

HET ONAFHANKELIJKE KEURINGSINSTITUUT

Report

Sponge insulation + fire barrier

EuroWool insulation + fire barrier

Order number: 0231-L-08

Ref.: ARH/TVDM



BDA KEUR

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EuroWool insulation + fire barrier

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1 Introduction

By order of Intumescent Systems Ltd., BDA Keuringsinstituut B.V. has performed an investigation on the thermal resistance of four combination of a sponge insulation with a fire barrier and of four combinations of EuroWool with a fire barrier, with air layers and finishing materials.

The sponge insulation with fire barrier and the Eurowool insulation with fire barrier have been set at disposal by the principal. The following combinations have been tested.

Sample number BDA	Combination
231 A	50 mm (60 mm) sponge insulation + fire barrier 15 mm air cavity Breather foil
231 B	50 mm (60 mm) Eurowool insulation + fire barrier 15 mm air cavity Breather foil
231 C	80 mm (75 mm) sponge insulation + fire barrier 25 mm air cavity Breather foil
231 D	80 mm (75 mm) Eurowool insulation + fire barrier 25 mm air cavity Breather foil
231 E	12 mm plasterboard 25 air cavity 80 mm (75 mm) sponge insulation + fire barrier
231 F	12 mm plasterboard 25 air cavity 80 mm (75 mm) EuroWool insulation + fire barrier
231 G	12 mm plasterboard 50 air cavity 120 mm (100 mm) sponge insulation + fire barrier 18 mm chipboard
231 H	12 mm plasterboard 50 air cavity 120 mm (100 mm) sponge insulation + fire barrier 18 mm chipboard



The thickness given by the principal between brackets is different from the measured thickness. The first layer in each descriptions is the underside of the assembly. The assemblies A, B, C and D have been tested under a slope of 45°. The assemblies E, F, G and H have been tested horizontally.

2 Investigation

The investigation on thermal resistance has been performed according to EN 12667: '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 (2001-02)'.

The thermal resistance test apparatus has been calibrated using the certified European reference material IRMM-440.

The thermal resistance of the test specimens has been determined in week 42, 43, 44 and 45 of 2008.

The tests have been performed in duplicate with the heat flow upwards (winter conditions) and with the heat flow downwards (summer conditions).



3 Results

3.1 Thermal resistance (R_{eq} -value), under an angle of 45°

Specimen		R_{eq} -value [m ² .K.W ⁻¹]	Thickness measurement [mm] ¹⁾	Mass [g] before R-value measurement	Mass [g] after R-value measurement	
231	A1	heat flow downwards	1,65	69,28	1236	1236
		heat flow upwards	1,65	70,05	1236	1236
	A2	heat flow downwards	1,70	72,92	1412	1413
		heat flow upwards	1,64	73,12	1410	1412
231	B1	heat flow downwards	1,53	69,28	1248	1250
		heat flow upwards	1,41	69,72	1246	1248
	B2	heat flow downwards	1,64	73,22	1425	1425
		heat flow upwards	1,50	74,61	1423	1425
231	C1	heat flow downwards	2,50	107,54	1869	1869
		heat flow upwards	2,47	107,84	1867	1869
	C2	heat flow downwards	2,70	107,10	1814	1813
		heat flow upwards	2,61	107,44	1811	1814
231	D1	heat flow downwards	2,64	107,11	2034	2037
		heat flow upwards	2,56	107,45	2033	2034
	D2	heat flow downwards	2,70	107,07	2187	2188
		heat flow upwards	2,59	107,73	2187	2187

¹⁾ Total distance between the cold plate and the hot plate of the test equipment.

3.2 Thermal resistance (R_{eq} -value), horizontally

Specimen		R_{eq} -value [m ² .K.W ⁻¹]	Thickness measurement [mm] ¹⁾	Mass [g] before R-value measurement	Mass [g] after R-value measurement	
231	E1	heat flow downwards	2,19	116,99	5314	5318
		heat flow upwards	2,14	117,36	5313	5314
	E2	heat flow downwards	2,24	115,77	5060	5064
		heat flow upwards	2,12	115,97	5060	5060
231	F1	heat flow downwards	2,45	116,31	5342	5343
		heat flow upwards	2,49	116,68	5341	5342
	F2	heat flow downwards	2,58	116,78	5467	5471
		heat flow upwards	2,56	117,09	5467	5467
231	G1	heat flow downwards	3,50	200,27	8694	8701
		heat flow upwards	3,39	200,42	8689	8694
	G2	heat flow downwards	3,36	201,28	8719	8726
		heat flow upwards	3,23	201,50	8709	8719
231	H1	heat flow downwards	3,53	200,04	8992	8997
		heat flow upwards	3,54	200,19	8986	8992
	H2	heat flow downwards	3,64	201,00	8955	8965
		heat flow upwards	3,64	201,18	8948	8955

1) Total distance between the cold plate and the hot plate of the test equipment.



Remark

It shall be emphasized that this investigation is only an indication at a given moment of the properties of the investigated material and it does not provide information on the scope of the variations over the course of time.

These results shall be interpreted:

- either in the framework of a certain project, applying for the tested batch;
- or in the frame work of an admission procedure for certification for general indication in which the quality management of the manufacturer is involved.

Gorinchem, 2008.11.12

The laboratory

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