

Test laboratory for the fire behavior of building materials, Dipl.-Ing. (FH) Andreas Hoch
Testing, supervising and certifying body, authorized by the building supervision authority

TEST REPORT

PZ-Hoch-131185

for the proof of Fire behaviour according to DIN 4102, part 1

Translation of the German test report – no guarantee for translation of technical terms

company	LG Hausys Europe GmbH Lyoner Straße 15, ATRICOM C6 D-60528 Frankfurt am Main
description of samples	PVC self-adhesive film, applied to steel sheet
name of the material	„LG Hausys Interior Film“
sampling	by the company itself
content of request	Proof of flammability to classify building materials to class B1 “schwerentflammbar” according to DIN 4102, part 1
validity of test report	31.10.2018 ^{*)}
result	The examined product meets the requirements of class B1 for “schwerentflammbare” (hardly flammable) building materials according to DIN 4102, part 1 (May 1998) , if applied to steel surfaces.

This test report includes 4 pages and 4 enclosures.

Remark: If the above mentioned building material is not used as product according to MBO § 2, Abs. 9, Ziffer 1, there is no need for a general building supervisory test report.

This test report is not valid if the examined building material is used as product in the meaning of state building prescriptions (MBO § 17, Abs. 3).

This test report does not replace an eventually necessary proof of applicability concerning building supervisory or building laws in the meaning of state building prescriptions. This has to be verified by:

- “allgemeine bauaufsichtliche Zulassung” (general building inspectorate approval) or by
- „allgemeines bauaufsichtliches Prüfzeugnis“ (general building inspectorate certificate) or by
- “Zustimmung im Einzelfall” (exceptional approval)

This test report can underlie building supervisory procedures

- for regular building products for the prescribed proofs of conformity
- for non regular building products for the needed proofs of applicability.

This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.

*) prolongation on request.

^{*)} Verlängerung auf Antrag

1. Description of test material in condition as delivered

PN 17968 and PN 18313 (additional delivery):

“LG Hausys Interior Film“

-white PVC self-adhesive film-

characteristic values determined by the test laboratory:

area weight with protective film: about 454 g/m²

thickness with protective film: about 0,38 mm

area weight without protective film: about 310 g/m²

thickness without protective film: about 0,20 mm

The testing laboratory is not provided with further details concerning composition of the tested building materials. Samples are deposited.

2. Preparation of samples

The samples were kept in climate chamber 23/50 until they reached constant weight.

3. Arrangement of samples

mounting: applied to steel sheet

#4625: "LG Hausys Interior Film"

#4744: "LG Hausys Interior Film"

#4745: "LG Hausys Interior Film"

4. Date of test CW 03 and CW 08 in 2012

5. Results The test has been examined according to DIN 4102 (Mai 1998)

no	Measurement	Result with the tested specimen				Dim.
	Test number	4625	#4744	#4745	---	
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	7	7	7	---	
2	Maximum flame height above bottom edge of the specimen	70	60	60		cm
3	Time ¹⁾	1:02	0:41	0:37	---	min:s
4	Burn through / melting Time ¹⁾	./.	./.	./.	---	min:s
5	Observations on the back side of the specimen					min:s
	Flames / Glowing	./.	./.	./.	./.	
	Time ¹⁾	./.	./.	./.	./.	
6	Change of color	./.	./.	./.	./.	min:s
	Time ¹⁾	./.	./.	./.	./.	
7	Falling of burning droplets	./.	./.	./.	./.	min:s
	Start ¹⁾	./.	./.	./.	./.	
8	Extent					
9	sporadic falling of burning droplets ²⁾	./.	./.	./.	./.	min:s
10	continuous falling of burning droplets ²⁾	./.	./.	./.	./.	
11	Falling of burning droplets	./.	./.	./.	./.	min:s
	Start ¹⁾					
	Extent	./.	./.	./.	./.	
12	sporadic falling of burning droplets ²⁾	./.	./.	./.	./.	
13	continuous falling of burning droplets ²⁾	./.	./.	./.	./.	

No.	Measurement	Result with the tested specimen				Dim.
	Test number	4625	#4744	#4745	---	
13	Afterflame time at the bottom of the sieve (max.)	./.	./.	./.	./.	min:s
14	Impairment of the burner by dropping or falling material: Time ¹⁾	./.	./.	./.	./.	min:s
15	Premature end of test Final occurrence of burning at the specimen ¹⁾	./.	./.	./.	./.	min:s
16	Time of eventually end of test ¹⁾	./.	./.	./.	./.	min:s
17	Afterflame after end of test Time ¹⁾	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	cm
19	Front side of specimen ²⁾	./.	./.	./.	./.	
20	Back side of specimen ²⁾	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	
22	Afterglow after end of test Time ¹⁾	./.	./.	./.	./.	min:s
23	Number of specimen	./.	./.	./.	./.	
	Place of appearance	./.	./.	./.	./.	
24	Lower half of the specimen ²⁾	./.	./.	./.	./.	
25	Upper half of the specimen ²⁾	./.	./.	./.	./.	
26	Front side of specimen ²⁾	./.	./.	./.	./.	
27	Back side of specimen ²⁾	./.	./.	./.	./.	
28	Density of smoke ≤ 400 % * min	64	61	63	---	% * min
29	> 400 % * min ⁴⁾	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	1	2	3	---	
31	Residual lengths: individual value ³⁾					
	Specimen 1	42	40	41	---	cm
	Specimen 2	41	40	39	---	cm
	Specimen 3	42	40	41	---	cm
	Specimen 4	44	40	40	---	cm
32	Average value, individual test ³⁾	42	40	40	---	
33	Photo of specimen in enclosure no.	1	2	3	---	
34	Flue gas temperature	115	116	116	---	°C
35	Maximum of average value Time ¹⁾	08:14	08:32	09:09	---	min:s
36	Diagram: encl. no.	1	2	3	---	
37	Remarks: - none -					

¹⁾ indication of times: from the begin of testing procedure

²⁾ checked off if applicable

³⁾ indication of carrier/foam layer separated in case of fire-proofing agents

⁴⁾ very strong development of smoke

6. Explanations concerning the testing procedure

-none-

7. Summary of results and additional establishments to Fire Behaviour

line no.	measurement	Result with the tested specimen				dim ensi on
	test-no.	4625	#4744	#4745	---	
1	residual length	42	40	40	---	cm
2	max. smoke temperature	115	116	116	---	°C
3	density of smoke - integral	64	61	63	---	%min
4	remarks: -none-					

According to DIN 4102, part 1, "schwerentflammbare" (hardly flammable) building materials must meet the requirements of class B2.

Pursuant to additional tests in the ignitability apparatus this can be determined (appendix 4).

8. Special remarks

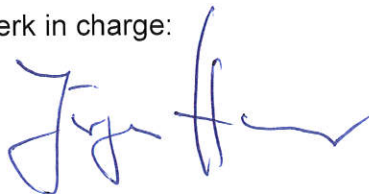
- This report is only valid for the material as described under paragraph 1. In combination with other materials or with additional coatings or grounds etc. the burning behaviour may differ.
- This test report is not valid for the exposure to outdoor climate conditions.
- This test report is not valid, as soon as the fabric is used as a building product in the sense of the "Landesbauordnungen" (state building requirements, MBO § 17, par. 3).
- This test report is no substitute for a General Building Inspectorate Certificate.
- This test report is granted without prejudice to the rights of third parties, im particular private proprietary rights.
- For legal interests only the German original version is relevant.
- In General Building Inspectorates procedures this test report can be based for
 - regular building materials for the required proof of accordance
 - for not regular building materials for the required proof of applicability

9. Validity

This test report is valid until the mentioned date on page 1. The test report becomes invalid in case the standards on which the tests are based are changed.

Fladungen, 21.11.2013

clerk in charge:



(Dipl.-Ing. (FH) Jürgen Hammer)



Head of the test laboratory:



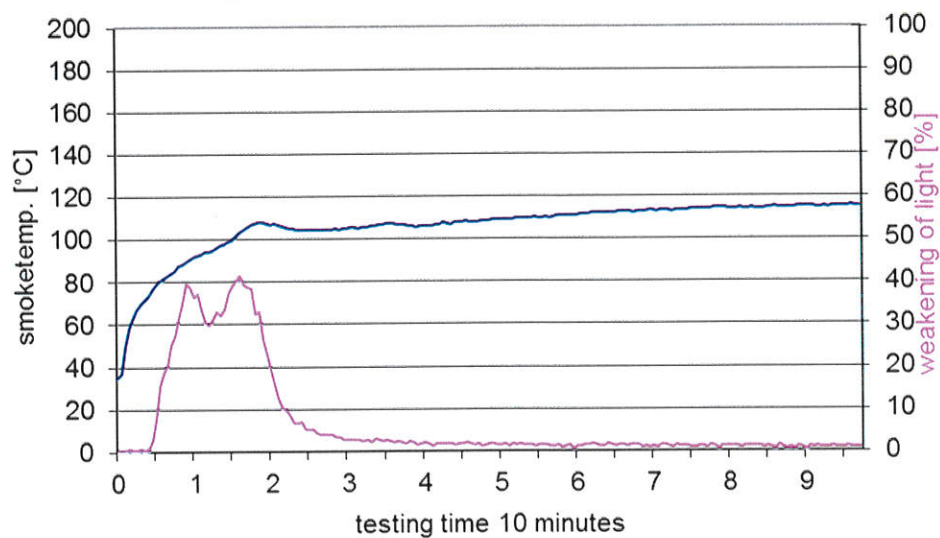
(Dipl.-Ing. (FH) Andreas Hoch)

„Brandschacht“-test #4625

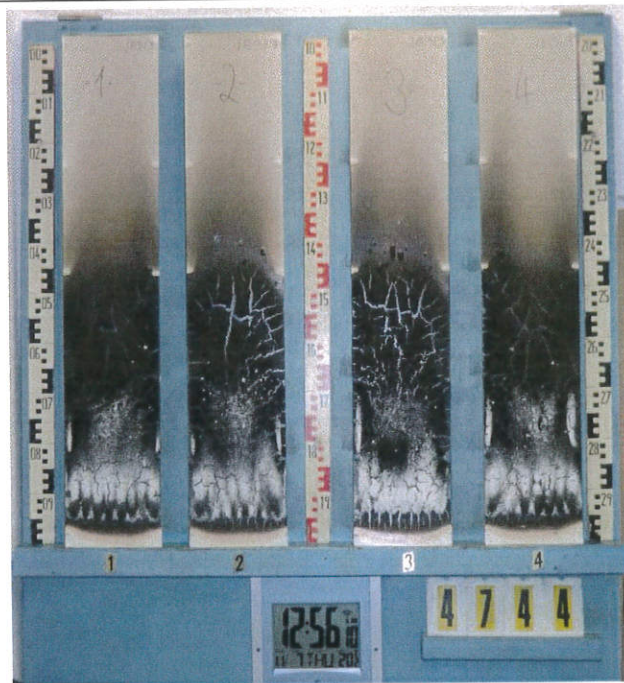


measurement

#4625, LG HAUSYS, self-adhesive film applied to steel sheet, PN17968
residual length: 42cm, max. smoketemp.: 115°C, smoke-Int.: 64%/min

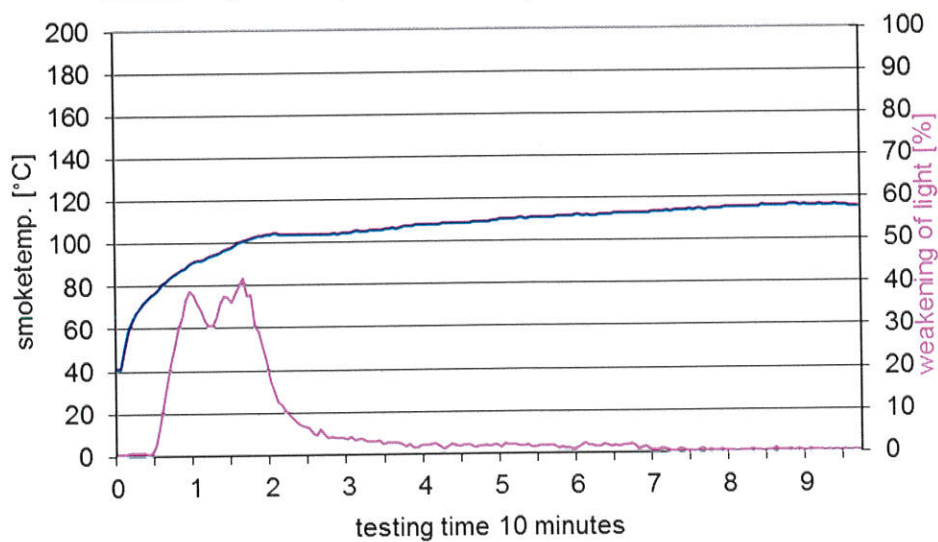


„Brandschacht“-test #4744

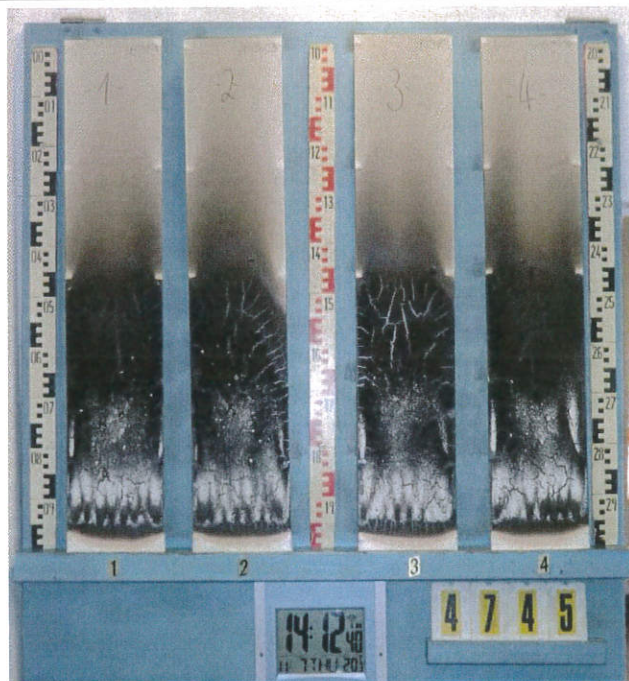


measurement

#4744, LG HAUSYS, self-adhesive film applied to steel sheet, PN18313
residual length: 40cm, max.smoketemp.:116°C, smoke-Int.:61%min

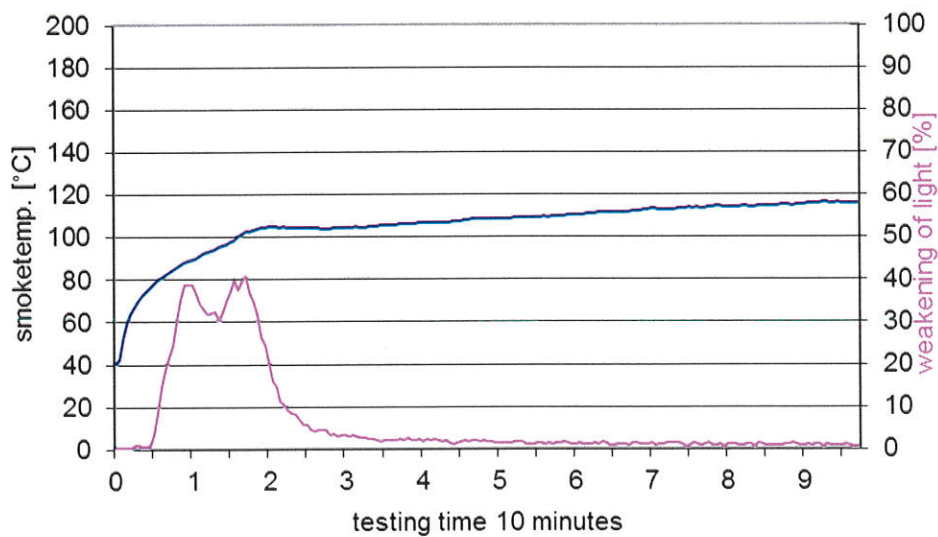


„Brandschacht“-test #4745



measurement

#4745, LG HAUSYS, self-adhesive film applied to steel sheet, PN18313
residual length: 40cm, max. smoketemp.:116°C, smoke-Int.:63%min



Test for normal flammability classifying B2 according to DIN 4102

1. Description of test material in condition as delivered look at page 2

2. Preparation of samples

Out of the material there have been cut samples for the ignitability apparatus.
The samples were kept in a climate 23/50 until they reached constant weight.

3. Arrangement of samples -applied to steel sheet-

4. Date of test CW 47 in 2013

5. Results

PN 18313:	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition ¹⁾	3	1	1	1	1	--	./.	./.	--	--	--	--	s
reaching the mark of measurement ¹⁾²⁾	./.	./.	./.	./.	./.	--	./.	./.	--	--	--	--	s
max. flame height	3	3	4	4	3	--	0	0	--	--	--	--	cm
time	12	10	6	7	7	--	./.	./.	--	--	--	--	
self cessation of the flames end of afterflame ¹⁾	15	15	15	15	15	--	./.	./.	--	--	--	--	s
end of glowing ¹⁾	./.	./.	./.	./.	./.	--	./.	./.	--	--	--	--	s
flames were extinguished after ¹⁾	./.	./.	./.	./.	./.	--	./.	./.	-/-	--	--	--	s
smoke development (visual)	gering						gering						
dropping of burning material during 20 s ¹⁾	-/-	-/-	-/-	-/-	-/-	--	./.	./.	--	--	--	--	s
Appearance after test: burned out till max. height 4 cm x width 1 cm													

¹⁾ time mentioned from the beginning of the test ²⁾ during 20 Sec -/- no appearance -- no information

6. Remarks and explanations to the testing procedure - none -

7. Opinion concerning the dropping of burning material

The test for normal flammability shows no burning dripping material.