

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-180765**

**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**

<b>company</b>	<b>GF Genereal Formulations GmbH</b> Hansestraße 105 D-51149 Köln
<b>description of samples</b>	clear polymer self-adhesive foil consisting of PVC in a nominal thickness of 75µ
<b>name of the material</b>	„Concept E400“ or „Concept E401“ or „Concept E402“
<b>sampling</b>	by the company itself
<b>content of request</b>	Proof of flammability to classify building materials to class B1 “schwerentflammbar” according to DIN 4102, part 1
<b>validity of test report</b>	30.06.2023
<b>result</b>	<b>The examined product with an area weight of 119 g/m<sup>2</sup> meets affixed on metallic surfaces with a density of <math>\geq 5.890 \text{ kg/m}^3</math>, a melting point of <math>\geq 1000 \text{ °C}</math> and a thickness of <math>\geq 0,6 \text{ mm}</math> the requirements of class B1 for “schwerentflammbare” (hardly flammable) building materials according to DIN 4102, part 1 (May 1998).</b>

This test report includes 4 pages and 5 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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.

## 1. Description of test material in condition as delivered

**PN 27512:** „Concept E400“ or „Concept E401“ or „Concept E402“

- clear polymer self-adhesive foil consisting of PVC - nominal thickness 75µ

characteristic values determined by the test laboratory:

whole thickness including protection film: about 0,20 mm

whole area weight including protection film: about 211 g/m<sup>2</sup>

thickness of self-adhesive foil: about 0,11 mm

area weight of self-adhesive foil: about 119 g/m<sup>2</sup>

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

## 2. Preparation of samples

Samples with the dimensions 1000 mm height and 190 mm width where cut out from the material for fire testing. The self-adhesive foil was affix on steel panel with a thickness of 0,88 mm. The samples were kept in climate chamber 23/50 until they reached constant weight.

## 3. Arrangement of samples

#1399: flaming in machine direction

#1400: flaming in transverse direction

#1401: flaming in transverse direction

#1402: flaming in transverse direction

## 4. Date of test CW 28 in 2018

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

no.	Measurement	Result with the tested specimen				Dim.
		#1399	#1400	#1401	#1402	
	Test number					
	flaming direction	machine	transverse	transverse	transverse	
	<u>Number of specimen arrangement</u>					
1	acc. to. DIN 4102/T15, schedule 1	7	7	7	7	
2	<u>Maximum flame height above bottom</u>					
	edge of the specimen	70	70	70	70	cm
3	Time <sup>1)</sup>	0:41	0:47	1:05	0:40	min:s
4	<u>Burn through / melting</u>					
	Time <sup>1)</sup>	0:35	0:38	0:41	0:42	min:s
	<u>Observations on the back side of the specimen</u>					
	Flames / Glowing	./. .	./. .	./. .	./. .	
5	Time <sup>1)</sup>	./. .	./. .	./. .	./. .	min:s
	Change of colour	./. .	./. .	./. .	./. .	
6	Time <sup>1)</sup>	./. .	./. .	./. .	./. .	min:s
	<u>Falling of burning droplets</u>					
7	Start <sup>1)</sup>	./. .	./. .	./. .	./. .	min:s
	<u>Extent</u>					
8	sporadic falling of burning droplets <sup>2)</sup>	./. .	./. .	./. .	./. .	
9	continuous falling of burning droplets <sup>2)</sup>	./. .	./. .	./. .	./. .	min:s



line no.	Measurement	Result with the tested specimen				Dim.
	Test number	#1399	#1400	#1401	#1402	
	flaming direction	machine	transverse	transverse	transverse	
	<u>Falling of burning droplets</u>					
10	Start <sup>1)</sup>	./.	./.	./.	./.	min:s
	Extent	./.	./.	./.	./.	
11	sporadic falling of burning droplets <sup>2)</sup>	./.	./.	./.	./.	
12	continuous falling of burning droplets <sup>2)</sup>	./.	./.	./.	./.	
13	<u>After flame time at the bottom of the sieve (max.)</u>	./.	./.	./.	./.	min:s
14	<u>Impairment of the burner by dropping or falling material:</u> Time <sup>1)</sup>	./.	./.	./.	./.	min:s
15	<u>Premature end of test</u> Final occurrence of burning at the specimen <sup>1)</sup>	./.	./.	./.	./.	min:s
16	Time of eventually end of test <sup>1)</sup>	./.	./.	./.	./.	min:s
17	<u>After flame after end of test</u> Time <sup>1)</sup>	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	cm
19	Front side of specimen <sup>2)</sup>	./.	./.	./.	./.	
20	Back side of specimen <sup>2)</sup>	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	
22	<u>Afterglow after end of test</u> Time <sup>1)</sup>	./.	./.	./.	./.	min:s
23	Number of specimen	./.	./.	./.	./.	
	<u>Place of appearance</u>	./.	./.	./.	./.	
24	Lower half of the specimen <sup>2)</sup>	./.	./.	./.	./.	
25	Upper half of the specimen <sup>2)</sup>	./.	./.	./.	./.	
26	Front side of specimen <sup>2)</sup>	./.	./.	./.	./.	
27	Back side of specimen <sup>2)</sup>	./.	./.	./.	./.	
28	<u>Density of smoke</u> ≤ 400 % * min	23	23	12	15	% * min
29	> 400 % * min <sup>4)</sup>	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	1	2	3	4	
31	<u>Residual lengths:</u> individual value <sup>3)</sup> Specimen 1 Specimen 2 Specimen 3 Specimen 4	45 43 42 46	40 42 39 42	43 42 39 42	42 40 38 41	cm cm cm cm
32	<u>Average value, individual test <sup>3)</sup></u>	44	41	42	40	
33	<u>Photo of specimen in enclosure no.</u>	1	2	3	4	
34	<u>Flue gas temperature</u> Maximum of average value	117	118	115	114	°C
35	Time <sup>1)</sup>	10:00	10:00	10:00	09:51	min:s
36	Diagram: encl. no.	1	2	3	4	
37	Remarks: - none -					

<sup>1)</sup> indication of times: from the begin of testing procedure <sup>2)</sup> checked off if applicable

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

<sup>4)</sup> very strong development of smoke

## 6. Explanations concerning the testing procedure

-none-

## 7. Summary of results and additional establishments to Fire Behaviour

lineo.	measurement	Result with the tested specimen				dimension
	test-no.	#1399 machine dir.	#1400 transv.dir.	#1410 transv.dir.	#1411 transv.dir.	
1	residual length	44	41	42	40	cm
2	max. smoke temperature	117	118	115	114	°C
3	density of smoke - integral	23	23	12	15	%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 5).

## 8. Special remarks

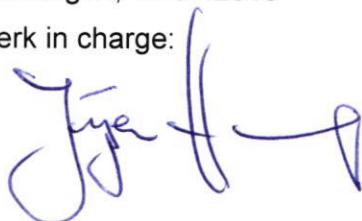
- This report is only valid for the material as described under paragraph 1. In combination with other materials or with additional coatings or grounds etc. the burning behaviour may differ.
- This test report is not valid for the exposure to outdoor climate conditions.
- This test report is not valid, 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, in 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, 12.07.2018

clerk in charge:



(Dipl.-Ing. (FH) Jürgen Hammer)



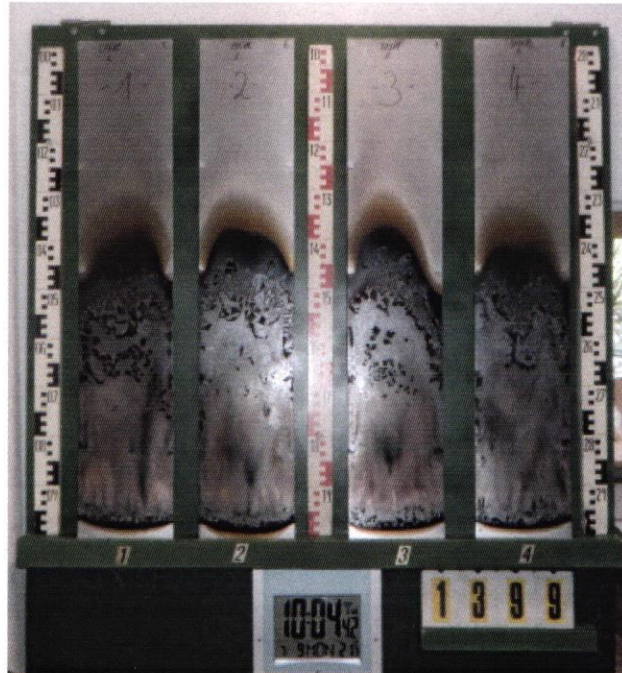
Head of the test laboratory:



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

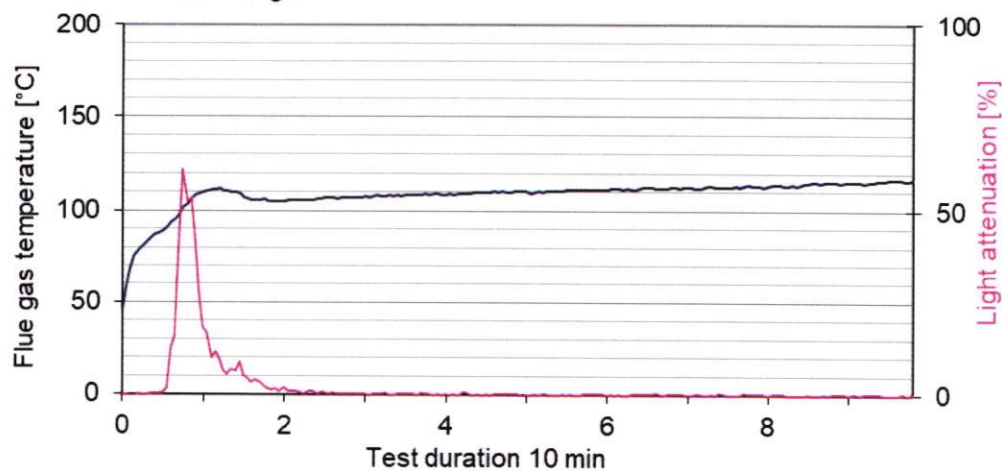


**„Brandschacht“-test #1399**

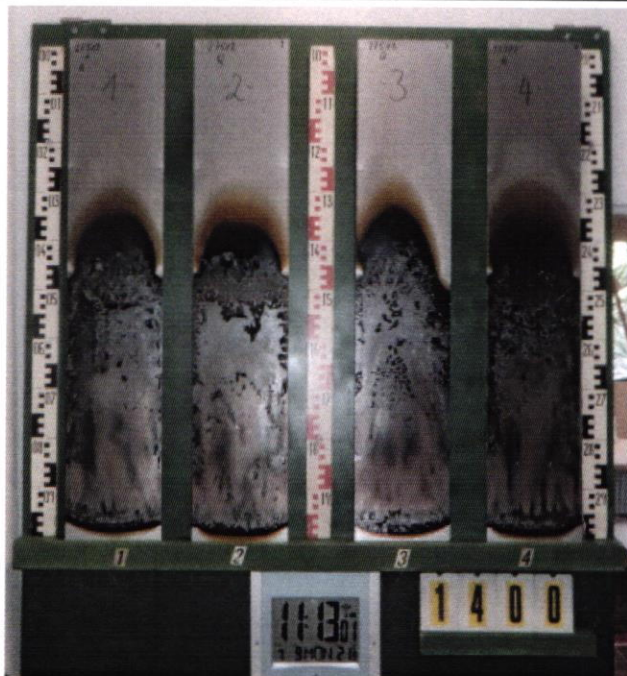


**measurement**

**#1399, PN27512: GENERAL FORMULATIONS, "Concept E402",**  
Max. flue temperature: 117°C, Smoke density integral: 23%min  
Residual length: 44 cm

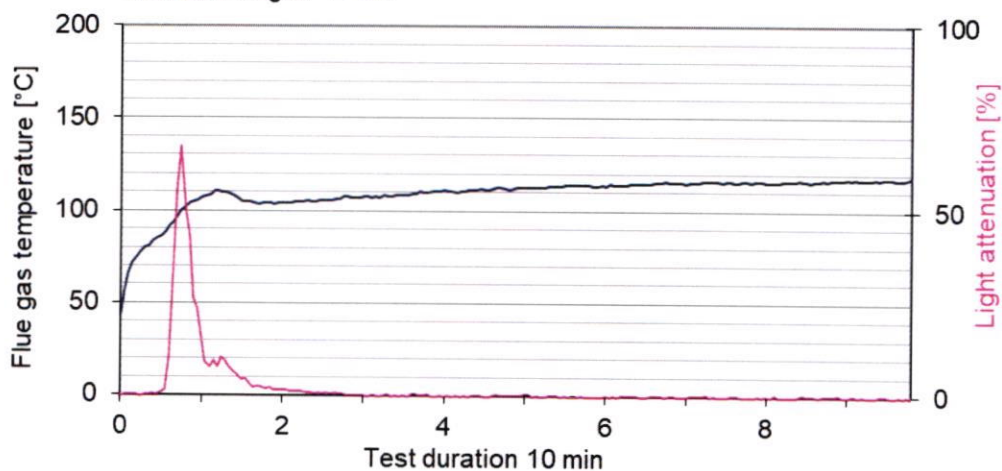


**„Brandschacht“-test #1400**



**measurement**

**#1400, PN27512: GENERAL FORMULATIONS, "Concept E402",**  
Max. flue temperature: 118°C, Smoke density integral: 23%min  
Residual length: 41 cm

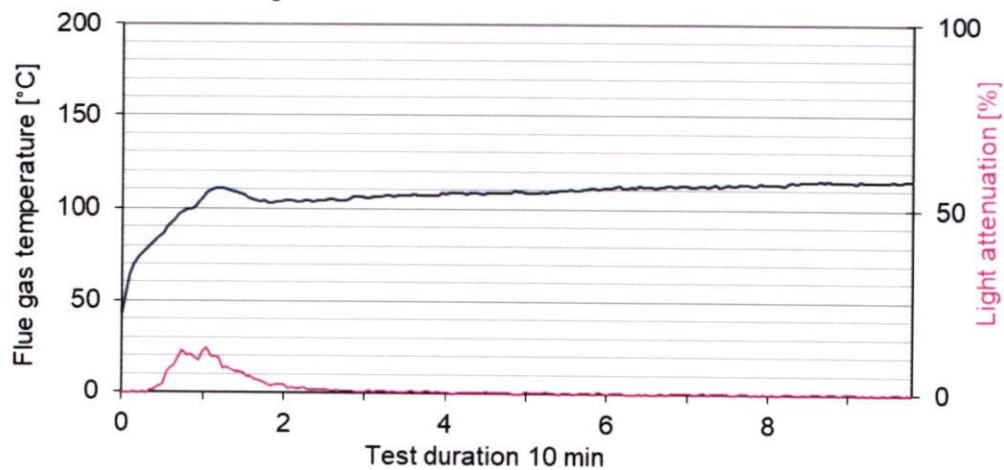


**„Brandschacht“-test #1410**



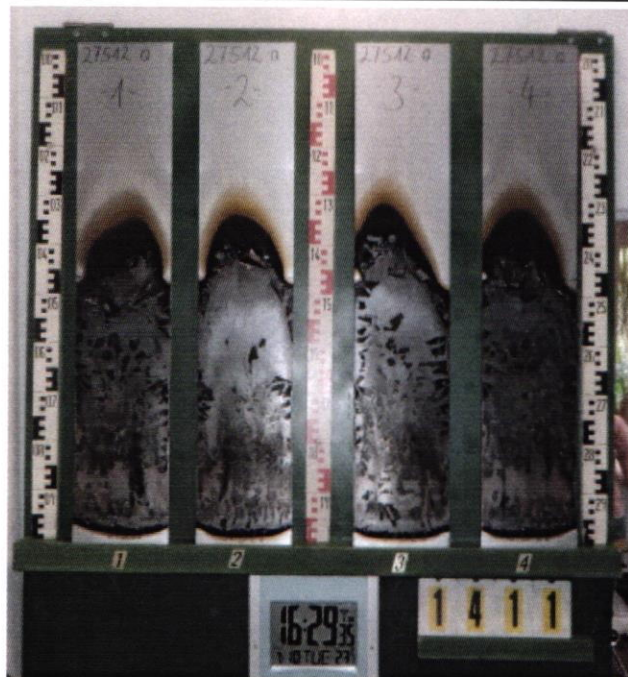
**measurement**

**#1410, PN27512: GENERAL FORMULATIONS, "Concept E402",**  
Max. flue temperature: 115°C, Smoke density integral: 12%min  
Residual length: 42 cm



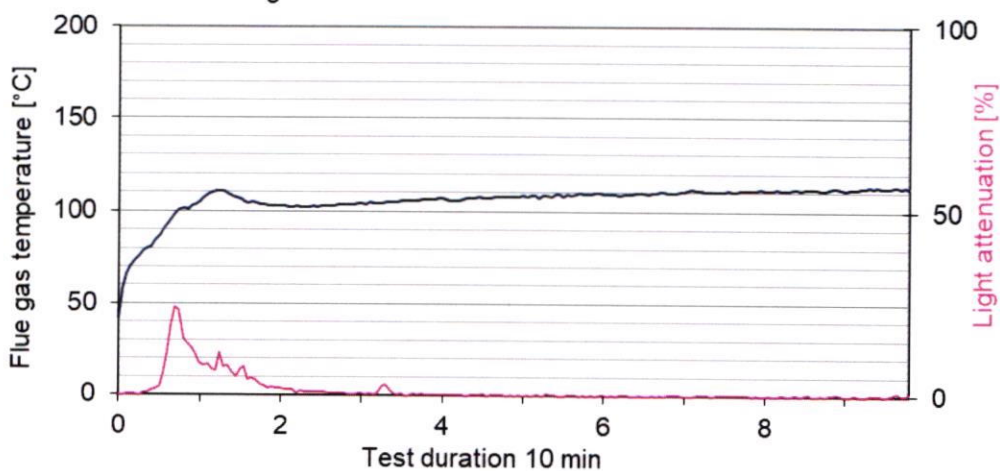


„Brandschacht“-test #1411



measurement

#1411, PN27512: GENERAL FORMULATIONS, "Concept E402",  
Max. flue temperature: 114°C, Smoke density integral: 15%min  
Residual length: 40 cm





**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 -glued on steel panels-  
Flaming in warp and weft direction

 4. Date of test CW 24 in 2018

 5. Results

PN 27512: flaming in transverse direction	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	1	1	1	1	--	./.	--	--	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	S
max. flame height	3	2	2	2	2	--	2	--	--	--	--	--	cm
time	5	15	15	15	15	--	./.	--	--	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	15	15	15	15	15	--	./.	--	--	--	--	--	s
end of glowing <sup>1)</sup>	15	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
flames were extinguished after <sup>1)</sup>	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
smoke development (visual)	little						very little						
dropping of burning material during 20 s <sup>1)</sup>	./.	./.	./.	./.	./.	--	./.	--	--	--	--	--	s
Appearance after test: burned out till max. height 3 cm x width 2 cm													

PN 27512: flaming in machine direction	edge-test						surface-test						Dim
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	
ignition <sup>1)</sup>	1	--	--	--	--	--	./.	--	--	--	--	--	s
reaching the mark of measurement <sup>1)2)</sup>	./.	--	--	--	--	--	./.	--	--	--	--	--	s
max. flame height	2	--	--	--	--	--	2	--	--	--	--	--	cm
time	15	--	--	--	--	--	./.	--	--	--	--	--	
self cessation of the flames end of afterflame <sup>1)</sup>	15	--	--	--	--	--	./.	--	--	--	--	--	s
end of glowing <sup>1)</sup>	15	--	--	--	--	--	./.	--	--	--	--	--	s
flames were extinguished after <sup>1)</sup>	./.	--	--	--	--	--	./.	--	--	--	--	--	s
smoke development (visual)	little						very little						
dropping of burning material during 20 s <sup>1)</sup>	./.	./.	./.	--	--	--	./.	./.	./.	--	--	--	s
Appearance after test: burned out till max. height 3 cm x width 2 cm													

<sup>1)</sup> time mentioned from the beginning of the test <sup>2)</sup> 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.