



Product certificate K86591/09

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Replaces K86591/08

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DSPA - Non-Pressurized Condensed Aerosol Generators and Components

STATEMENT BY KIWA

With this product certificate, issued in accordance with the Kiwa Regulations for Certification, Kiwa declares that legitimate confidence exists that the products supplied by

DSPA B.V.

as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa Product Certification Scheme BRL-K23001/06 "for non-pressurized condensed aerosol generators and components used in fixed fire extinguishing systems" of September 2th, 2020.

Ron Scheepers
Kiwa

Publication of this certificate is allowed.

Advice: consult www.kiwa.nl in order to ensure that this certificate is still valid.

CERTIFICATE

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Certification process
consists of initial and
regular assessment of:

- quality system
- product

Technical specification & Approval

The Kiwa Product Certification Scheme K23001/06 "for non-pressurized condensed aerosol generators and components used in fixed fire extinguishing systems" of September 2th, 2020 is based on the following standards:

- EN15276-1 Fixed fire fighting systems – Condensed aerosol extinguishing systems - Part 1: Requirements and test methods for components;
- ISO 15779 Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements.

The following Aerosol non-pressurized generators belong to this product declaration.

| Type | Housing Red coated steel | Activation |
|-------------|-----------------------------------|----------------------------|
| DSPA 8-1 | Cylindrical, axial | Electrical |
| DSPA 8-1-60 | Cylindrical, axial | Electrical |
| DSPA 2-4-1 | Cylindrical, axial | Electrical |
| DSPA 11-1 | Disk, radial, double shaped plate | Electrical |
| DSPA 11-2 | Disk, radial, double shaped plate | Electrical |
| DSPA 11-3 | Disk, radial, double shaped plate | Electrical |
| DSPA 11-4 | Disk, radial, double shaped plate | Electrical |
| DSPA 11-5 | Disk, radial, double shaped plate | Electrical |
| DSPA 11-6 | Disk, radial, double shaped plate | Electrical |
| DSPA 11-7 | Disk, axial, double shaped plate | Electrical |
| DSPA 12-1 | Disk, radial, single shaped plate | Electrical or Thermal cord |
| DSPA 12-2 | Disk, radial, single shaped plate | Electrical or Thermal cord |
| DSPA 12-3 | Disk, radial, single shaped plate | Electrical or Thermal cord |
| DSPA 12-4 | Disk, radial, single shaped plate | Electrical or Thermal cord |
| DSPA 12-5 | Disk, radial, single shaped plate | Thermal cord |

| Type | Housing Aluminum | Activation |
|-------------|---------------------|------------|
| DSPA 0.90-2 | Cylindrical, axial | Electrical |
| DSPA 0.45-2 | Cylindrical, axial | Electrical |

Application and use

It is important that the fire protection of a building or plant be considered as a whole. Condensed aerosol extinguishing systems form only a part, though an important part, of the available facilities, but it should not be assumed that their adoption necessarily removes the need to consider supplementary measures, such as the provision of portable fire extinguishers or other mobile appliances for first aid or emergency use, or to deal with special hazards.

Condensed aerosol extinguishants are an effective medium for the extinction of flammable liquid fires (Class B according to EN2), and ordinary Class A to EN2 hazards (solid surface burning fires), but it should not be forgotten, in the planning of comprehensive schemes, that there may be hazards for which these mediums are not suitable, or that in certain circumstances or situations there may be dangers in their use requiring special precautions. For Class C to EN2 (fires involving gases) is the extinguishing density also determined.

Advice on these matters can be obtained from the approved supplier of this manufacturer of the extinguishant and / or the extinguishing system according to scheme K23003. Information may also be sought from the appropriate fire authority, the health and safety authorities and insurers. In addition, reference should be made as necessary to other national standards and statutory regulations of the particular country.

It is essential that firefighting equipment be carefully maintained to ensure instant readiness when required. Routine maintenance is liable to be overlooked or given insufficient attention by the owner of the system. It is, however, neglected at peril to the lives of occupants of the premises and at the risk of crippling financial loss. The importance of maintenance cannot be too highly emphasized. Installation and maintenance should only be carried out by qualified personnel according to scheme K23003.

Inspection should include an evaluation that the extinguishing system continues to provide adequate protection for the risk (protected zones as well as state of the art can change over time).

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.

Conditions for application

- The detail engineering and installation of the extinguishing system shall to be determined in conformity with the guidelines and calculation methods of the manufacturer.
- The user of the extinguishing system is instructed by an instructor for this system authorized by the supplier on behalf of the manufacturer.
- The detail engineering, installation and maintenance of the fire extinguishing components have to take place according to the specifications of the manufacturer, ISO15779, EN15276-2 and certification scheme K23003. The minimal density for the extinguishing systems shall be based on a Class A according to EN2 for the compatible wood crib according to ISO15779. For risk associated with deep seated fires shall be based on a Class A wood crib test according to EN15276-1.

Point of interest during 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 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.

Design Installation,& Operating Manual (DIOM)

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

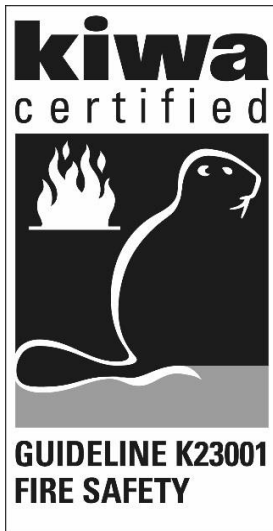
Following minimum items shall be described:

- Type of aerosol generators;
- Design application density in relation to Fire Class according to EN2 with a minimum based on Fire Class A (compatible wood crib);
- 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 (DIOM) Design Installation,& Operating Manual, see EN15276-1&2, ISO15779 & NFPA 2010.

Marking

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



Place of the mark:

- On the generator

Required specifications:

- Name of the product and supplier
- Supplier's type designation
- Production date and serial number
- Mass of aerosol-forming compound
- Temperature range
- Storage humidity range
- Service life
- Distances as specified in table 5 of this certificate
- Reference to the application instructions
- Certification mark
- Class A according EN2
- Class B according EN2

Method of marking

- Non-erasable and non-detachable;
- Non-flammable;
- Permanent and legible

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:

- DSPA B.V.

and, if necessary,

- Kiwa Nederland B.V.

Consult the supplier's processing guidelines for the proper storage and transport methods.

Product specifications - Approval

Table 1 – pre burn time – soak time – density of the aerosol

| Fire Class | Listing | According to EN 15276-1 | Pre burn time | Soak period | Test room | Density |
|------------|-----------------------------------|----------------------------|---------------|-------------|-------------------|------------------------------|
| | | | in seconds | in seconds | in m ³ | in grams / m ³ |
| A | Wood crib | A.6.1 | 120 | 600 | 101.3 | 116 |
| A | Class A compatible wood crib test | A.6.4 | 120 | 600 | 101.3 | 79 |
| A | Polymethylmethacrylate | A.6.3 | 210 | 600 | 112.12 | 97 |
| A | Polypropylene | A.6.3 | 210 | 600 | 112.12 | 58 |
| A | ABS | A.6.3 | 210 | 600 | 112.12 | 87 |
| A | Reformed wood (chops) | A.6.4 | 360 | 600 | 112.12 | 29 |
| A | MDF | A.6.4 | 360 | 600 | 112.12 | 59 |
| A | Multilayers plywood | A.6.4 | 360 | 600 | 112.12 | 87 |
| B | Heptane | A.6.2 | 30 | 600 | 112.12 | 34 |
| C | Propane (30 Kilowatt) | A.6.5 | 30 | 600 | 106.16 | 31 |

Table 2 – Efficiency of the generator types

| Type | Efficiency in % | Type | Efficiency in % | Type | Efficiency in % |
|-----------|-----------------|-------------|-----------------|-------------|-----------------|
| DSPA 11-1 | 100 | DSPA 8-1 | 100 | DSPA 2-4-1 | 100 |
| DSPA 11-2 | 88 - 100 | DSPA 8-1-60 | 100 | DSPA 0.90-2 | 100 |
| DSPA 11-3 | 90 - 100 | DSPA 12-1 | 100 | DSPA 0.45-2 | 98 - 100 |
| DSPA 11-4 | 100 | DSPA 12-2 | 100 | | |
| DSPA 11-5 | 94 - 100 | DSPA 12-3 | 96 - 100 | | |
| DSPA 11-6 | 100 | DSPA 12-4 | 100 | | |
| DSPA 11-7 | 100 | DSPA 12-5 | 90 - 100 | | |

Table 3 – Agent distribution of the generators

| Type | Housing, type and discharge method | Agent distribution according EN 15276-1 | | | |
|-------------|------------------------------------|---|----------------------------|---------------------|----------------------------|
| | | Minimum height in m | Maximum area coverage in m | Maximum height in m | Maximum area coverage in m |
| DSPA 0.90-2 | Cylinder, axial | 0.50 | 2.00 x 2.00 | 2.00 | 0.50 x 2.00 |
| DSPA 0.45-2 | Cylinder, axial | 0.50 | 2.00 x 1.00 | 1.00 | 0.50 x 1.00 |
| DSPA 8-1 | Cylinder, axial | 2.44 | 9.76 x 3.66 | 4.88 | 4.88 x 3.66 |
| DSPA 8-1 60 | Cylinder, axial | 2.44 | 9.76 x 3.66 | 4.88 | 4.88 x 3.66 |
| DSPA 8-1 60 | Cylinder, axial | 2.44 | 7.32 x 4.00 | 6.10 | 4.88 x 2.44 |
| DSPA 2-4-1 | Cylinder, axial | 2.44 | 4.00 x 3.66 | 6.10 | 2.44 x 2.44 |
| DSPA 11-1 | Disk, radial | 0.50 | 3.66 x 1.22 | 1.83 | 1.22 x 1.22 |
| DSPA 11-2 | Disk, radial | 0.50 | 3.66 x 2.44 | 2.44 | 1.22 x 1.22 |
| DSPA 11-3 | Disk, radial | 0.50 | 3.66 x 2.44 | 2.44 | 1.22 x 1.22 |
| DSPA 11-4 | Disk, radial | 1.22 | 3.66 x 3.66 | 3.05 | 1.83 x 1.83 |
| DSPA 11-5 | Disk, radial | 1.22 | 4.88 x 3.66 | 3.66 | 2.44 x 2.44 |
| DSPA 11-6 | Disk, radial | 1.22 | 7.32 x 3.66 | 3.66 | 2.44 x 2.44 |
| DSPA 11-7 | Disk, axial | 1.22 | 7.32 x 1.22 | 3.05 | 1.83 x 1.83 |
| DSPA 12-1 | Disk, radial, | 0.50 | 0.81 x 0.73 | | |
| DSPA 12-2 | Disk, radial, | 0.50 | 0.81 x 1.60 | 0.80 | 0.81 x 0.74 |
| DSPA 12-3 | Disk, radial, | 0.80 | 0.81 x 1.49 | 1.99 | 0.81 x 0.86 |
| DSPA 12-4 | Disk, radial, | 1.60 | 0.81 x 1.99 | 1.99 | 0.81 x 1.60 |
| DSPA 12-5 | Disk, radial, | | | 0.53 | 0.25 x 0.59 |

Table 4 – Discharge time of the generators

| Type | Discharge time In seconds | Type | Discharge time In seconds | Type | Discharge time In seconds |
|-----------|------------------------------|-------------|------------------------------|-------------|------------------------------|
| DSPA 11-1 | 6 - 10 | DSPA 8-1 | 67 - 89 | DSPA 2-4-1 | 48 - 53 |
| DSPA 11-2 | 9 - 15 | DSPA 8-1-60 | 48 - 58 | DSPA 0.90-2 | 53 – 57 |
| DSPA 11-3 | 14 - 26 | DSPA 12-1 | 9 - 11 | DSPA 0.45-2 | 27 – 28 |
| DSPA 11-4 | 19 - 31 | DSPA 12-2 | 13 - 15 | | |
| DSPA 11-5 | 40 - 60 | DSPA 12-3 | 9 - 11 | | |
| DSPA 11-6 | 30 - 50 | DSPA 12-4 | 11 - 14 | | |
| DSPA 11-7 | 30 - 50 | DSPA 12-5 | 5 - 7 | | |

Table 5 – radiated heat of the generators

| Type | Distance in m | | |
|-------------|---------------|-------|-------|
| | 75°C | 200°C | 400°C |
| DSPA 0.90-2 | 0.15 | n/a | n/a |
| DSPA 0.45-2 | 0.15 | n/a | n/a |
| DSPA 8-1 | 1.5 | 0.75 | 0.15 |
| DSPA 8-1-60 | 3.0 | 1.0 | 0.10 |
| DSPA 2-4-1 | 1.15 | 0.6 | n/a |
| DSPA 11-1 | 0.5 | 0.15 | 0.05 |
| DSPA 11-2 | 0.5 | 0.15 | 0.05 |
| DSPA 11-3 | 0.5 | 0.15 | 0.05 |
| DSPA 11-4 | 1.0 | 0.25 | 0.15 |
| DSPA 11-5 | 1.0 | 0.25 | 0.15 |
| DSPA 11-6 | 1.5 | 0.35 | 0.15 |
| DSPA 11-7 | 1.5 | 0.50 | 0.10 |
| DSPA 12-1 | 0.08 | 0.03 | 0.01 |
| DSPA 12-2 | 0.15 | 0.08 | 0.02 |
| DSPA 12-3 | 0.25 | 0.10 | 0.03 |
| DSPA 12-4 | 0.30 | 0.15 | 0.05 |
| DSPA 12-5 | 0.08 | 0.03 | 0.01 |

Table 6

| Listing | | According EN 15276-1 | Leakage to volume ratio | Hold Time | Test room | Density |
|---------|----------------------|-------------------------|----------------------------|------------|-------------------|------------------------------|
| EN2 | Test | | in % | in minutes | in m ³ | in grams / m ³ |
| B | Hold Time | A.7 | 0.10 | 10 | 101.3 | 78 |
| B | Hold Time (optional) | A.7.1.5 | 0.10 | 30 | 101.3 | 78 |

Cross reference EN 15276-1, Fixed fire fighting systems - Condensed aerosol extinguishing systems - Part 1: Requirements and test methods for components - 2019

| Chapter | Description | Demand ¹⁾ | 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 | | | |
| 4.1 | Condensed aerosol generator | A | Pass | Drawings and product material specifications |
| 4.2 | Solid aerosol forming compound | A | Pass | Product material specifications – formula |
| 4.3 | Cooling mechanism | A | Pass | Drawings and product material specifications and function testing. See 5.11. |
| 4.4.1 | Ignition device | A | Pass | Drawings and product material specifications and function testing. See 5.12. |
| 4.4.2 | Electrical ignition device | A | Pass | |
| 4.4.3 | Thermal ignition device | A | Pass | Types 12: Thermal cord only tested for function |
| 4.4.4 | Other methods of ignition device | N/A | | |
| 4.5 | End plate and housing | A | Pass | Drawings and product material specifications |
| 4.6 | Extinguishants | A | Pass | Product material specifications – formula |
| 5. | Condensed aerosol generator requirements | | | |
| 5.1 | General Drawings; part lists; descriptions of function and operated instructions. | A | Pass | See 5.16 and 7.3 See table 2 See table 5 |
| 5.2 | Extinguishing density Annex A | A | Pass | See 7.4 See table 1 |
| 5.3 | Agent distribution | A | Pass | See 7.5 See table 3 |
| 5.4 | Discharge time | A | Pass | See 7.14 See table 4 |
| 5.5 | Ambient temperature and humidity operation ranges | A | Pass | See 7.6 |
| 5.6 | Service life and service conditions | A | Pass | See 7.6 and 7.7 |
| 5.7 | Shelf life and storage conditions | A | Pass | Manual |
| 5.8 | Corrosion | A | Pass | See 7.8 and 7.9 |
| 5.9 | Vibration | A | Pass | See 7.10 |
| 5.10 | Mechanical shock | A | Pass | See 7.11 and 7.14 |
| 5.11 | Discharge temperature | | | |

| Chapter | Description | Demand ¹⁾ | Result | Remarks and reference to relevant chapter, table(s) and tests (if available) |
|---------|---|----------------------|--------|---|
| 5.11.2 | Casing temperature | A | Pass | See 7.14 |
| 5.11.3 | Aerosol flow temperature | A | Pass | See 7.14 See table 5 |
| 5.12 | Activation device | | | |
| 5.12.2 | Electrical ignition device | A | Pass | See 7.13 |
| 5.12.3 | Thermal ignition device | A | Pass | See 7.14; Implemented Types 12: Thermal cord only tested for function; see 7.14 Rated temperature 182°C |
| 5.13 | Function reliability | A | Pass | See 7.14 |
| 5.14 | Open fire conditions | A | Pass | See 7.15 |
| 5.15 | Accessories – mounting brackets | A | Pass | See 7.8, 7.10 and 7.13. |
| 5.16 | Documentation; General description; Technical specification; Installation instructions; Operation instructions; Maintenance instructions; Safety Data Sheet | A | Pass | |
| 6 | Marking | A | Pass | K23001 |
| 7. | Test methods | | | |
| 7.1 | Conditions | A | Pass | |
| 7.2 | Samples | A | Pass | |
| 7.3 | Compliance | A | Pass | |
| 7.4 | Extinguishing density determination Annex A | A | Pass | See A6 |
| 7.5 | Coverage determination Annex A | A | Pass | See A5 See table 3 |
| 7.6 | Temperature and humidity operation range tests EN60068-2-30: 2005; 25 <-> 55 °C at 95% with 10 cycles. Low temperature at -20 °C at 16 hours | A | Pass | Temperature limitations from -40 °C to +75°C and ambient humidity up to 95 %. |
| 7.7 | Accelerated ageing test 15 years; -10 <-> 50°C one cycle at 8 hours; 50 cycles. Start and end at -10 °C | A | Pass | 116 test days at 90 °C = 15 years based on UL 2775 |
| 7.8 | Corrosion test | A | Pass | |
| 7.9 | Stress corrosion test | A | Pass | Materials used in the construction are not susceptible to ammonia stress corrosion |
| 7.10 | Vibration test EN-IEC 60068-2-6: 2008 | A | Pass | Acceleration amplitude for components which are designed to be attached to machinery according NEN-EN-IEC 60068-2-6 |

| Chapter | Description | Demand ¹⁾ | Result | Remarks and reference to relevant chapter, table(s) and tests (if available) |
|---------|--|----------------------|--------|---|
| | | | | Type 8-1 and 8-1-60 only at 0,5G Acceleration amplitude for components which are designed to be attached to walls |
| 7.11 | Drop test | A | Pass | 2 meter |
| 7.12 | Aerosol flow test | A | Pass | |
| 7.13 | Activation performance test | A | Pass | 500 activation devices are tested of the electrical activation device. >20 activation devices are tested of thermal activation device |
| 7.14 | Function test | | | |
| 7.14.1 | Discharge time | A | Pass | See table 4 |
| 7.14.2 | Aerosol flow temperature | A | Pass | See table 5 |
| 7.14.4 | Casing temperature test | A | Pass | |
| 7.14.5 | Efficiency | A | Pass | See table 2 |
| 7.15 | Fire exposure test | A | Pass | Tested with normal electrical ignition device only |
| 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: <ul style="list-style-type: none"> All See table 3 |
| A5.2 | Maximum height test | A | Pass | The following types were tested: <ul style="list-style-type: none"> All 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 | Class A compatible wood crib test | A | Pass | See table 1 |
| | Composite wood fire test according to K23001 Reformed wood (chops) both sides plastic lined MDF (Medium Density Fibreboards) according to EN 622 and EN 316 not lined Multilayers plywood (kiln spruce or fir) not lined | A | Pass | See table 1 |

| Chapter | Description | Demand ¹⁾ | Result | Remarks and reference to relevant chapter, table(s) and tests (if available) |
|---------|-------------|----------------------|--------|--|
| A7 | Hold time | A | Pass | See table 6 |

¹⁾ A = Applicable

N/A = Not Applicable

Not tested

Cross reference ISO 15779, Condensed aerosol fire extinguishing systems - Requirements and test methods for components and system design, installation and maintenance - General requirements (ISO 15779:2011,IDT), December 2011

| Chapter | Description | Demand ¹⁾ | Result | Remarks |
|---------|--|----------------------|--------|--|
| Annex C | (normative) Test methods | | | |
| C2 | Conditions | A | Pass | |
| C3 | Samples | A | Pass | |
| C4 | Compliance | A | Pass | |
| C5 | Extinguishing application density determination | | | See D5 |
| C6 | Discharge time test | | | See C16 |
| C7 | Temperature and humidity operation range tests C7.1 Object of the test C7.2 Procedure C7.3 Low temperature test | A | Pass | Temperature limitations from -40 °C to +75°C and ambient humidity up to 95 %. |
| C8 | Accelerated ageing test | A | Pass | 116 test days at 90 °C = 15 years based on UL 2775 |
| C9 | Corrosion test | A | Pass | |
| C10 | Stress corrosion test | A | Pass | Materials used in the construction are not susceptible to ammonia stress corrosion. |
| C11 | Vibration test | A | Pass | Acceleration amplitude for components which are designed to be attached to machinery according NEN-EN-IEC 60068-2-6 Type 8-1 and 8-1-60 only at 0,5G Acceleration amplitude for components which are designed to be attached to walls |
| C12 | Impact test | A | Pass | |
| C13 | Drop test | A | Pass | Drop test at 2 meters |
| C14 | Casing and aerosol flow temperatures test C14.1 Casing temperatures test C14.2 Aerosol flow temperature test | | Pass | See C.16.3 See C.16.2 |
| C15 | Ignition performance test | A | Pass | |
| C16 | Function test | A | Pass | |
| C16.1 | Discharge time | A | Pass | See table 4 |
| C16.2 | Aerosol flow temperatures | A | Pass | See table 5 |
| C16.3 | Casing temperature test | A | Pass | Manual |
| C16.4 | Effective mass of extinguishant | A | Pass | See table 2 |
| C16.5 | Test procedure | A | Pass | |

| Chapter | Description | Demand ¹⁾ | Result | Remarks |
|---------|--|----------------------|--------|---|
| C16.6 | Requirements | A | Pass | |
| C17 | Fire exposure | A | Pass | |
| Annex D | (normative) Extinguishing application density/coverage test procedure | | | |
| D5 | Aerosol generator distribution verification tests | | | |
| D5.1 | Minimum height/maximum coverage test | A | Pass | The following types were tested: <ul style="list-style-type: none"> All See table 3 |
| D5.2 | Maximum height test | A | Pass | The following types were tested: <ul style="list-style-type: none"> All See table 3 |
| D6 | Extinguishing application density tests | | | |
| D6.1 | Wood crib test | A | Pass | See table 1 |
| D6.2 | n-Heptane pan test | A | Pass | See table 1 |
| D6.3 | Polymeric sheet fire test D6.3.2.2 Polymethyl methacrylate (PMMA); D6.3.2.2 Polypropylene, D6.3.2.2 Acrylonitrile-butadiene-styrene polymer (ABS) | A | Pass | See table 1 |
| D6.4 | Class A compatible wood crib test | A | Pass | See table 1 |
| D7 | Test of the determination of the maximum leakage area/volume ratio | A | Pass | See table 1A |

¹⁾ A = Applicable

N/A = Not Applicable

Not tested

Product specifications - Approval

Table 1

| Fire Class | Listing | According ISO 15779 | Pre burn time | Soak period | Test room | Density |
|------------|-----------------------------------|---------------------|---------------|-------------|-------------------|-----------------------------|
| EN2 | Material / fuel | | in seconds | in seconds | in m ³ | in grams per m ³ |
| A | Wood crib | D.6.1 | 120 | 600 | 101.3 | 116 |
| A | Class A compatible wood crib test | D.6.4 | 120 | 600 | 101.3 | 79 |
| A | Polymethylmethacrylate | D.6.3 | 210 | 600 | 112.12 | 97 |
| A | Polypropylene | D.6.3 | 210 | 600 | 112.12 | 58 |
| A | ABS | D.6.3 | 210 | 600 | 112.12 | 87 |
| B | Heptane | D.6.2 | 30 | 30 | 112.12 | 34 |

Table 1A

| Listing | | According ISO 15779 | Leakage to volume ratio | Hold Time | Test room | Density |
|---------|-----------|---------------------|-------------------------|------------|-------------------|---------------------------|
| EN2 | Test | | in % | in minutes | in m ³ | in grams / m ³ |
| B | Hold Time | D.7 | 0.10 | 30 | 101.3 | 78 |