

## **FirePro is suitable for the fire protection of electronic equipment.**

**FirePro** fire extinguishing aerosol systems are the world leaders in the condensed aerosol technology for fire fighting.

Their excellent performance and fire fighting capability for **A,B,C** and **F** fire classes are well documented, with approvals and certifications issued by a multitude of world renowned organizations including Underwriters' Laboratories (of Canada).

To further enhance their credentials in particular markets, and in this case, the suitability for the protection of electronics, the **FirePro** systems underwent the most stringent of performance tests with The Dutch National Aerospace Laboratory (NLR).

NLR started the assessment in March 2008 and carried out tests on Corrosion on Electronics Instrumentation objects [amplifier/ filter printed circuit boards (PCBs)] exposed to the action of the fire extinguishing agent FirePro (condensed aerosol).

**The Dutch National Aerospace Laboratory (NLR) carries out applied research on behalf of the aviation and space sectors. NLR is an independent technological institute.**

NLR performs research to develop new technologies for aviation and space travel, not only from a scientific perspective, but also for the application of this research in industrial and governmental sectors.

NLR has two locations, one in [Amsterdam](#) and another about 100 kilometers to the northeast in [Marknesse](#). Approximately 700 people - from aircraft engineers to psychologists, to mathematicians, to materials experts - work for NLR. All these people work constantly to make aviation safer and more environmentally friendly. They support Dutch government policy, they assist the Dutch military and use their own research to enhance the innovative capacity of private businesses. In this way, NLR contributes to more responsive authorities and competitive industries.

NLR's clients include governmental authorities, large and small industries, and aerospace organizations - both in the Netherlands and abroad. NLR has a number of specialized research facilities such as wind tunnels, which it operates together with its German sister organization, [DLR](#).

NLR is a non-profit organization that carries out market-oriented and socially-relevant studies. Three-quarters of the research it performs is commissioned by clients. It also receives subsidies to perform basic research. It is one of the Netherlands' major technological institutions.

Other research companies also put NLR knowledge of materials, production technology, test methods and other disciplines into practice. See more information [www.nlr.nl](http://www.nlr.nl)

The tested electronics were exposed to the action of the **FirePro** Condensed Aerosol Fire Extinguishing Agent and subsequently, underwent temperature/ humidity variation cycles to verify whether the **FirePro** aerosol condensed particulates not removed from the electronic objects may cause corrosion and/or affect the proper functioning of electronics. The temperature/ humidity cycles were executed in accordance with procedure IEC 60068-2-30 variant 2, upper temperature +55°C, 6 cycles, 95% humidity.

The test enclosure was a simulation of a real server room enclosure, including a power supply unit with forced (ventilator) cooling system.



The results regarding the properties of **FirePro** were excellent, as outlined by the NLR in the Test Report conclusions:

Quote

Following a thorough study of the test results and evidences it is concluded that the Electronics Instrumentation test objects [amplifier/ filter printed circuit boards (PCBs)] exposed to the action of the fire extinguishing agent **FirePro** (condensed aerosol) have not been affected by their combined exposure to the **FirePro** condensed aerosol medium and to the exposure to a temperature/ humidity variation cycles (reproducing harsher conditions than the electronics working conditions in server rooms).

Therefore we may conclude that the electronics exposed to the **FirePro** condensed aerosol extinguishing agent even without being cleaned from the condensed aerosol particulates continue to function according to their original specifications.

Unquote

From the results of this very important assessment by one of the most reputable and qualified laboratories in the world, it can safely be concluded that the **FirePro** fire extinguishing systems do NOT cause corrosion or any damage on the electronic components or their performance.

