

Test report

Organization:	Celanova LTD (FirePro)
Test date:	March 10 th 2005.
Test location:	CFS Holding at Oud-Beijerland the Netherlands.
Present during testing:	Mr R. Reijns of CFS / Fire Pro and Mr. P.E. Vosholof Kiwa.
Kiwa project number:	K21744
Product:	FirePro fixed fire extinguishing components
Kiwa certificate:	K21744
Guideline:	BRL-K23001/03 (2004-11-30) "Fixed fire extinguishing components based on dry aerosols"
Number of pages in this report:	2 (first version UK)

The following tests have been performed:

§2.2.6 Thermal aging of the SFEA and electrical igniter

The product (SFEA and discharge system) has a design lifespan of 15 years if stored in a dry, non corrosive environment.

Assessment method

The lifespan is determined by thermal aging. The assembly comprising the extinguishing agent and igniter is tested in its original container. The container is placed in a temperature controlled room in which the temperature can be cycled (aging cabinet). The following test is then undertaken.

The aging cabinet is set to -10°C and 50°C ($\pm 2^\circ\text{C}$) and alternates between these temperatures every 4 hours. Once cycle amounts to a full transition from -10°C to 50°C and then back to -10°C within 8 hours. Fifty cycles are completed, after which the fire extinguishing performance of the agent is determined in accordance with section 2.2.1.5.

Note:

This test is used for several materials of construction. The stability of the molecular structure of the material is tested by the temperature cycles. During each cycle the material passes the dew point which will lead to condensation on the exterior of the object. During the cold period this may lead to freezing in hairline cracks in the material which may affect the structure of the material. In use the components are not exposed to rain, i.e. they are not exposed to a full water load, but they may be affected by condensation, which is simulated by this test. This thermal aging method is adopted in several standards to obtain information about the long-term behavior of materials in the short term. The effect of this on the fire extinguishing performance is realistic and functional.

This test is indicative. The Evaluation Guideline refers to the design lifespan; however the product certificate does not include information about this parameter.

§2.2.1.5 Extinguishing object EN2, Class C, gas

A triangular sand bed burner to EN13283 filled with two layers of sand and gravel. A controlled volume of propane gas is blown through the sand bed burner.

After ignition the propane gas shall have a thermal power of 30 kW. The total burning time shall be 2 minutes.

The objects to be extinguished shall be placed in the centre of the test room at floor level. The fire extinguishing components shall be suspended in accordance with the supplier's specifications and distributed as specified by the supplier.

After the end of the activation of the fire extinguishing agent the room shall remain closed for at least 10 minutes. During this period the cell shall be monitored for signs of active fire and signs of spontaneous ignition, based on the temperature measurements in the vicinity of the fire cell.

After this period the cell shall be inspected visually for signs of active fire and signs of active ignition without the presence of the fire extinguishing agent. Any signs of fire shall be described in the report. The temperature after extinguishing shall be decisive.

Visible fire is considered as a sign of spontaneous ignition, but solely smoke is not.

The gas burner shall have a thermal cut-out which independently interrupts the flow of gas when the burner is extinguished

Instruments:

Weights = IT3000, no 032484.

Humidity / temperature = VoltCraft HT100, no. 030205024.

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Further information:

Class C for type test.

Adequate ventilation, i.e. $20.7\% \text{ O}_2 \pm 0.5\% \text{ O}_2$.

Room is 80,2m³ Ventilation area and position during extinguishing is 0.1% of the volume of the room, distributed evenly across the room. Air flow through the room is natural. Direction and homogeneity of the Agent discharge is visual monitored.

Activation electrical through the Firepro activator.

Specifications activator according to P14, version 7 of Celanova and must have a resistance within the range 1.6 - 3.6Ω, both values included.

Aging period 12 November - 29 November 2004 - 16 December 2004.

Type, serial number en production date	Weight before activation in gram	Weight after activation in gram	Extinguishing time E-Resistance	Difference in gram	%
Firepro 200 Object 1 - M4262 September 2004. Serial number 24091	1407	1250	5 sec. 2,2 ohm	157	78,5
Firepro 200 Object 3- M4262 September 2004. Serial number 24091	1400	1247	5 sec 2 ohm	147	73,5

Remarks

Object 1. The test has been performed standard cyclic frequency.

Object 3. The test has been performed with the double cyclic frequency.

The 2 FirePro components, that were thermal aged at the lab of TNO Delft, were packaged and sealed by TNO Delft.

The TNO seals of the packaging were opened in the presence of auditor Peter Voshol of Kiwa.

Evaluation

Both the samples did comply with the requirements.