



0225-L-10/11  
14 June 2016

# Test report

Modified reed





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## Details

**Principal**

MRF GmbH i.G.  
[Redacted]  
[Redacted]

**Contact person**

**Email**

[Redacted]  
[Redacted]

**Date of order**

8 March 2016

**Project number**

0225-L-10/11

**Author**

A.R. Hameete

**Subject**

determination of thermal resistance

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# 1 Introduction

By order of MRF GmbH i.G., Kiwa BDA Testing B.V. has determined the thermal resistance of **Modified reed**.

On 23 May 2016 a sample, provided by Mr M. Bredero of MRF GmbH i.G., has been received at Kiwa BDA Testing B.V. for the purpose of testing.

On the sample no data or further identification marks have been found.

See annex I for photos of the delivered sample.

## 2 Investigation

The thermal resistance has been determined according to EN 12667:2001 – Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Products of high and medium thermal resistance.

The dimensions of the test specimen has been determined at 600 mm × 600 mm × thickness. The thickness (approximately 200 mm) falls outside the accreditation range (30 mm - 180 mm).

The test specimen has not been prepared by Kiwa BDA Testing B.V., but have been delivered by MRF GmbH i.G. There is a thin plastic foil at the bottom side of the test specimen.

The test equipment concerns a single-specimen heat flow meter (LaserComp FOX600, S.N. 525), and is calibrated monthly using the European reference material IRMM-440 (see annex II). The test equipment has been positioned in a conditioned room at 23 °C and 50% relative humidity.

The measuring device of the equipment has been orientated horizontally, at which the hot plate has been located at the bottom side and the cold plate has been located at the topside of the test specimen. In order to prevent so called edge heat losses the metering zone of the apparatus has been equipped with circa 100 mm insulation and a *dual zone heating / cooling*.

The investigation has been performed by Mr A.R. Hameete of Kiwa BDA Testing B.V. in week 21, 2016.

### 3 Results

**Table 3 – Test results**

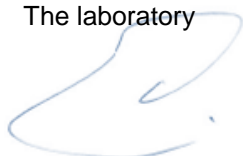
Description	Unit	Result
Date of the measurements	-	26.05.2016
Thermal resistance	m <sup>2</sup> .K.W <sup>-1</sup>	3,695
Thermal conductivity ( $\lambda_{10}$ )	W.m <sup>-1</sup> .K <sup>-1</sup>	0,053
Density of heat flow	W.m <sup>-2</sup>	2,92
Average temperature difference across specimen	K	20,0
Mean temperature of test	°C	10,0
Measured thickness (obtained from apparatus)	mm	196,1
Initial mass	g	21,07
Mass after thermal measurements	g	21,12
Change of mass during measurements	% (m/m)	0,2

**Remark:**

The results are only related to the investigated samples, products and/or systems. Kiwa BDA Testing B.V. is not liable for interpretations or conclusions that are made in consequence of the results obtained.

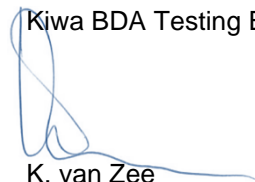
If sampling was not performed by Kiwa BDA Testing B.V., no judgement can be given with regard to the origin and representativeness of the samples.

Gorinchem, 14 June 2016  
The laboratory



A.R. Hameete  
operational manager

Kiwa BDA Testing B.V.



K. van Zee  
manager

Designated as Notified Body  
NB 1640 pursuant to the  
Construction Products  
Regulation (EU, No  
305/2011)



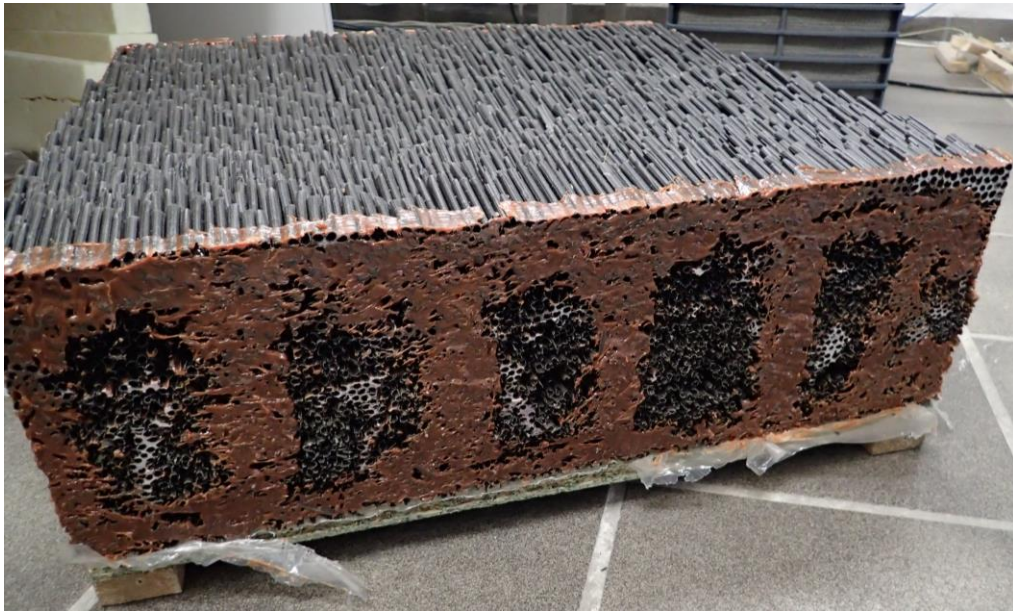
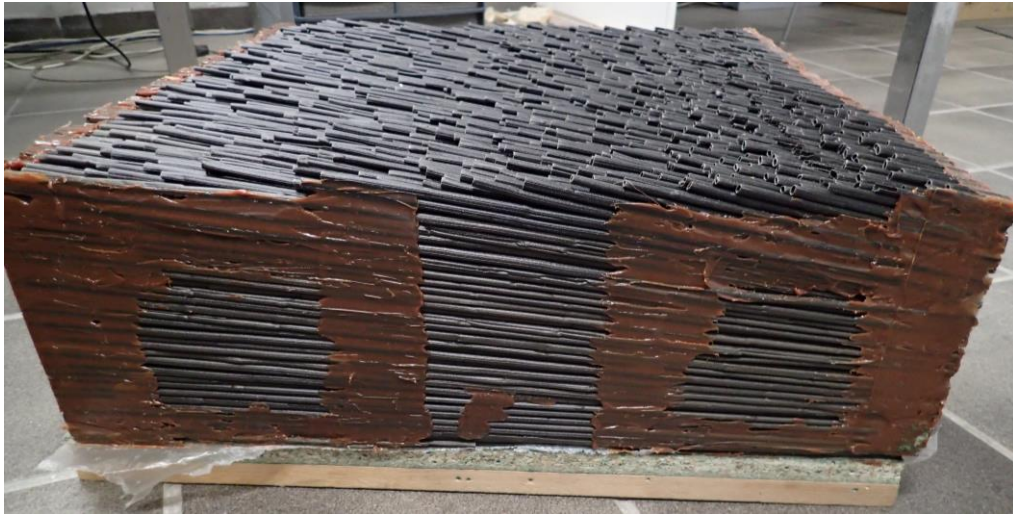
Keymark Registered  
Laboratory



# I Photos of the delivered sample









## II Certificate of measurement



EUROPEAN COMMISSION  
DIRECTORATE GENERAL JRC  
JOINT RESEARCH CENTRE  
IRMM  
Institute for Reference Materials and Measurements

### CERTIFIED REFERENCE MATERIAL IRMM-440<sup>(1)</sup>

#### CERTIFICATE OF MEASUREMENT

##### RESIN BONDED GLASS FIBRE BOARD THERMAL CONDUCTIVITY

The certified thermal conductivity  $\lambda$  is given in the mean test temperature  $\theta$  range [- 10 °C / + 50 °C] by the equation:

$$\lambda \text{ [W/(m.K)]} = 0.029\,394\,9 + 0.000\,106\,0 \times \theta \text{ [}^\circ\text{C]} + 2.047 \times 10^{-7} \times \theta^2 \text{ [}^\circ\text{C]}^2$$

This equation is valid for a sample of the reference material within the density range [64 kg/m<sup>3</sup> - 78 kg/m<sup>3</sup>].

The uncertainty of the certified thermal conductivity is  $\pm 0.000\,28$  W/(m.K) at the 95 % confidence level over the range [- 10 °C / + 50 °C].

This uncertainty results from the uncertainties of the thermal conductivity measurements (as given by the participating laboratories) and from the uncertainty due to the fit  $\lambda$  versus  $\theta$ .

(1) This CRM replaces the exhausted BCR-064B

#### DESCRIPTION OF THE SAMPLE

The identification code including the physical characteristics of the reference material sample are as follows:

Identification number	17
Dimensions: length (mm) x width (mm)	600 x 600
Thickness (mm)	34,46
Apparent density (kg/m <sup>3</sup> )	72,91

B-2440 GEEL  
March 2000

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