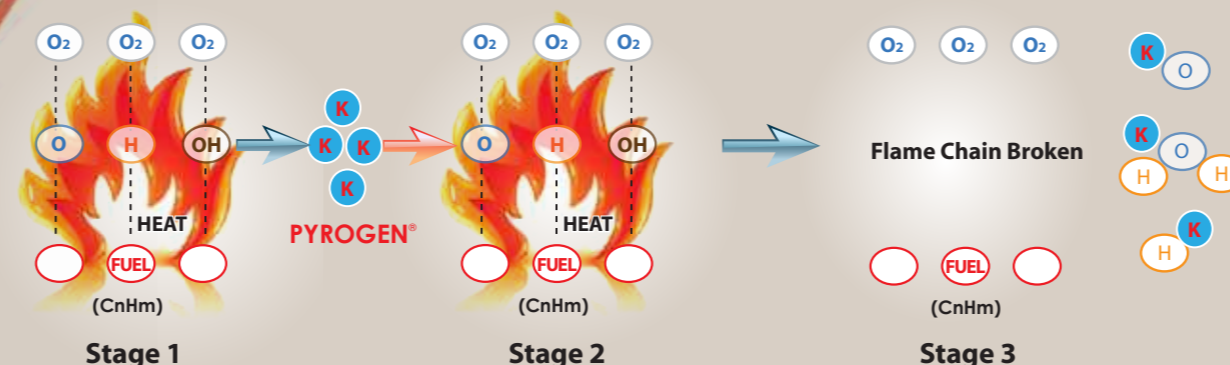


## How Pyrogen Works

**Pyrogen** is an aerosol fire-extinguishing agent. The principle extinguishing action employed by **Pyrogen** is unique - a special solid chemical, when electrically activated, produces combustion products - micron-sized dry chemical particles and gas. The **Pyrogen** fire-extinguishing aerosol is a mixture of dry chemical particles and gasses. Before being released into a protected area, the aerosol propels itself through a unique physical coolant, which absorbs and re-distributes heat, thus ensuring flameless discharge and uniform distribution of the aerosol within the area.

Micron-sized aerosol particles exhibit gas-like three dimensional qualities that allow the agent to rapidly distribute throughout the enclosure and reach concealed and shielded locations. Homogeneous distribution is achieved in a matter of seconds, while long holding times help to prevent fire re-ignition.

## Fire Suppression Mechanism



### Awards and Recognitions:



• South East Asia  
SME Tiger Awards  
Gold for Innovation



• SME 100 – Award 2011  
Malaysia's Fast Moving  
Companies

• Listed Green Building Index, Malaysia

Authorised Dealer:

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## EXA / EXA-M

Condensed Aerosol Fire Suppression Modules





## Applications

Some of the critical areas protected by Pyrogen are:

- Electrical** Protection of transformers, sub-stations, switchgear room, cable tunnels, electrical cabinets.
- Industrial** Protection of machinery and equipment in factories.
- Commercial** Protection of warehouses, storage areas, raised floors / above ceiling areas, garages.
- Marine** Protection of engine spaces/compartments of ships, boats, ferries.
- CNC Grinders** Specially developed system for protection of oil coolant based CNC machines
- Computer Room** Protection of data storage and data processing areas.
- Trains** Protection of locomotives, electrical cabinets of trains.



Car paint booth.



Raised floor.



Ship engine room.



Switch gear room.



Switch gear cabinet.

## Products Ranges

### Products Ranges & System Designs

Pyrogen offers a choice of applications - Total Flooding (protection of the entire premises) or Direct-To-Source (protection of individual enclosures within the premises). In case of a bank of electrical cabinets located in a large room, such individual protection of each cabinet is more effective both fire wise (targets fire at its source and therefore extinguishes fire at a very early stage) and cost wise (a fire incident requires a fire system replacement in an affected cabinet only, not in the entire premises).

Pyrogen also offers **EXA-M range** specifically designed for the aggressive environments and heavy-duty applications.

- Heavy-duty execution;
- Elevated ambient temperature environments;
- Resistant to high vibration, dust, salt sprays and other aggressive environments.

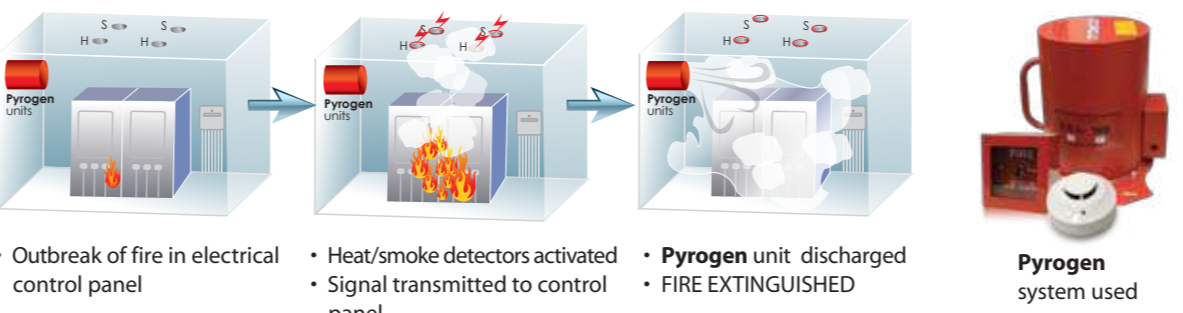


Pyrogen offers a complete range of modules for various applications. There are cylindrical units for in-cabinet and confined areas; drum units for larger enclosures and room total flooding; units for raised floors and ceiling protection.

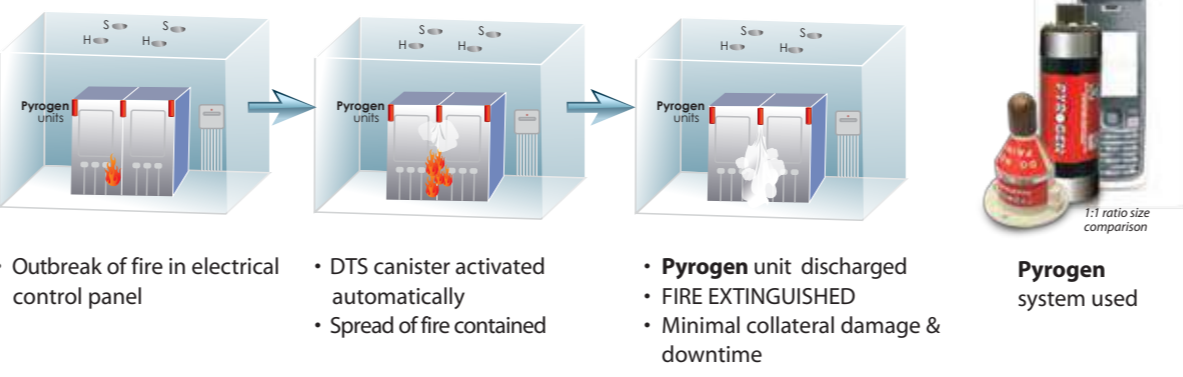
Each generator is hermetically sealed to maintain the internal integrity of all components within the unit. For the smaller cylindrical units, the casing is made of tough and corrosion resistant stainless steel and military alloy connectors are used.

The drum units are mild steel with corrosion resistant epoxy powder coating. These units come complete with attached mounting brackets.

### Total Flooding



### Direct-To-Source



## Benefits

- Environmentally Friendly**
  - Zero Ozone Depleting Potential (ODP);
  - Zero Global Warming Potential (GWP).
- High Performance**
  - Fast response after detection of fire;
  - Rapid system discharge – instantaneous extinguishing action;
  - Low agent concentration.
- Low Maintenance Cost**
  - No pressure cylinders or pipe work;
  - No moving parts;
  - No gases, no liquids, no leakage;
  - No pipe work or manifold;
  - Simple to install & re-commission;
  - No maintenance on aerosol modules. Only electrical circuit check required;
- Compact & Versatile**
  - Smallest & lightest fire extinguishing system. Most compact when compared size for size with other fire extinguishing systems;
  - Resistant to high humidity, corrosive and salty atmospheres;
  - Choice of system operation modes – automatic, manual, electrical, thermal;
  - Can be fully autonomous stand-alone systems when coupled with our TAD detection and activation devices – no power source or battery required.
- Tested & Certified**
  - Activfire, Active Fire Protection - Product Certification by CSIRO Australia\* Listed;
  - Approved alternative to Halon under Significant New Alternatives Policy (SNAP) program by United States Environmental Agency (USEPA);
  - National Maritime Safety Committee Australia;
  - American Bureau of Shipping (ABS);
  - Certified & recognised by various certification bodies worldwide.

\* CSIRO, Australia – Activfire listing program which complies with AS/NZS4487:1997 – Pyrogen Fire Extinguishing Aerosol Systems; AS/NZS1851.16:1997 – Maintenance of Fire Protection Equipment - Pyrogen Fire Extinguishing Aerosol Systems; CEN preEN 15276-1 (2004-10) – Fixed Firefighting Systems – Condensed Aerosol Extinguishing Systems – Part 1: Requirements and Test Methods for Components (00191148); CEN preEN 15276-2 (2004-10) – Fixed Firefighting Systems – Condensed Aerosol Extinguishing Systems – Part 2: Requirements and Test Methods for Components (00191149); NFPA Standards, NFPA 2010-2005 – Fixed Aerosol Fire Extinguishing Systems

### Pyrogen Signature Features

- Cost Effective** (Image of dollar signs)
- No Pressurised Cylinders, Pipe Work or leakage** (Image of a pipe with a red X over it)
- Save Space** (Image of compact Pyrogen units compared to large gas cylinders)

## Pyrogen Kits



Pre-engineered Pyrogen Packaged Systems designed for specific installations.

Pyrogen Packaged Systems come in kits containing a complete set of components for a system installation.

- Available kits include:
- Pyrogen Electrical Cabinet
  - Pyrogen Marine
  - Pyrogen CNC Grinder
  - Pyrogen Industrial/Modular Enclosure
  - Pyrogen Vehicle
  - Pyrogen Stand-Alone Autonomous System

