

# Test report

## Isolemfi 3104/14

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File: PF13233  
Serial No.: 12303  
Ref.: BP/LIA  
Encl.: 1

Date: 2009-12-23

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## **1 SPONSOR**

EMFI SA  
3, rue Ettore Bugatti  
67500 Haguenau  
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## **2 PRODUCT**

One component adhesive designated Isolemfi 3104/14.

## **3 NAME OF MANUFACTURER**

The sponsor is the manufacturer.

## **4 TEST METHOD**

The sponsor desired a test of the product in accordance with annex to IMO Resolution MSC.61(67): FTP Code, Annex 1, Part 5: "Test for surface flammability" as interpreted by IMO MSC/Circ.1120.

The test was performed in accordance with annex to IMO Resolution A.653(16): "Recommendation on improved fire test procedures for surface flammability of bulkhead ceiling and deck finish materials".

Furthermore the test was carried out in accordance with the requirements of the Russian Maritime Register of Shipping, St. Petersburg. Recognition Certificate of Testing Laboratory No. 05.02976.009 is valid until September 17, 2010

## **5 SAMPLE**

On 2009-12-01 DBI-Danish Institute of Fire and Security Technology received the following sample:

One bottle of Isolemfi 3104/14 (approx. 1.0 kg).



DBI applied 200 g/m<sup>2</sup> of (wet) adhesive in one layer onto the surface of 5 pieces of non-combustible calcium silicate board each with dimensions 795 x 153 x 10 mm and density 800 ± 100 kg/m<sup>3</sup>, cf. annex to IMO MSC/Circ. 916.

### **Material specification (stated by the sponsor)**

One-component polyurethane adhesive.  
Recommended amount for use: approx. 120 - 200 g/m<sup>2</sup> (wet adhesive).

Further specifications are known to DBI and are filed under the file number below.

## **6 CONDITIONING**

The specimens were conditioned in accordance with IMO Res.A.653 (16).

## **7 TEST RESULTS**

Date of test: 2009-12-16.

Pilot flame: Non-impinging.

The test results are shown in full detail in enclosure 1.

### **Derived fire characteristics**

Test No.	1	2	3	Average
Duration of test (s)	235	236	238	-
CFE (kW/m <sup>2</sup> )	42.1	43.6	42.6	<b>42.8</b>
Q <sub>sb</sub> (MJ/m <sup>2</sup> )	2.0	2.2	2.3	<b>2.2</b>
Q <sub>t</sub> (MJ)	0.02	0.01	0.01	<b>0.01</b>
q <sub>p</sub> (kW)	0.73	0.66	0.23	<b>0.54</b>

Observations: None

CFE: Critical flux at extinguishment  
Q<sub>sb</sub>: Heat for sustained burning  
Q<sub>t</sub>: Total heat release  
q<sub>p</sub>: Peak heat release rate



## 8 CONCLUSION

The investigated sample of Isolemfi 3104/14 (200 g/m<sup>2</sup> wet), applied onto calcium silicate board, fulfils the surface flammability criteria listed in IMO Resolution A.653 (16) for bulk-head, wall and ceiling linings as well as "IMO FTPC Part 5" and is therefore considered to meet the requirement for low flame spread in compliance with the relevant regulations of the International Convention for the Safety of Life at Sea, 1974, as amended.

### Note

The test 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.

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SURFACE FLAMMABILITY OF BULKHEAD, CEILING AND DECK FINISH MATERIALS.  
TEST METHOD: IMO Res. A.653(16)

Product: Isolemfi 3104/14  
Manufacturer: EMFI SA  
Substrate: Calcium silicate board, 10 mm  
Applied amount of product: 200 g/m<sup>2</sup>  
Date of test: 2009-12-16  
Pilot flame: Non-impinging

### Test results

<b>Test 1:</b>	Time to ignition :	31 s
	Time to flameout :	55 s
	Extent of burn (mm) :	210
	Critical flux at extinguishment (kW/m <sup>2</sup> ) :	42.1
	Heat for ignition (MJ/m <sup>2</sup> ) :	1.934
	Average heat for sustained burning (MJ/m <sup>2</sup> ) :	2.024
	Peak heat release rate (kW) :	0.73
	Time to peak heat release rate :	52 s
Total heat release (MJ) :	0.017	
<b>Test 2:</b>	Time to ignition :	35 s
	Time to flameout :	56 s
	Extent of burn (mm) :	195
	Critical flux at extinguishment (kW/m <sup>2</sup> ) :	43.56
	Heat for ignition (MJ/m <sup>2</sup> ) :	2.217
	Average heat for sustained burning (MJ/m <sup>2</sup> ) :	2.217
	Peak heat release rate (kW) :	0.66
	Time to peak heat release rate :	52 s
Total heat release (MJ) :	0.006	
<b>Test 3:</b>	Time to ignition :	38 s
	Time to flameout :	58 s
	Extent of burn (mm) :	205
	Critical flux at extinguishment (kW/m <sup>2</sup> ) :	42.63
	Heat for ignition (MJ/m <sup>2</sup> ) :	2.17
	Average heat for sustained burning (MJ/m <sup>2</sup> ) :	2.25
	Peak heat release rate (kW) :	0.23
	Time to peak heat release rate :	53 s
Total heat release (MJ) :	0.006	

### Surface flammability criteria

Bulkhead, wall and ceiling linings				Floor coverings / Prim. deck coverings			
CFE (kW/m <sup>2</sup> )	Q <sub>sb</sub> (MJ/m <sup>2</sup> )	Q <sub>t</sub> (MJ)	q <sub>p</sub> (kW)	CFE (kW/m <sup>2</sup> )	Q <sub>sb</sub> (MJ/m <sup>2</sup> )	Q <sub>t</sub> (MJ)	q <sub>p</sub> (kW)
≥ 20.0	≥ 1.5	≤ 0.7	≤ 4.0	≥ 7.0	≥ 0.25	≤ 2.0/1.5	≤ 10.0