



Switchgear

# Condensed Aerosol Fire Extinguishing Systems. Are they all the same?

**F**ire Extinguishing Condensed Aerosol Generators (CAG) have been developed to provide a substitute for Halon 1301 which was banned in the 90's due to its negative effects on the environment and ozone layer. The fire extinguishing technology employs a Solid Compound inside a generator that on activation is transformed into a cloud-like gaseous agent that suppresses and extinguishes fire primarily by inhibiting the chemical chain reactions present in the flame. This is in contrast with other technologies that rely on oxygen depletion and/or heat absorption to achieve the same effect.

### The Technology:

Aerosol is a Total Flooding Agent that is prepared at the source and on demand. Therefore, unlike gaseous systems, CAG do not require storage space or pressurised cylinder banks thus maintenance is minimal. The system consists of a detection and an agent releasing part. When the detectors sense a fire, they signal the extinguishing panel and an electrical pulse of DC current is sent to the CAG for which they produce the aerosol. Due to the modularity of CAG, protection of certain applications which were considered impossible are now designed using this technology.

The list of advantages extends to:

- Tremendous space saving: the space required is only a small fraction of the space needed by other gaseous agents for cylinders, pipes, fixtures etc.
- Far easier and faster installation: again no need for piping, pressure cylinders, valves, special fixtures and supports.
- Easy maintenance: no need for pressure testing, weighing, pressure / leak detection etc.
- Cost effectiveness: the installation and overall ownership cost is much less compared to that of other gaseous systems.
- Versatility: suitable for total flooding and also local protection at the likely source of fire.

### Are all Condensed Aerosol Technologies the same?

Beyond the general merits of aerosols, there are certain characteristics that differentiate one condensed aerosol product to another. The most critical one is the nature of the solid compound formula that separates the aerosol fire extinguishing agents in two distinct types:

1. The type that contains pyrotechnic materials (e.g. nitro-guanidine, nitro-cellulose or colloxilin) in the aerosol forming solid compound.



1. The non-pyrotechnic containing type.

In the former, the incorporated pyrotechnic substances affect the solid compound by reducing its lifetime and also making it unstable to temperature fluctuations; the overall effect is the progressive reduction of efficiency during its operational lifetime. On the other hand, the non-pyrotechnic aerosol forming solid compounds are not subject to the same shortcomings and limitations. As a result of extensive aging tests by accredited institutions, FirePro has a life span of 15 years.

**How about International Listings & Certifications?**

Another strong point of differentiation among aerosol producing companies is the compliance with national and international standards for the technology. Not all aerosol products are certified / listed by accredited bodies such as UL/ULC, BSI or KIWA for land applications, nor do they have the Maritime Equipment Directive (MED) approval for marine applications. And when it comes to their manufacturers, not all of them are certified according to ISO 9001 and ISO 14001 for the whole scope of their activities. FirePro not only carries all of the above mentioned it has also been audited by Hughes Associates and found to be one of the only Aerosols to comply with all international standards namely the ISO 15779, NFPA 2010 and the CEN 15276.

**Care about the Future of our Children?**

An additional important merit regarding FirePro is the green label from the Global Environmental Network (GEN) - ensuring that the specific product is environment

friendly. FirePro has also passed all the examinations and been accepted and listed under the Significant New Alternatives Policy (SNAP) of the Environmental Protection Agency (EPA) of the United States.

**The Decision:**

The condensed aerosol technology is gaining ground against other gaseous agents due to technical, commercial and environmental reasons. But the journey doesn't end with the selection of this technology. "The Price Of Fire Is Priceless" therefore choosing an Aerosol Fire Extinguishing System incorporates several Primary Criteria (minimum requirements) to take into consideration during the decision making process, listed below.

- International Listings, Certificates, Approvals and Test Reports (UL, ULC, BSI, KIWA)
- Manufacturer Quality Certificates (ISO 9001, ISO 14001)
- Project References, Testimonials, Awards
- Availability of the manufacturing facility for an inspection visit
- Product Warranty (Duration and coverage)
- Certified Lifetime of CAG
- Reliability (Safety Integrity Level - SIL)
- Approvals, Test Reports by accredited bodies on Safety for humans
- Environment friendliness (Green Label)
- Chemical Composition of Solid Aerosol Forming Compound (Pyrotechnic Vs Non-Pyrotechnic)
- Dangerous Goods Classification
- Self-Activation Temperature
- Electrical Actuator nature and robustness
- Cooling Material and Principle



**FirePro.**

# Protecting Critical Equipment & Operations across the Mining Industry

Reinventing  
**Fire Suppression**

**ISO 14001** Manufactured under ISO 14001 Management Standard

**O<sub>3</sub>** Zero Ozone Depletion Potential

**Zero Global Warming Potential**

**Marked with the Green Label**

**EPA SNAP** EPA SNAP listed

**CFC FREE** CFC-free

**HFC FREE** HFC-free

**15 YEARS SHELF LIFE** Certified 15-year shelf life

**Non-Toxic**

**Non-Corrosive**

**Non-Conductive**

**O<sub>2</sub>** Non-Oxygen Depleting

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For more information, case studies and product specifications visit our website.

[www.firepro.com](http://www.firepro.com)