

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-230533

**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>Sihl GmbH</b> Kreuzauer Str. 33 <b>D-52355 Düren</b>
<b>description of samples</b>	white, glossy finished, monomeric PVC film with a permanent adhesive
<b>name of the material</b>	<b>„3585 – SA Vinyl Plus 110 P-CA FR AQ glossy“</b>
<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>	30.04.2029
<b>result</b>	<b>The examined products meet the requirements of class B1 for “schwerentflammbare” (hardly flammable) building materials according to DIN 4102, part 1 (May 1998) , if glued on metallic substrates with a density of <math>\geq 2.025 \text{ kg/m}^3</math> , a melting point of <math>\geq 500^\circ\text{C}</math> and a thickness of <math>\geq 0,8\text{mm}</math>.</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, Ziffer1, 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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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 39050:** „3585 – SA Vinyl Plus 110 P-CA FR AQ glossy“  
- white, glossy finished, monomeric PVC film with a permanent adhesive -  
characteristic values determined by the test laboratory:  
whole thickness: about 0,23 mm  
thickness of self-adhesive film: about 0,12 mm  
area weight of self-adhesive film: about 146 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

The samples were kept in climate chamber 23/50 until they reached constant weight.  
The self-adhesive foil was glued on aluminium panels with a thickness of about 1,0 mm,  
according to DIN 4102-16: 2020-11, point 5.4, d, ii

## 3. Arrangement of samples mounting: self-adhesive foil glued on aluminium panels

#7618: flaming in machine direction  
#7619: flaming in transverse direction  
#7637: flaming in transverse direction  
#7638: flaming in transverse direction

## 4. Date of test CW 16 in 2024

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

line no.	Measurement	Result with the tested specimen				Dim.
		#7618	#7619	#7637	#7638	
	Test number					
	flaming direction / side	machine	transverse	transverse	transverse	
1	<u>Number of specimen arrangement</u> acc. to. DIN 4102/T15, schedule 1	7	7	7	7	
2	<u>Maximum flame height</u> above bottom edge of the specimen	90	90	90	90	cm
3	Time <sup>1)</sup>	0:40	0:36	0:42	0:35	min:s
4	<u>Burn through / melting</u> Time <sup>1)</sup>	./.	./.	./.	./.	min:s
5	<u>Observations on the back side of the specimen</u> Flames / Glowing Time <sup>1)</sup>	---	---	---	---	min:s
6	Change of colour Time <sup>1)</sup>	./.	./.	./.	./.	min:s
7	<u>Falling of burning droplets</u> Start <sup>1)</sup>	./.	./.	./.	./.	min:s
8	Extent sporadic falling of burning droplets <sup>2)</sup>	---	---	---	---	
9	continuous falling of burning droplets <sup>2)</sup>	---	---	---	---	min:s
10	<u>Falling of burning droplets</u> Start <sup>1)</sup>	./.	./.	X 0:45	X 1:15	min:s
11	Extent sporadic falling of burning droplets <sup>2)</sup>	---	---	X	X	
12	continuous falling of burning droplets <sup>2)</sup>	---	---	---	---	

line no.	Measurement	Result with the tested specimen				Dim.
		#7618	#7619	#7637	#7638	
	Test number	#7618	#7619	#7637	#7638	
	flaming direction / side	machine	transverse	transverse	transverse	
13	After flame time at the bottom of the sieve (max.)	./.	./.	0:06	0:04	min:s
14	Impairment of the burner by dropping or falling material: Time <sup>1)</sup>	./.	./.	./.	./.	min:s
15	Final occurrence of burning at the specimen <sup>1)</sup>	1:35	2:10	1:30	1:35	min:s
16	Time of eventually end of test <sup>1)</sup>	./.	./.	./.	./.	min:s
17	After flame after end of test Time <sup>1)</sup>	./.	./.	./.	./.	min:s
18	Number of specimen	./.	./.	./.	./.	
19	Front side of specimen <sup>2)</sup>	./.	./.	./.	./.	
20	Back side of specimen <sup>2)</sup>	./.	./.	./.	./.	
21	flame length	./.	./.	./.	./.	cm
22	Afterglow after end of test Time <sup>1)</sup>	./.	./.	./.	./.	min:s
23	Number of specimen	./.	./.	./.	./.	
24	Place of appearance 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	Density of smoke ≤ 400 % * min	32	32	35	30	% * min
29	> 400 % * min <sup>4)</sup>	./.	./.	./.	./.	% * min
30	Diagram: encl. no.	1	2	3	4	
31	Residual lengths: individual value <sup>3)</sup>					
	Specimen 1	38	38	40	39	cm
	Specimen 2	41	37	40	39	cm
	Specimen 3	41	40	37	38	cm
	Specimen 4	43	38	40	39	cm
32	Average value, individual test <sup>3)</sup>	41	38	39	39	
33	Photo of specimen in enclosure no.	1	2	3	4	
34	Flue gas temperature	118	116	111	113	°C
35	Maximum of average value Time <sup>1)</sup>	0:43	0:40	09:27	0:43	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				dimen sion
	test-no.	#7618 machine dir.	#7619 transv. dir.	#7637 transv. dir.	#7638 transv. dir.	
1	residual length	<b>41</b>	<b>38</b>	<b>39</b>	<b>39</b>	cm
2	max. smoke temperature	<b>118</b>	<b>116</b>	<b>111</b>	<b>113</b>	°C
3	density of smoke - integral	<b>32</b>	<b>32</b>	<b>35</b>	<b>30</b>	%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**

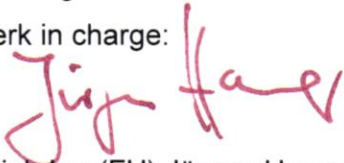
- This report is only valid for the material as described under paragraph 1. In combination with other materials or with additional coatings or grounds etc. the burning behaviour may differ.
- This test report is not valid for the exposure to outdoor climate conditions.
- This test report is not valid, 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, 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, 22.04.2024

clerk in charge:



(Dipl.-Ing.(FH) Jürgen Hammer)

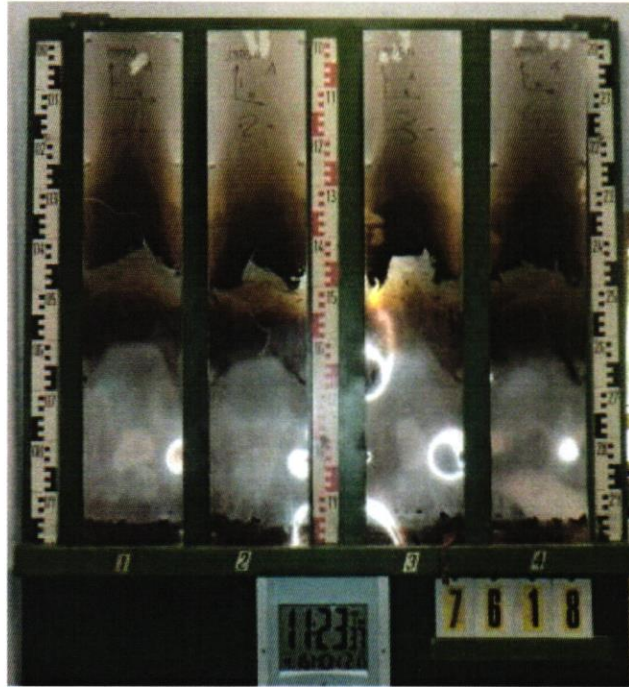


Head of the test laboratory:



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

**„Brandschacht“-test #7618**

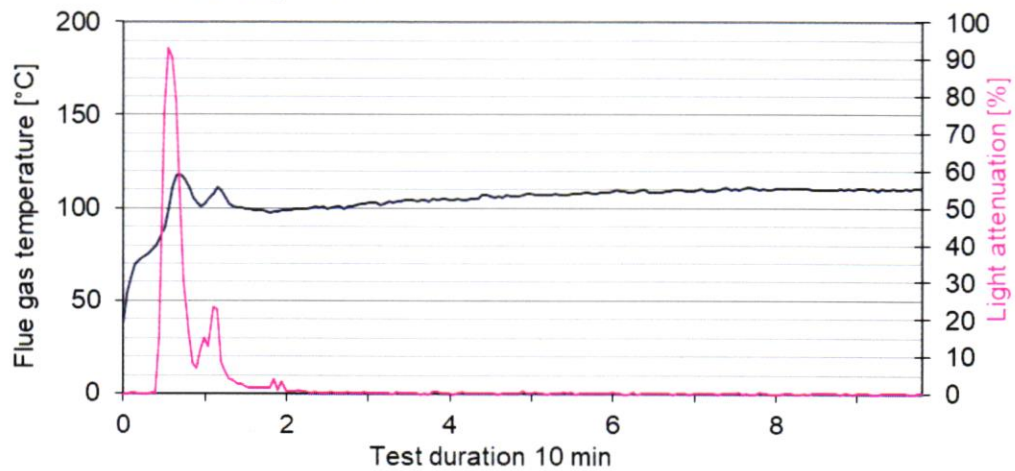


**measurement**

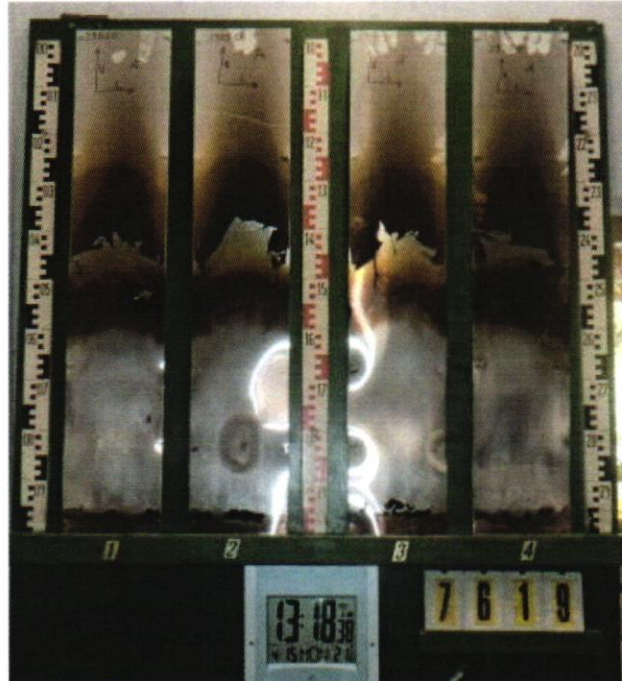
**#7618, PN39050: "3585 SA Vinyl Plus 110 P-CA FR AQ glossy"**

Max. flue temperature: 118°C, Smoke density integral: 32%min

Residual length: 41 cm

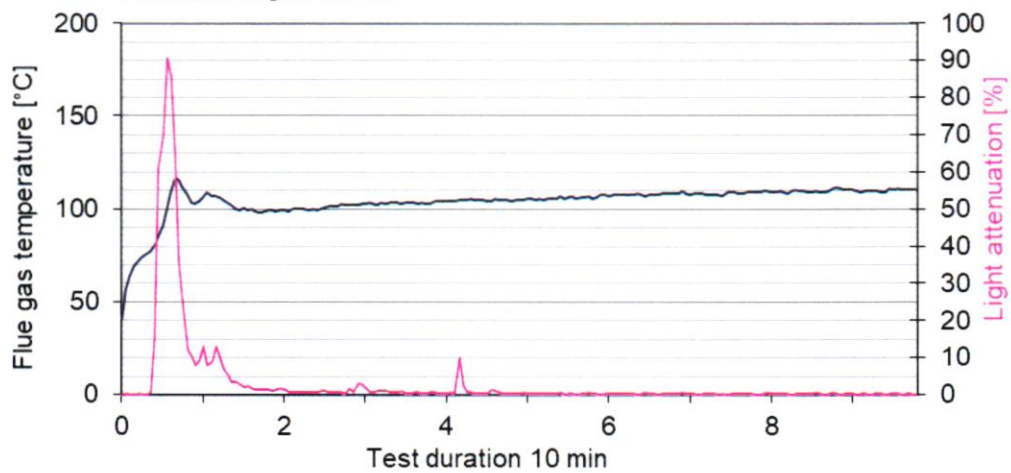


**„Brandschacht“-test #7619**

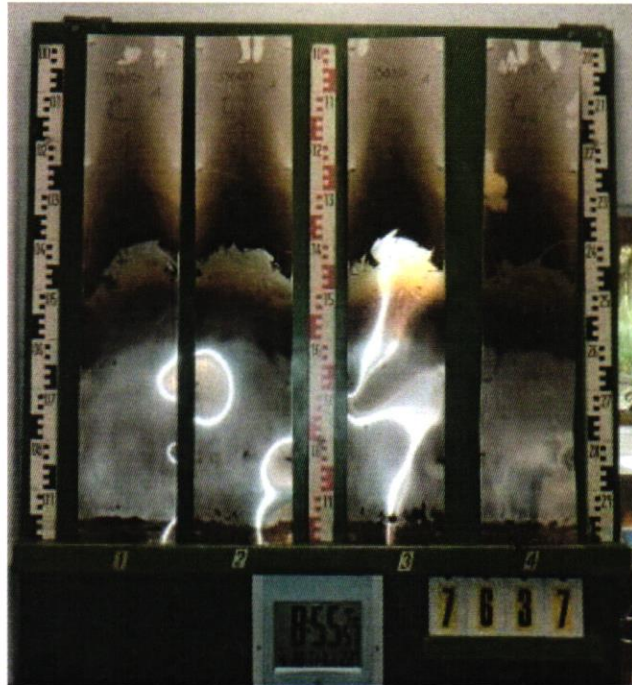


**measurement**

**#7619, PN39050: "3585 SA Vinyl Plus 110 P-CA FR AQ glossy"**  
 Max. flue temperature: 116°C, Smoke density integral: 32%min  
 Residual length: 38 cm



**„Brandschacht“-test #7637**

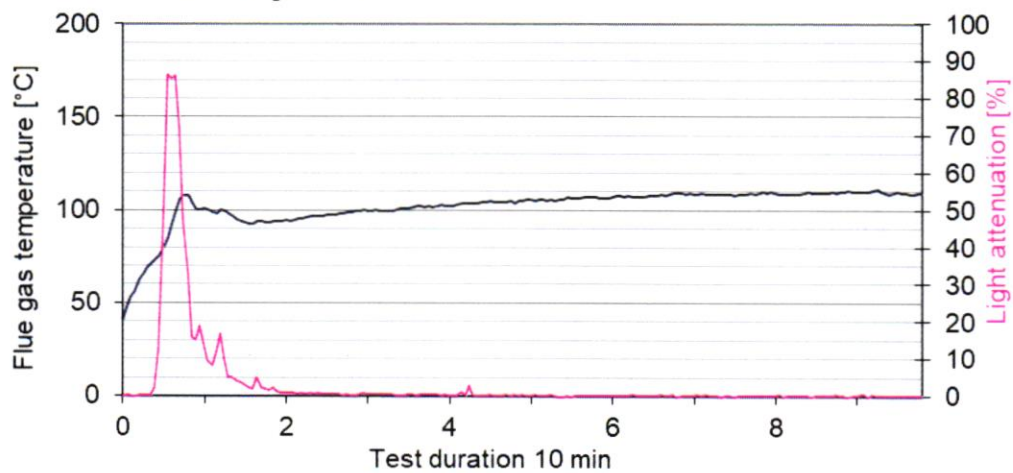


**measurement**

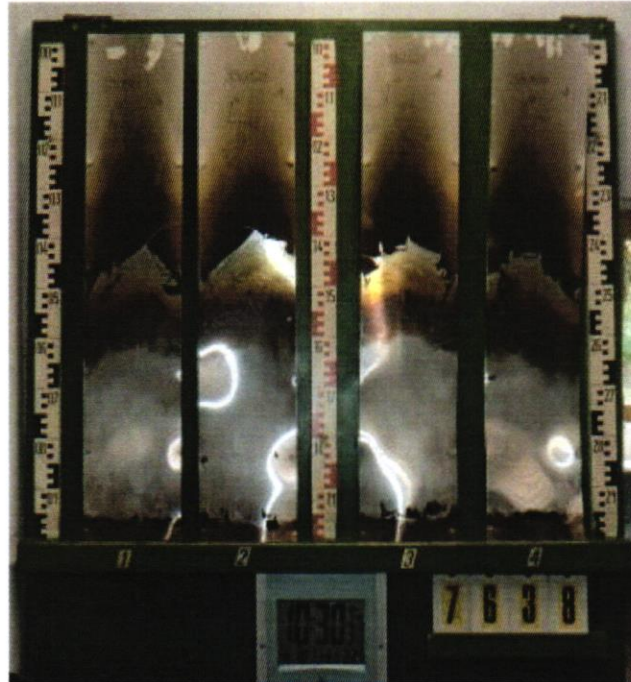
**#7637, PN39050: "3585 SA Vinyl Plus 110 P CA FR AQ glossy"**

Max. flue temperature: 111°C, Smoke density integral: 35%min

Residual length: 39 cm

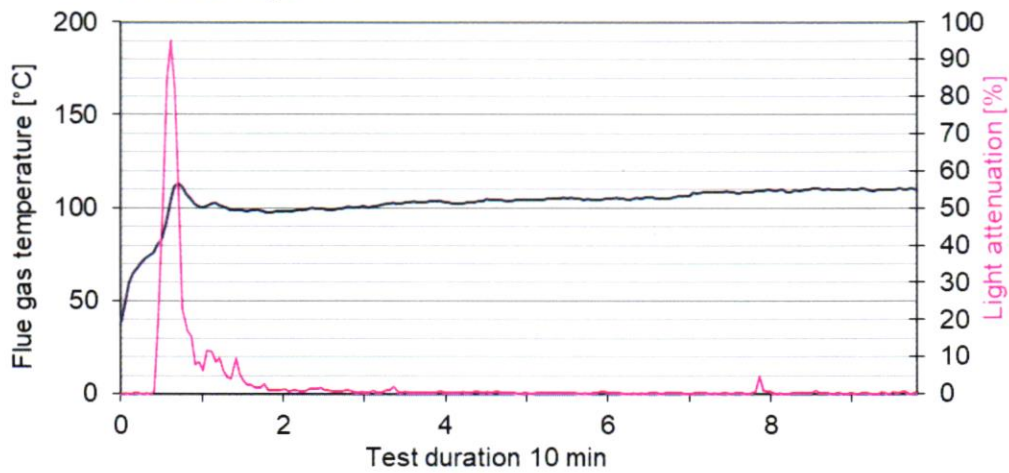


**„Brandschacht“-test #7638**



**measurement**

**#7638, PN39050: "3585 SA Vinyl Plus 110 P CA FR AQ glossy"**  
Max. flue temperature: 113°C, Smoke density integral: 30%min  
Residual length: 39 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 aluminium panels-  
Flaming in machine and in transverse direction
4. Date of test CW 15 in 2024
5. Results

PN 39050: flaming in machine dir.	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	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	--	<b>2</b>	--	--	--	--	--	cm
time	15	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	15	15	15	15	--	-/-	--	--	--	--	--	s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-	--	-/-	--	--	--	--	--	
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 1 cm x width 1 cm													

PN 39050: flaming in transv. dir.	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	<b>2</b>	--	--	--	--	--	<b>2</b>	--	--	--	--	--	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 1cm x width 1cm													

<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.