



# DECLARATION



Number K90415 /05

Replaces K90415 /04

Issued February 1<sup>th</sup>, 2018 first issue

Valid until December 4<sup>th</sup>, 2019

Declaration of Conformity,

based on the test requirements of CEN/TR 15276-1, regarding

## **FirePro**

## **Non-Pressurized Condensed Aerosol Generators and Components**

STATEMENT BY KIWA

With this declaration, Kiwa declares that legitimate confidence exists that the products supplied by

### **FirePro Systems Ltd.**

comply with the technical specifications as laid down in this product declaration.

Ronald Karel  
Kiwa

This declaration consists of 10 pages.  
Publication of this declaration is allowed.

Note:

Publication of only this front page or parts of the declaration is considered as "not valid".

#### **Kiwa Nederland B.V.**

Sir Winston Churchilllaan 273

Postbus 70

2288 AB Rijswijk

Tel. +31 88 998 44 00

[www.kiwa.nl](http://www.kiwa.nl)

Executed by:

**Kiwa NCP**

[info.ncp@kiwa.nl](mailto:info.ncp@kiwa.nl)

[www.kiwafss.nl](http://www.kiwafss.nl)

#### **Company**

FirePro Systems Ltd

8 Faleas Street

Agios Athanasios Industrial  
Area

Cy-4041 Limassol - Cyprus

Telephone +357 25379999

Email [mail@firepro.com](mailto:mail@firepro.com)

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

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

### Declaration

This product declaration is based on the test requirements of CEN/TR 15276-1.

### Generator specifications

The products mentioned below belong to this product declaration.

Type	Housing Stainless steel	Activation Type		Number of outlets
		Thermal	Electrical	
FP20 SE	Cylinder	No	Yes	2
FP20 T	Cylinder	No	Yes	1
FP20 TH	Cylinder	Yes	No	1
FP40 S	Cylinder	No	Yes	2
FP40 T	Cylinder	Yes	Yes	1
FP80 S	Cylinder	No	Yes	2
FP80 T	Cylinder	Yes	Yes	1
FP100 S	Cylinder	Yes	Yes	1
FP200 S	Cylinder	Yes	Yes	1
FP500 S	Cylinder	Yes	Yes	1
Type	Housing Red Coated Steel	Activation Type		Number of outlets
		Thermal	Electrical	
FP1200	Box	No	Yes	1
FP1200 T	Box	Yes	Yes	1
FP2000	Box	No	Yes	1
FP2000 T	Box	Yes	Yes	1
FP3000	Box	No	Yes	1
FP3000 T	Box	Yes	Yes	1
FP4200 T	Box	Yes	Yes	1
FP5700	Box	No	Yes	1
FP5700 T	Box	Yes	Yes	1
Type	Housing Stainless Steel	Activation Type		Number of outlets
		Thermal	Electrical	
FP1200 S	Box	No	Yes	1
FP1200 TS	Box	Yes	Yes	1
FP2000 S	Box	No	Yes	1
FP2000 TS	Box	Yes	Yes	1
FP3000 S	Box	No	Yes	1
FP3000 TS	Box	Yes	Yes	1
FP4200 TS	Box	Yes	Yes	1
FP5700 S	Box	No	Yes	1
FP5700 TS	Box	Yes	Yes	1

Non-pressurized generator.

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

---

### Application and use

Total flooding fire-extinguishing systems are used primarily for protection against hazards that are in enclosures or equipment that, in itself, includes an enclosure to contain the extinguishant. Condensed aerosol generators can be used as a part of fire fighting systems in buildings, plants or other structures. It covers total flooding systems primarily related to buildings, plant and other specific applications, utilizing electrically non-conducting condensed aerosol fire extinguishants.

The following are typical of such hazards, but the list is not exhaustive:

- a) Electrical and electronic hazards;
- b) Telecommunications facilities;
- c) Flammable and combustible liquids and gases;

Where aerosol generators are used in a potentially explosive application, the suitability of the generator to the atmosphere for the determined life shall be assessed.

The fire extinguishing components shall be suitable for extinguishing fires of the following classes:

- Class A according EN2
- Class B according EN2

### Conditions for application

- The numbers and types of the extinguishing components have to be determined in conformity with the guidelines and calculation methods of the supplier.
- Distribution is to be done by supplier or companies authorised by the supplier.
- Before usage an instruction is to be given by a trainer or instructor for this product authorized by the supplier.
- The installation and maintenance of the fire extinguishing components have to take place according to the specifications of the supplier/manufacturer, CEN/TR 15276-2 and/or evaluation guideline BRL-K23003.

### Point of interest during use or limitation of use

The condensed aerosol extinguishing components should not be used on fires involving the following unless relevant testing by accredited testing laboratories has been carried out to the satisfaction of the Authority:

- Temperatures for use of aerosol extinguishing agents shall be within the supplier's listed limits.
- Local applications <sup>1)</sup> of condensed aerosol extinguishing systems are not covered by this product declaration.
  - Local applications require a pre-engineered and pre-designed system which has been tested and approved for a specific application by an authority such as Kiwa or by an accredited testing laboratory.

<sup>1)</sup> a local application is used for the extinguishment of surface fires in flammable liquids, gasses, and shallow solids, where the enclosure does not conform to the requirements for total flooding.

The above list may not be exhaustive.

### Manual

At delivery the product should be accompanied by an operation manual in the English language, known and authorized by Kiwa.

Following minimum items shall be described:

- Type of aerosol generators;
- Design application density;
- Description of occupancies and hazards to be protected against;
- Specification of aerosol generators;
- Equipment schedule or list of materials for each piece of equipment or device, showing device name; supplier, model or part number and description;
- System calculation;
- Enclosure pressurization and venting calculations;
- Description of fire detection, actuation and control systems.
- Requirements for inspection, maintenance and testing of an aerosol fire-extinguishing system and for the training of inspection and maintenance personnel.

For specific details regarding the owner's manual, see CEN/TR 15276-1.

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

---

### Marking

The products should be marked with the Kiwa®-mark.

Place of the mark	Required specifications	Method of marking
<ul style="list-style-type: none"> <li>On the generator</li> </ul>	<ul style="list-style-type: none"> <li>Name of the product and supplier</li> <li>Supplier's type designation</li> <li>Production date and serial number</li> <li>Mass of aerosol-forming compound</li> <li>Temperature range</li> <li>Storage humidity range</li> <li>Service life</li> <li>Distances as specified in table 5</li> <li>Reference to the application instructions</li> <li>Certification mark</li> <li>Fire Class A according EN2</li> <li>Fire Class B according EN2</li> </ul>	<ul style="list-style-type: none"> <li>Non-erasable and non-detachable;</li> <li>Non-flammable;</li> <li>Permanent and legible</li> </ul>

### Recommendations for Customers

Check at the time of delivery whether:

- The supplier has delivered in accordance with the agreement;
- The mark and the marking method are correct;
- The products show no visible defects as a result of transport etc.

If you should reject a product on the basis of the above, please contact:

- FirePro Systems Ltd
- and, if necessary,
- Kiwa Nederland B.V.

Consult the suppliers processing guidelines for the proper storage and transport methods.

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

Cross reference CEN/TR 15276-1, Fixed firefighting systems - Condensed aerosol extinguishing systems - Part 1: Requirements and test methods for components, February 2009

Chapter	Description	Demand <sup>1)</sup>	Result	Remarks and reference to relevant chapter, table(s) and tests (if available)
1.	Scope			
2.	Normative references			
3	Terms and definitions			
4	Component requirements			
4.4	Ignition device			
4.4.2	Electrical ignition device	A	Pass	See 5.12
4.4.3	Thermal ignition device	A	Pass	See 5.12
4.4.4	Other methods of ignition device	N/A		
5.	Condensed aerosol generator requirements			
5.1	General			See 5.16 and 7.3 See table 2 See table 5
5.2	Extinguishing factor			See 7.4 See table 1
5.3	Agent distribution			See 7.5 See table 3
5.4	Discharge time			See 7.6 See table 4
5.5	Ambient temperature and humidity operation ranges			See 7.7
5.6	Service life			See 7.8
5.8	Corrosion			See 7.9 and 7.10
5.9	Vibration			See 7.11
5.10	Mechanical shock			See 7.12 and 7.13
5.11	Discharge temperature			
5.11.2	Casing temperature			See 7.14
5.11.3	Aerosol flow temperature			See FirePro Manual V6 dated February 19th 2016 See 7.14 See table 5

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

Chapter	Description	Demand <sup>1)</sup>	Result	Remarks and reference to relevant chapter, table(s) and tests (if available)
5.12	Ignition device			
5.12.2	Electrical ignition device	A	Pass	Implemented See 7.15
5.12.3	Thermal ignition device	A	Pass	Implemented <ul style="list-style-type: none"> <li>• BTA ignition device (Bulb Thermal Activator)</li> <li>• Bi-metal ignition device</li> <li>• Heat cable ignition device</li> <li>• Extension cable for bi-metal and heat cable ignition device</li> </ul> See 7.15 and 7.16 See Kiwa declaration K94463
5.13	Function reliability			Implemented See 7.16
5.14	Open fire conditions			Implemented See 7.17
5.15	Accessories			Implemented See 7.9, 7.11, 7.12 and 7.13.
7.	Test methods			
7.1	Conditions	A	Pass	
7.2	Samples	A	Pass	
7.3	Conformity	A	Pass	
7.4	Extinguishing factor determination	A	Pass	See A6
7.5	Coverage determination	A	Pass	See A5 See table 3
7.6	Discharge time test	A	Pass	See 7.16.1 See table 4
7.7	Temperature and humidity operation range tests	A	Pass	NEN-EN-IEC 60068-2-30, Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle) variant 1
7.8	Accelerated ageing test	A	Pass	15 Years See FirePro Manual V6 dated February 19th 2016

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

Chapter	Description	Demand <sup>1)</sup>	Result	Remarks and reference to relevant chapter, table(s) and tests (if available)
7.9	Corrosion test	A	Pass	
7.10	Stress corrosion test	A	Pass	Materials used in the construction are not susceptible to ammonia stress corrosion.
7.11	Vibration test	A	Pass	Acceleration amplitude for components which are designed to be attached to machinery according NEN-EN-IEC 60068-2-6
7.12	Impact test	A	Pass	Covered by Drop test 7.13
7.13	Drop test	A	Pass	
7.14	Casing and aerosol flow temperatures test			
7.14.1	Casing temperatures test	A	Pass	
7.14.2	Aerosol flow temperature test	A	Pass	See 7.16 See Table 5
7.15	Ignition performance test	A	Pass	
7.16	Function test			
7.16.1	Discharge time	A	Pass	See table 4
7.16.2	Aerosol flow temperatures	A	Pass	See table 5
7.16.4	Casing temperature test	A	Pass	
7.16.5	Discharged mass	A	Pass	
7.16.6	Explosive atmosphere actuation test	A	Pass	Tested with normal electrical ignition device only, see 5.12.2
7.17	Heat exposure test	A	Pass	Tested with normal electrical ignition device only, see 5.12.2
7.18	Explosive atmosphere test	A	Pass	Tested with normal electrical ignition device only, see 5.12.2
Annex A	(normative) Extinguishing factor/coverage test procedure			
A5	Aerosol generator distribution verification tests			
A5.1	Minimum height/maximum coverage test	A	Pass	The following types were tested, all: <ul style="list-style-type: none"> <li>• FP20</li> <li>• FP40</li> <li>• FP80</li> <li>• FP100</li> <li>• FP200</li> </ul>

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

Chapter	Description	Demand <sup>1)</sup>	Result	Remarks and reference to relevant chapter, table(s) and tests (if available)
				<ul style="list-style-type: none"> <li>• FP500</li> <li>• FP1200</li> </ul> See Table 3
A5.2	Maximum height test	A	Pass	The following types were tested, all: <ul style="list-style-type: none"> <li>• FP20</li> <li>• FP40</li> <li>• FP80</li> <li>• FP100</li> <li>• FP200</li> <li>• FP500</li> <li>• FP1200</li> <li>• FP2000</li> <li>• FP3000</li> <li>• FP4200</li> <li>• FP5700</li> </ul> See Table 3
A6	Extinguishing factor tests			
A6.1	Wood crib test	A	Pass	See Table 1
A6.2	n-Heptane pan test	A	Pass	See Table 1
A6.3	Polymeric sheet fire test A6.3.2.2 Polymethyl methacrylate (PMMA); A6.3.2.2 Polypropylene, A6.3.2.2 Acrylonitrile-butadiene-styrene polymer (ABS)	A	Pass	See Table 1
A6.4	Composite wood fire test A6.4.2.2 Reformed wood (chops) both sides plastic lined A6.4.2.2 MDF (Medium Density Fiberboards) according to EN 622 and EN 316 not lined A6.4.2.2 Multilayers plywood ( kiln spruce or fir) not lined	A	Pass	See Table 1
A7	Aerosol generator explosive atmosphere test A7.1 Actuation test inside an explosive atmosphere environment.	A	Pass	

<sup>1)</sup> A = Applicable

N/A = Not Applicable

Not tested



## FirePro Non-Pressurized Condensed Aerosol Generators and Components

### Product specifications

Table 1

Fire Class	Listing	According CEN/TR 15276-1	Pre burn time	Soak period	Test room	Density
EN2	Material / fuel		in seconds	in seconds	in m <sup>3</sup>	in grams in m <sup>3</sup>
A	Wood crib	A.6.1	120	600	105.4	102
A	Polymethylmethacrylate	A.6.3	210	600	100	55.2
A	Polypropylene	A.6.3	210	600	100	55.2
A	ABS	A.6.3	210	600	100	62
A	Reformed wood (chops)	A.6.4	360	600	100	55.2
A	MDF	A.6.4	360	600	100	55.2
A	Multilayers plywood	A.6.4	360	600	100	55.2
B	Heptane (830 KiloWatt)	A.6.2	30	30	100	52

Table 2

Type	Housing Type	Efficiency in %	Type	Housing Type	Efficiency in %
FP1200 T/S/TS	Box	63	FP20 SE	Cylinder	60
FP2000 T/S/TS	Box	60	FP20 T/TH	Cylinder	70
FP3000 T/S/TS	Box	61	FP40 S	Cylinder	61
FP4200 T/TS	Box	60	FP40 T	Cylinder	62
FP5700 T/S/TS	Box	59	FP80 S	Cylinder	59
			FP80 T	Cylinder	60
			FP100 S	Cylinder	61
			FP200 S	Cylinder	59
			FP500 S	Cylinder	66

FP20 SE, FP40 S and FP80 S are current models (Double outlet – upper and bottom part)  
 FP20 T/TH, FP40 T and FP80 T are new models (Single outlet – bottom part)

Table 3

Type	Housing Type	Agent distribution according CEN/TR 15276-1			
		Minimum height in m	Maximum area coverage in m	Maximum height in m	Maximum area coverage in m
FP1200 T/S/TS	Box	0.45	5.66 * 5.66	3.5	2.02 * 2.02
FP2000 T/S/TS	Box			3.5	3.16 * 2.09
FP3000 T/S/TS	Box			4.0	3.16 * 2.79
FP4200 T/TS	Box			5.0	3.16 * 3.16
FP5700 T/S/TS	Box			8.0	3.16 * 2.56
FP20 SE/T/TH	Cylinder	0.45	1.00 * 0.55	1.0	0.50 * 0.50
FP40 S/T	Cylinder	0.45	1.00 * 1.08	1.0	0.70 * 0.70
FP80 S/T	Cylinder	0.45	1.00 * 2.12	2.0	0.70 * 0.70
FP100 S	Cylinder	0.45	1.63 * 1.63	1.0	1.10 * 1.10
FP200 S	Cylinder	0.45	2.30 * 2.30	2.0	1.09 * 1.09
FP500 S	Cylinder	0.50	3.00 * 4.01	3.0	1.84 * 1.10

## FirePro Non-Pressurized Condensed Aerosol Generators and Components

---

**Table 4**

Type	Housing Type	Discharge time In Sec	Type	Housing Type	Discharge time In Sec
FP1200 T/S/TS	Box	15 - 20	FP20 SE/T/TH	Cylinder	3 - 6
FP2000 T/S/TS	Box	15 - 20	FP40 S/T	Cylinder	4 - 8
FP3000 T/S/TS	Box	15 - 20	FP80 S/T	Cylinder	4 - 8
FP4200 T/TS	Box	15 - 20	FP100 S	Cylinder	5 - 10
FP5700 T/S/TS	Box	15 - 20	FP200 S	Cylinder	5 - 10
			FP500 S	Cylinder	5 - 10

**Table 5**

Type	Housing Type	Distance in m		
		75°C	200°C	400°C
FP1200 T/S/TS	Box	1.5	n/a	n/a
FP2000 T/S/TS	Box	1.5	n/a	n/a
FP3000 T/S/TS	Box	2.0	0.6	n/a
FP4200 T/TS	Box	2.5	0.6	n/a
FP5700 T/S/TS	Box	2.0	0.6	n/a
FP20 SE	Cylinder	0.1	n/a	n/a
FP20 T/TH	Cylinder	0.1	n/a	n/a
FP40 S	Cylinder	0.1	n/a	n/a
FP40 T	Cylinder	0.15	n/a	n/a
FP80 S	Cylinder	0.1	n/a	n/a
FP80 T	Cylinder	0.1	n/a	n/a
FP100 S	Cylinder	0.3	n/a	n/a
FP200 S	Cylinder	0.4	0.1	n/a
FP500 S	Cylinder	1.0	0.3	n/a