



Determination of surface flammability and
smoke and toxic products according to IMO
FTPC Part 5; MSC.61(67)

Paroc Marine Slab 60 AluCoat T



VTT, Expert Services

Requested by: Paroc Group Holding Oy



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Order 21 November 2008 / Tommi Siitonen

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Assignment **Determination of surface flammability and smoke and toxic products**

Product The customer gave following information about product tested:

Product name: **PAROC Marine Slab 60 AluCoat T**
Product description: one side faced stone wool slab
Nominal density of stone wool: 60 kg/m³
Binder content of stone wool: ≤ 2 %
Facing: aluminium foil, nominal weight 80 g/m²
Adhesive (between aluminium and stone wool): polyethylene adhesive (20 g/m²).
Tape: double sided PET tape with a width of 30 mm and a nominal weight 107 g/m².
More detailed description about product is filed at VTT.

Specimens Date of delivery: 21 November 2008
Size of specimens: 155 mm x 800 mm x 50 mm
The test specimens were made of two parts (77 mm x 800 mm each part) and the parts were attached to each other by using a longitudinal tape.

The specimens were made by the customer.

Date of test 26 November 2008

The test specimens were conditioned to constant mass at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 10 %.

Test method IMO FTPC Part 5 - Test for surface flammability
(IMO Resolution MSC.61(67) Part 5)
Test procedure IMO Resolution A.653(16)
Description of the test method and requirements are given in Appendix 1.

Test details

Three specimens were tested. A pilot flame with acetylene gas and air was used.

Test results

The first two specimens were tested with the pilot flame at normal position. The surface of the specimens did not ignite. According to the IMO Resolution A.653(16) one additional test was made with the pilot flame angled to impinge on the upper half of the test specimen. As the surface of the specimens did not ignite, all tests were terminated after 10 min exposure time.

Fire characteristics of the material tested are presented in the following table.

	Q_t MJ	Q_p kW
Test 1	0,0	0,0
Test 2	0,0	0,0
Test 3	0,0	0,0
Mean	0,0	0,0
Criteria for bulkhead, wall and ceiling linings according to IMO FTPC Part 5	$\leq 0,7$	$\leq 4,0$
Classification as a bulkhead, wall and ceiling lining according to IMO FTPC Part 5	pass	pass

Q_t = total heat release

Q_p = peak heat release rate

The other fire characteristics could not be determined, because the specimens did not ignite and the flame front did not spread at all over the surface of the specimens.

Other observations: No material fell down during the tests.

According to IMO FTPC Annex 2 (IMO Resolution MSC.61(67) Annex 2) surface materials with both the total heat release (Q_t) of not more than 0,2 MJ and the peak heat release rate (Q_p) of not more than 1,0 kW determined in accordance with resolution A.653(16) are considered to comply with the requirements of IMO FTPC Part 2 - *Smoke and toxicity test* - without further testing.

Note

According to the standard: "the results relate only to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use."

Classification

The tested product **PAROC Marine Slab 60 AluCoat T** met the requirements of low flame spread material according to IMO FTPC Part 5

The tested product, **PAROC Marine Slab 60 AluCoat T**, may be regarded as a material with

low flame spread for bulkhead, wall and ceiling linings

according to IMO FTPC Part 5 (IMO Resolution MSC.61(67) Part 5).


According to test results the tested product, meets the criteria for smoke and toxicity for materials used as the surface of bulkheads, linings or ceilings given by IMO FTPC Part 2 (IMO Resolution MSC.61(67) Part 2) without further testing.

Approval of the product may be obtained only on application to the appropriate Administration.

Espoo, 4 December 2008



Tiia Rynänen
Senior Research Scientist



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Building Engineer

APPENDICES

Appendix 1, Description of the test method and requirements (IMO FTPC, Part 5)

DISTRIPUTION

Customer	Original (2)
VTT / Register Office	Original

SPREAD OF FLAME

Description of the method IMO FTPC Part 5 - Test for surface flammability (IMO Resolution MSC.61(67) Part 5, test procedure IMO Resolution A.653(16).

Specimens

Size: 155_{-5}^{+0} mm x 800_{-5}^{+0} mm. Amount: 8 pcs.

Materials and composites of normal thickness 50 mm or less are attached on a substrate. The attaching and substrates used shall be representative to those used in practise.

Before test the specimens should be conditioned to constant moisture content at a temperature of 23 ± 2 °C and a relative humidity of 50 ± 10 %.

Test procedure

The specimen is inserted to the test apparatus in a vertical position so that its longer side is horizontal. The specimen is exposed to an exact defined heat radiation caused by burning the mixture of methane gas and air in a radiation panel. The highest intensity of heat radiation at the nearest end of the specimen is $50,5$ kW/m² and it decreases from this value towards the other end according to a defined curve. During the test the time of ignition, spread of flame, extinguishment of flame and heat for sustained burning are measured.

Criteria

Materials giving average values for all the surface flammability criteria not exceeding those listed below, are considered to meet the requirement for low flame spread.

Bulkhead, wall and ceiling linings:

$$CFE \geq 20,0 \text{ kW/m}^2$$

$$Q_{sb} \geq 1,5 \text{ MJ/m}^2$$

$$Q_t \leq 0,7 \text{ MJ}$$

$$Q_p \leq 4,0 \text{ kW}$$

Floor coverings:

$$CFE \geq 7,0 \text{ kW/m}^2$$

$$Q_{sb} \geq 0,25 \text{ MJ/m}^2$$

$$Q_t \leq 2,0 \text{ MJ}$$

$$Q_p \leq 10,0 \text{ kW}$$

where

CFE = critical flux at extinguishment

Q_{sb} = heat for sustained burning

Q_t = total heat release

Q_p = peak heat release rate