Determination of non-combustibility according to IMO 2010 FTPC Part 1

PAROC Hvac Lamella Mat AluCoat

FINAS
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T001 (EN ISO/IEC 17025)

Requested by: Paroc Group Holding Oy

VTT EXPERT SERVICES LTD

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Assignment **Determination of non-combustibility of a mineral wool product**

Product

The customer gave following information about the product:
Product name: **PAROC Hvac Lamella Mat AluCoat**
Manufacturer: Paroc Oy Ab, Poland
Product description: stone wool lamella mat with reinforced aluminium foil facing.
Thickness of wool: 20…100 mm
Nominal density: 35 kg/m^3
Nominal organic content: 3,2 %

Sample

Sample of the product was chosen 27 March 2013 by a representative of VTT Expert Services Ltd at the stock of Paroc Oy Ab, Polska.

Date of delivery: 18 April 2013
Size of sample: 590 mm x 980 mm x 50 mm
Density measured by VTT: about 38 kg/m^3
Moisture content of wool measured by VTT: about 0,3 %
Organic content of wool measured by VTT: about 2,9 %

Specimens

From the sample without facing, five test specimens were made with a diameter of 45 mm and a height of 50 mm.

Test method

IMO 2010 FTPC Part 1 - Non-combustibility test

A description of the method and requirements are presented in Appendix 1.

Moisture content and organic content were measured 2-3 May 2013. Results are presented in the test report of Technical Research Centre of Finland VTT-S-3475-13 dated 21 May 2013 and Appendix 2.

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The test results relate only to the sample tested.

DESCRIPTION OF THE METHOD

IMO 2010 FTPC Part 1 *Non-combustibility test*

Moisture content

Three weighted specimens of each material in the sample are heated in a ventilated oven at a temperature of 105 ± 2 °C for 24 h and reweighted when cooled in a desiccator. The moisture content is calculated as a percentage of the dry weight.

Organic content

After the precentage moisture contents have been calculated, the three specimens shall be further heated in an oven at a temperature of 500 ± 20 °C for 2 h and weighted when cooled in a desiccator. The organic content is calculated as a percentage of the dry weight.

The organic content of each material used in the test specimen shall be within ± 0,3 % absolute of the value stated as the nominal organic content.

Non-combustibility test

Specimens
The test specimens shall be cylindrical and shall have a diameter of 43…45 mm and a height of (50 ± 3) mm. For non-homogenous materials, the test specimen shall be constructed such that all layers are represented in the test specimen in proportion to their presence, by volume, in the original sample. For homogenous products, five test specimens shall be made and for non-homogenous products ten test specimens.

Conditioning
The test specimens shall be dried in a ventilated oven maintained at (60 ± 5) °C, for between 20 h and 24 h, and cooled to ambient temperature in a desiccators prior to testing.

Test procedure
The test specimen is placed in a vertical tube furnace with a temperature of 750 ± 5 °C. Temperature alterations caused by possible burning of the test specimen are measured with three thermocouples, of which one is in the furnace, one on the test specimen surface and one in the test specimen centre. During the test the flaming time of the test specimen is also measured.

The evaluation criteria

The material is deemed non-combustible according to IMO 2010 FTPC Part 1 if all the following criterias are satisfied.

- the average furnace thermocouple temperature rise does not exceed 30°C,
- the average test specimen surface thermocouple temperature rise does not exceed 30°C,
- the average duration of sustained flaming does not exceed 10 s and
- the average mass loss does not exeed 50 %.

27.11.2012

TEST RESULTS

Method: IMO FTPC 2010 Part 1 – Non-Combustibility Test

Product name: PAROC Hvac Lamella Mat AluCoat

Moisture and organic content:

Date of test: 2-3 May 2013

Test	Moisture content, %	Organic content, %
1	0,38	2,91
2	0,40	3,12
3	0,25	2,78
mean	0,3	2,9

Non-combustibility test:

Date of test: 3 July 2013

Test	**Mass loss**	**Temperatures °C**							**Temperatures °C**			**Duration of sustained flaming**
	%	T_f	T_f (max)	T_S (max)	T_C (max)	T_f (final)	T_S (final)	T_C (final)	ΔT_f	ΔT_S	ΔT_C	**s**
1	4,15	750	789	790	763	784	784	756	5	6	7	0
2	3,24	750	783	796	761	781	795	759	2	1	2	0
3	3,21	750	783	793	760	780	792	757	3	1	3	0
4	3,93	750	793	794	772	790	792	769	3	2	3	0
5	3,15	750	797	789	770	792	785	766	5	4	4	0
Mean	3,54								4	3	4	0

T_f = the initial furnace thermocouple temperature
T_f(max) = the maximum furnace thermocouple temperature
T_f(final) = the final furnace thermocouple temperature
ΔT_f = T_f(max) - T_f(final)
T_S (max) = the maximum specimen surface thermocouple temperature
T_C (max) = the maximum specimen centre thermocouple temperature
T_S (final) = the final specimen surface thermocouple temperature
T_C (final) = the final specimen centre thermocouple temperature
ΔT_S = T_S (max) - T_S (final)
ΔT_C = T_C (max) - T_C (final)