

Maintenance free fire suppression for mission critical datacenters and electrical hardware

Category: Other technologies

Reference: TDO0029

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Abstract:

A Dutch company developed a fire suppression technology based on cool gas generator technology. This technology was originally developed for use in satellites and is therefore completely maintenance free. Cool nitrogen generators can easily replace pressurized gas cylinders containing nitrogen that are currently used in fire extinguishing systems. The Dutch company seeks contacts with ICT manufacturers and fire suppression system producers that are interested in license agreements.

Description:

The Dutch company develops and manufactures cool gas generators for fire suppression. These systems do not contain a pressurized gas. Instead, the gas is chemically stored in a solid form. A cool gas generator delivers pure gas at ambient temperature through decomposition of this solid material. Cool gas generators can be applied anywhere where (pressurized) gas is needed. They are especially suited for applications where the gas needs to be stored for a long time before being used. Originally gas generators were developed as propulsion systems for positioning of satellites. But they are also suitable for applications like inflation of emergency systems, mechanical actuation systems and in harsh environments, e.g. bio hazard areas or military field applications (army, navy and air force). For fire suppression in datacenters and electrical hardware a dedicated version of a nitrogen producing gas generator was developed. This technology can replace pressurized gas cylinders in

gaseous fire extinguishing systems. The generator is mechanically activated and requires no external energy sources.

Innovations and advantages of the offer:

- The device produces nitrogen at room temperature, i.e. a few degrees above the actual temperature of the generator itself. In this way the temperature shock that other gaseous fire extinguishing systems usually produce, is avoided.
- Furthermore, the nitrogen is stored without pressure. Hence, there is no loss of pressure over time and the device is completely safe because it cannot explode due to external fire.
- By releasing nitrogen at low pressure, any additional damage to the ICT equipment is avoided. Furthermore it requires less expensive installation and maintenance costs than current gaseous fire extinguishing systems.
- Compared to the existing compressed gas bottles storage technology, the proposed technology has a lower volume, is flexible in positioning and integration in existing structures.

Further Information:

N/A

Application:

- (Mission critical) ICT equipment: servers, ATM's, storage, in-cabinets, PDU's, UPS's, bus bars;
- ICT containers, medical equipment, electrical cars, aerospace, aviation;
- Industrial dryers, consumer electronics, household appliances;
- Replacing gases in current gaseous extinguishing systems.

Space Heritage:

On November 2nd, 2009, the first four Cool Gas Generators were launched in space on the Proba 2 satellite. These were standard Cool Gas Generators, being ignited by standard ESA igniters. The first of the four Cool Gas Generator was activated successfully on August 16, 2011, to pressurize the fuel tanks, almost 6 years after they were qualified and delivered to ESA in October 2005. With this result the Cool Gas Generator has proved to be a very unique and space proven technology. It marked a turning point in the life and possibilities of Cool Gas Generators in space, but for many other applications as well.

The micro propulsion system for the Delfi N3Xt satellite will use miniaturized Cool Gas Generators as well. Other space projects and applications, in partnership with different companies and consortia are pending.

Broker comments:

The Cool Gas Generator is a unique way to produce different types of gas out of a solid material (grain). By starting the gas generator the solid charge is decomposed and the gas is released. Due to the innovative propellant and design, pure gas is produced at ambient temperature.

A Cool Gas Generator can produce Carbon Dioxide, Nitrogen, Oxygen (pure, MAC TGG8 for human use), Methane, Hydrogen or High Yield Gas.

The Cool Gas Generator can - in principle - replace all the existing compressed gas bottles being used in discontinue processes. Applications range from branches like Utility, ICT, Aerospace, Defence and Maritime. Security, reliability and total cost of ownership are the common denominators in all applications.

The company (EXXFIRE) is a former incubatee of ESA BIC Noordwijk and was supported by the Dutch Technology Transfer Programme (DTTP).

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