

TEST REPORT

Order no: 21.04.2022

Signature: SL/Z-244/DIN4102-B1/315a/2022

Police, 11.05.2022

Test methods:

1. DIN 4102-1:1998-05 Fire behaviour of building materials and building components - Part 1: Building materials; concepts, requirements and tests.
2. DIN 4102-16:2015-09 Fire behaviour of building materials and building components - Part 16: "Brandschacht" tests
3. DIN 53438-2:1984-06 Testing of combustible materials; response to ignition by a small flame; edge ignition
4. DIN 53438-3:1984-06 Testing of combustible materials; response to ignition by a small flame; surface ignition

Content of request: Testing according to DIN 4102-1:1998-05 (building class B1)

Sponsor: MIRANDA Spółka z o.o.
Jedwabnicza 1
62-700 Turek
Poland

Material: 100% PES knitted fabrics finished with WPL/OG, WPL D/OG in the weight range: 94 - 197 g/m² intended for advertising purposes

Composition: -

Manufacturer/supplier: MIRANDA Spółka z o.o.
Jedwabnicza 1
62-700 Turek

Assessment: The material fulfils the requirements of the building class B1 according to DIN 4102-1:1998-05

Validity of test report: 11.05.2027

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Report applies only to the sample tested and is not necessarily indicative of the qualities of apparently identical or similar products.

Content of test report: seven pages with signature and numbers.

TEST RESULTS

1. Test results class B1 according to DIN 4102-16: 2015-09 - Brandschacht tests

Name of measured quantity	Unit	Specimen				Requirement
		1	2	3	4	
No. test arrangement according to DIN 4102-15	-	1	1	1		
Specimen thickness	mm	0,3	0,3	0,4		
Maximum flame height	cm	30	30	30		
Time	s	5	2	5		
Flaming time	s	19	21	16		
Ignition sample backside	yes/no	no	no	no		
Time	s	-	-	-		
Burning droplets	yes/no	no	no	no		
Duration falling of burning droplets	s	-	-	-		
- sporadic falling of burning droplets	yes/no	no	no	no		
- continuous falling of burning droplets	yes/no	no	no	no		
Burning separating sample parts	yes/no	no	no	no		
Duration falling of burning parts	s	-	-	-		
- sporadic falling of burning parts	yes/no	no	no	no		
- continuous falling of burning droplets	yes/no	no	no	no		
Duration of burning on the sieve tray	s	-	-	-		
Residual range						
1	cm	67	66	72		>0
2	cm	68	70	70		
3	cm	59	55	58		
4	cm	68	60	68		
Average value of the residual range	cm	66	63	67		≥15
Maximum flue gas temperature	°C	130	131	131		≤200
Time	s	600	595	550		
Duration of burning after end of test	s	0	0	0		
Maximum light attenuation	%	2,8	1,8	3,3		
Integrated smoke obscuration	min• %	1	1	1		≤400
Impairment of the burner flames by falling particles or droplets	yes/no	no	no	no		
Time of the appearance of falls for the burner	s	-	-	-		
Premature end of test	yes/no	no	no	no		
Time	s	-	-	-		

Remarks: Because of the residual length of > 45 cm in one test, the quantity of tests was reduced, according to Clause 5.2 b) DIN 4102-16:2015-09.

TEST RESULTS

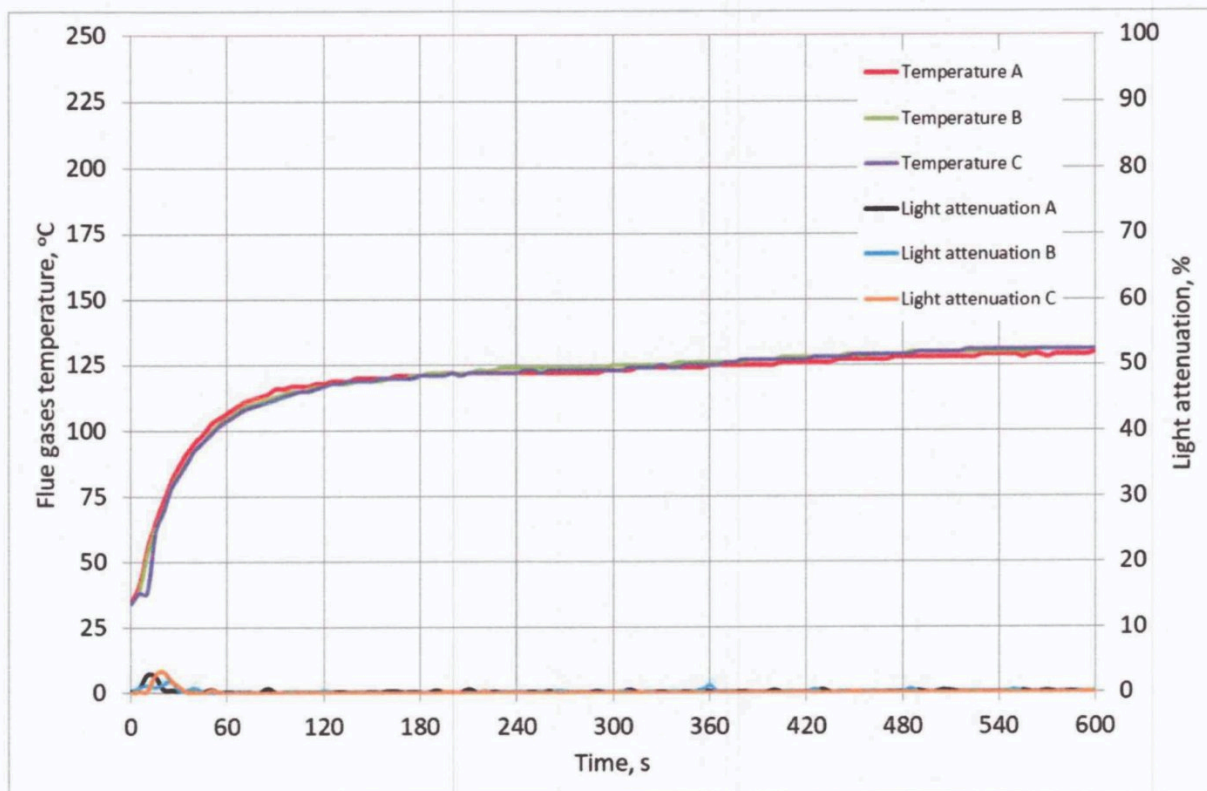


Figure 1. The relation of flue gases temperature and of the light attenuation in the time

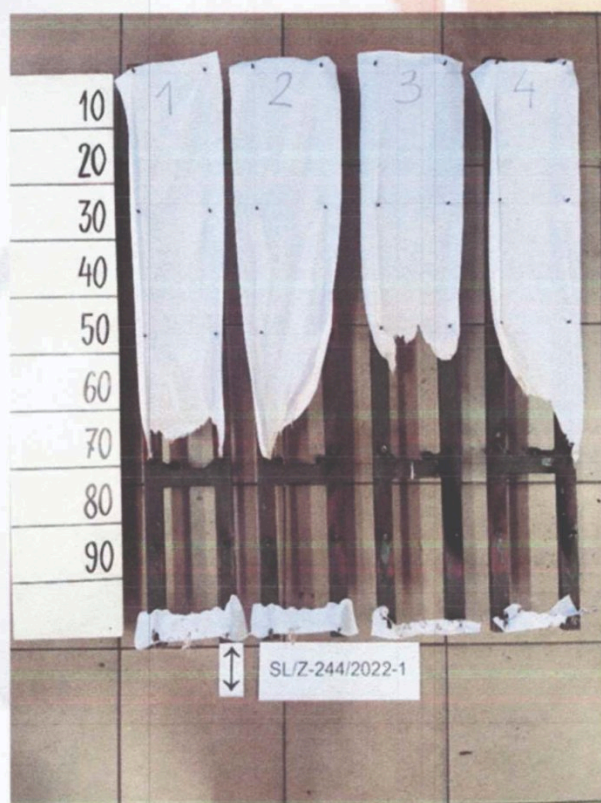


Figure 2. Appearance of the sample 1 after the test - ART: 101704/BC/WPL/OG (length direction)

TEST RESULTS

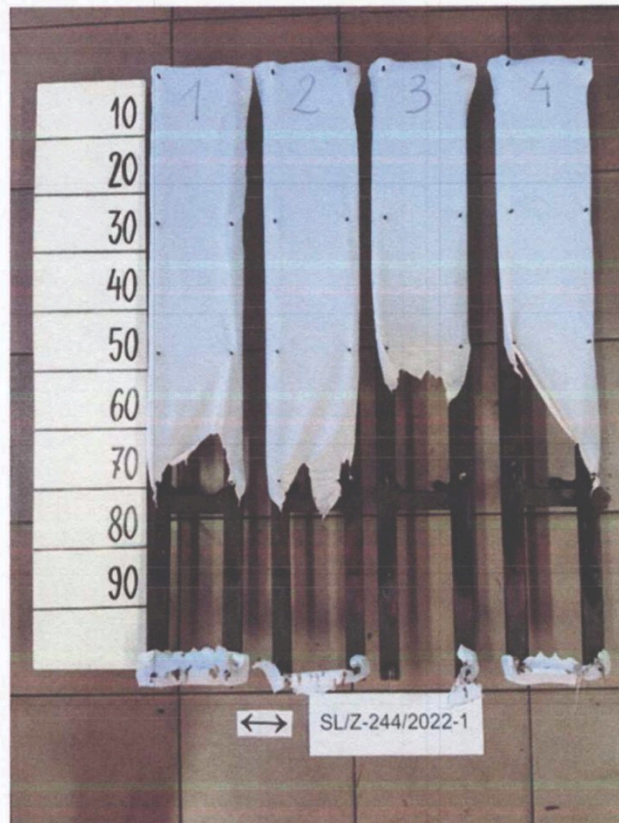


Figure 3. Appearance of the sample 2 after the test – ART: 101704/BC/WPL/OG (cross direction)

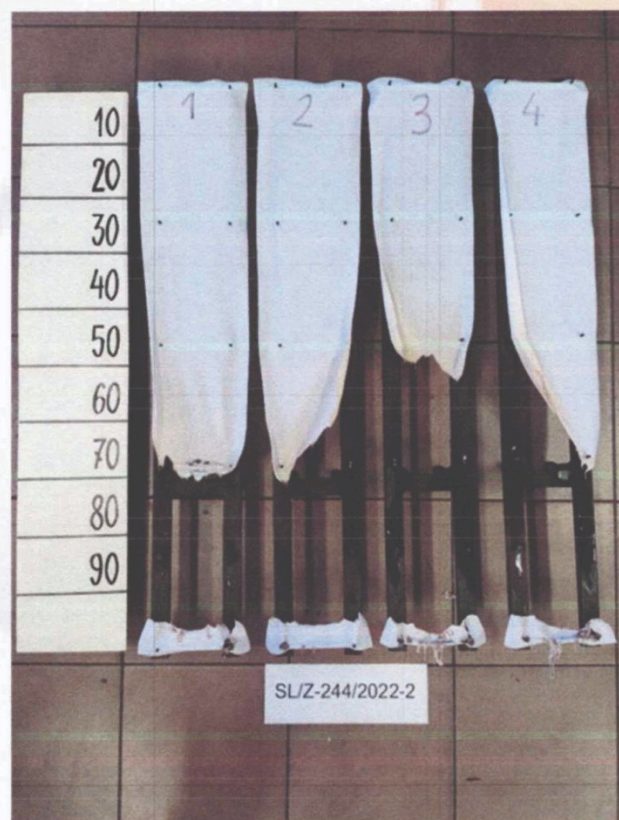


Figure 4. Appearance of the sample 3 after the test – ART: 101582/AN/B/WPL D/OG (length direction)

TEST RESULTS

2. Test results class B2 according to DIN 4102-1 (DIN 53438-2)

2.1. Edge ignition

Exposure time of pilot burner flame - 15 s

Time from start of test.

Name of measured quantity	Unit	Specimen no./Test direction									
		length direction					cross direction				
		1	2	3	4	5	6	7	8	9	10
Specimen thickness	mm	0,3	0,3	0,3	0,3	0,3	-	-	-	-	-
Ignition time	s	-	-	-	1	-	-	-	-	-	-
Flame height 150 mm within 20 s	yes/no	no	no	no	no	no	-	-	-	-	-
Max. flame height	cm	0	0	0	1	0	-	-	-	-	-
Time	s	-	-	-	-	-	-	-	-	-	-
Extinction time	s	-	-	-	2	-	-	-	-	-	-
Flaming particles or droplets	yes/no	no	no	no	no	no	-	-	-	-	-
Ignition of paper	yes/no	no	no	no	no	no	-	-	-	-	-
Smoke development (visual impression)	-	lack of smoke									

Remarks: none.

2.2. Surface ignition

Exposure time of pilot burner flame - 15 s

Time from start of test.

Name of measured quantity	Unit	Specimen no./Test direction									
		length direction					cross direction				
		1	2	3	4	5	6	7	8	9	10
Specimen thickness	mm	0,3	0,3	0,3	0,3	0,3	-	-	-	-	-
Ignition time	s	2	1	1	1	1	-	-	-	-	-
Flame height 150 mm within 20 s	yes/no	no	no	no	no	no	-	-	-	-	-
Max. flame height	cm	3	2	1	3	12	-	-	-	-	-
Time	s	-	-	-	-	-	-	-	-	-	-
Extinction time	s	6	8	3	10	13	-	-	-	-	-
Flaming particles or droplets	yes/no	no	no	no	no	no	-	-	-	-	-
Ignition of paper	yes/no	no	no	no	no	no	-	-	-	-	-
Smoke development (visual impression)	-	lack of smoke									

Remarks: none.



Figure 5. Appearance of the sample after the small burner test - ART: 101704/BC/WPL/OG (length direction)

3. Assessment

The determined test results show that the material fulfils the requirements of the building class B2 according to DIN 4102-1:1998-05.

The determined test results show that the material fulfils the requirements **of the building class B1** according to DIN 4102-1:1998-05.

In combination with other materials (for example coatings, deposits) the burning behaviour could be influenced unfavourable so that the classification above is not valid any longer. According to DIN 4102-1 the burning behaviour in combination with other materials has to be tested separately.

This report does not determine admission to the use of the product, when tested material is used as a construction product within the meaning of terrestrial technical requirements. In the process of construction supervision test results can be the basis for a preliminary assessment of the compatibility/suitability.

4. Remaining required information

Date of receipt of samples: 20.04.2022

Sampling: sponsor took and delivered samples.

Description of the test material: Knitwear's of the white colour. 1 piece dimensions of 1620x3680 mm, marked as: „ART: 101704/BC/WPL/OG”, approx. 0,3 mm thick, weight per unit area approx. 100 g/m² and 1 piece dimensions of 1620x3380 mm, marked as: „ART: 101582/AN/B/WPL D/OG”, approx. 0,4 mm thick, weight per unit area approx. 180 g/m², were delivered by the sponsor. Laboratory prepared samples for the test.

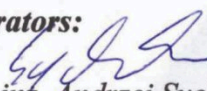


Conditioning of specimens: after storing 14 days before the tests or constant mass at temperature of 23±2 °C and relative humidity of 50±5 % (DIN 50014-23/50-2).

Declarations:

1. The test results relate to the behaviour of the test specimens under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the products in use.
2. The information provided on the first page of the report concerning the scope of research and identification of the tested object/objects were provided by the Sponsor.

Operators:


mgr inż. Andrzej Sychta

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dr inż. Krzysztof Sychta

Date and place of test - 10-11.05.2022, Police