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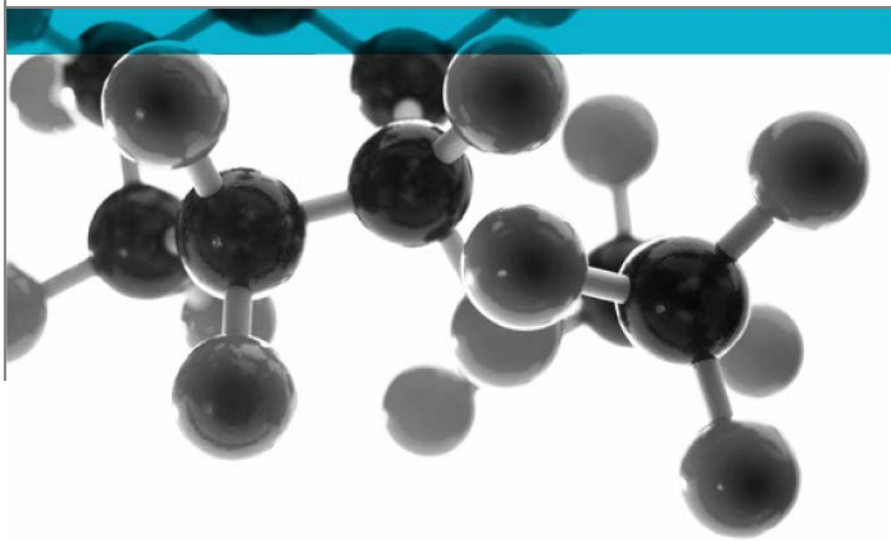
IMO Resolution MSC 307(88) (2010 FTP Code): Annex 1: Part 5



Test for Surface Flammability

A Report To: WSBL Ltd.

Document Reference: 502168

Issue Date: 14th April 2021

Issue No.: 1

Expiry Date: 29th March 2036

0249

Executive Summary

Objective To determine the performance of the following product when tested in accordance with IMO Resolution MSC 307(88) (2010 FTP Code): Annex 1: Part 5.

Generic Description		Product reference	Thickness	Weight per unit area or density
Polymeric decoupled acoustic barrier mat		"Revac® Momentum™ S FF"	5.0mm	2.0g/cm³
Individual components used to manufacture composite:				
Facing	Foil	Unable to provide	Unable to provide	Unable to provide
	Reinforcing scrim	Unable to provide	Unable to provide	Unable to provide
	Adhesive	Unable to provide	Unable to provide	25g/m²
Rubber		"Revac® MomentumTM S"	5.0mm	2.0g/cm³
Please see pages 5 & 6 of this test report for the full description of the product tested				

Test Sponsor WSBL Ltd., Durbar Mill, Hereford Road, Blackburn, Lancashire, BB1 3JU

Summary of Test Results: **The specimens meet all the criteria given in the IMO document for bulkhead, wall and ceiling products and can therefore be considered to have low flame spread in compliance with the International Convention for the Safety of Life at Sea, 1974.**

Date of Test 30th March 2021

Signatories

Responsible Officer E. Anderson * Testing Officer	Authorised T. Kinder * Senior Technical Officer

* For and on behalf of Warringtonfire.

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Test Details

Purpose of test

This test method, adopted by the International Maritime Organisation, specifies a procedure for qualifying the surface flammability of products and thus their suitability for use in maritime construction.

The tests were performed in accordance with the procedure specified in IMO Resolution MSC 307(88) (2010 FTP Code): Annex 1, Part 5 and it is advised that this report is read in conjunction with these documents.

Scope of test

International Maritime Organisation Resolution MSC 307(88) (2010 FTP Code): Annex 1, Part 5 "Test for Surface Flammability (Test for Surface Materials and Primary Deck Coverings)", specifies a procedure for measuring fire characteristics of bulkhead, ceiling, floor coverings and primary deck covering materials as a basis for characterising their flammability and thus their suitability for use in maritime construction.

The Resolution specifies a method of test for measuring the lateral spread of flame along the surface of a specimen of a product orientated in the vertical position together with a method for determining the heat released by the specimen during exposure to a defined gradient of irradiance. It also details a classification system based on critical flux at extinguishment, heat for sustained burning, peak heat release rate and total heat release.

Instruction to test

The test was conducted on the 30th March 2021 at the request of WSBL Ltd., the sponsor of the test.

Conditioning of specimens

The specimens were received on the 16th March 2021.

Prior to test the specimens were conditioned to constant mass at a temperature of 23 ± 2°C and a relative humidity of 50 ± 5%.

Exposed face

The foil face of the specimens was exposed to the radiant heat of the test when the specimens were mounted in the test position.

Substrate

The specimens were tested without any additional substrate present.

Provision of test specimens

The specimens were supplied by the sponsor of the test. Warringtonfire was not involved in any selection or sampling procedure. The results stated in this report apply to the samples as received.

Description of Test Specimens

The description of the specimens given below has been prepared from information provided by the sponsor of the test. This information has not been independently verified by Warringtonfire**.** All values quoted are nominal, unless tolerances are given.

General description			Polymeric decoupled acoustic barrier mat
Product reference of overall composite			"Revac® Momentum™ S FF"
Name of manufacturer of overall composite			WSBL Ltd
Thickness of overall composite			5.0mm (stated by sponsor) 5.52mm (determined by Warringtonfire)
Density of overall composite			2.0g/cm³ (stated by sponsor) 1.88g/cm³ (determined by Warringtonfire)
Facing	Foil	Generic type	Aluminium foil
		Product reference	**See Note 1 below**
		Name of manufacturer	Rothel
		Thickness	**See Note 1 below**
		Weight per unit area	**See Note 1 below**
		Colour	Silver
		Flame retardant details	**See Note 2 below**
	Reinforcing scrim	Generic type	Glass fibre scrim
		Product reference	**See Note 1 below**
		Name of manufacturer	Rothel
		Colour	White
		Thickness	**See Note 1 below**
		Weight per unit area	**See Note 1 below**
		Type of weave / cell dimensions	Plain weave 5mm x 5mm
		Flame retardant details	**See Note 2 below**
	Adhesive	Generic type	Polythene hot melt
		Product reference	**See Note 1 below**
		Name of manufacturer	Rothel
		Colour	Clear
		Application rate	25g/m^2
		Application method	**See Note 1 below**
		Flame retardant details	**See Note 2 below**
		Curing process	**See Note 1 below**

Continued on next page

Rubber	Generic type	Thermoplastic elastomer
	Product reference	"Revac® Momentum™ S"
	Detailed description	**See Note 3 below**
	Name of manufacturer	WSBL Ltd
	Thickness	5.0mm
	Density	2.0g/cm³
	Weight per unit area	10kg/m²
	Colour reference	Black
	Flame retardant details	**See Note 2 below**
Brief description of manufacturing process		**See Note 3 below**

Note 1. The sponsor of the test was unable to provide this information.

Note 2. The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

Note 3. The sponsor of the test was unwilling to provide this information.

The description of the specimens as given above is not as detailed as would usually be the case for descriptions included in Warringtonfire test reports and the description may not fully comply with the requirements of the test standard. In all other respects however the tests were conducted fully in accordance with the requirements of the test standard and the test results are valid.

Test Results

Test procedure

The test method involved mounting each conditioned specimen in a defined gradient of radiant flux and measuring the time to ignition, spread of flame and its final extinguishment distance together with a stack thermocouple signal as an indication of heat release by the specimen during burning.

Test results

Parameter	Units	Specimen Number			Average
		1	2	3	
Heat for Ignition (Q_i)	MJm^{-2}	*	*	*	*
Heat for Sustained Burning (Q_{sb})	MJm^{-2}	*	*	*	*
Critical flux at Extinguishment (CFE)	kW/m^2	50.50	50.50	50.50	50.5
Peak Heat Release Rate (q_p)	kW	0.49	0.54	0.17	0.40
Total Heat Release (Q_t)	MJ	0.12	0.58	0.05	0.25
Burning drops	N/A	None	None	None	N/A

*** Unable to calculate due to insufficient flame travel**

Other test observations required by standard

Number of specimens tested	3
Type of pilot flame	Propane / air

The test results relating to the spread of flame parameters for the individual specimens together with observations made during the test and comments on any difficulties encountered during the test are given in Appendix 1. The heat release data generated during each of the tests is given in Appendix 2.

Classification

Materials giving values for all the surface flammability criteria not exceeding those listed below are considered to meet the requirement for low flame spread in compliance with the regulations II - 2/3.29 and II-2/5.3.2.4 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, and related Articles of Protocol 1998, as amended and consolidated in the 2004 publication of SOLAS.

Parameter	Requirement for bulkhead, wall & ceiling linings and plastic pipes	Requirement for floor coverings	Requirements for primary deck coverings
Heat for Sustained Burning	≥1.5 MJm^{-2}	≥0.25 MJm^{-2}	≥0.25 MJm^{-2}
Critical flux at Extinguishment	≥20 kW/m^2	≥7.0 kW/m^2	≥7.0 kW/m^2
Peak Heat Release Rate	≤4.0 kW	≤10.0 kW	≤10.0 kW
Total Heat Release	≤0.7 MJ	≤2.0 MJ	≤2.0 MJ
Burning drops	Zero	≤10	Zero

Summary of Results

The specimens meet all the criteria given in the IMO document for bulkhead, wall and ceiling products and can therefore be considered to have low flame spread in compliance with the International Convention for the Safety of Life at Sea, 1974.

Note

In accordance with the provisions of SOLAS, 1974 and subsequent amendments, primary deck coverings, if applied within accommodation and service spaces and control stations, should be of approved materials which will not readily ignite, or give rise to toxic or explosive hazards at elevated temperatures.

Validity

This report is valid for a period of fifteen years from the date of test.

The test results relate only to the behaviour of the specimens of the 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.

The test results relate only to the specimens of the manufactured product in the form in which they are tested. Small differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product which is supplied or used is fully represented by the specimens which were tested.

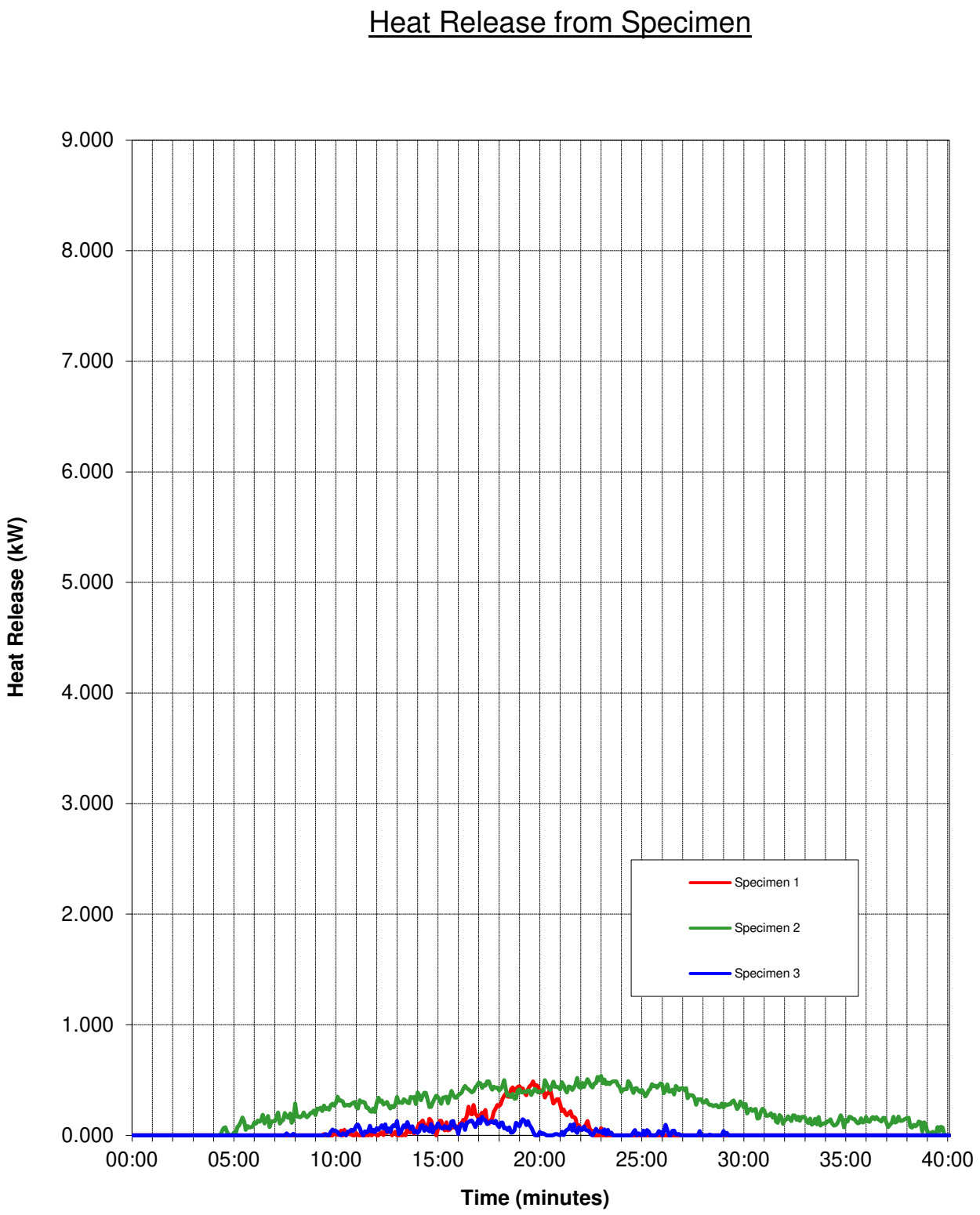
Appendix 1 – Observations during test

Specimen No:	1		Heat for Sustained Burning (MJ/m^2)	2		Heat for Sustained Burning (MJ/m^2)	3		Heat for Sustained Burning (MJ/m^2)
Time to Ignition: (min:sec)	01:07			01:08			01:22		
Time to Travel	min	sec		min	sec		min	sec	
50mm	04	14	12.83	15	57	48.33	06	06	18.48
100mm									
150mm									
200mm									
250mm									
300mm									
350mm									
400mm									
450 mm									
500mm									
550mm									
600mm									
650mm									
700mm									
750mm									
800mm									
Duration of Test (min:sec)	29:00			40:00			40:00		
Final Travel (mm)	50			50			50		
C.F.E. (kw/m^2)	50.50			50.50			50.50		

OBSERVATIONS:

None.

Appendix 2 – Heat release from test specimens



Revision History

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Revised By:	Approved By:
Reason for Revision:	

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