#### Prüfinstitut Hoch

Lerchenweg 1 D-97650 Fladungen Tel.: int – 49 – 9778-7480-200 hoch.fladungen@t-online.de

www.reaction-to-fire.de



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-180169-2

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

ASLAN, Schwarz GmbH & Co. KG

Oberauel 2

D-51491 Overath

description of samples

transparent self-adhesive foil consisting of PET

name of the material

"AntiGraffiti ASLAN SL95"

"Clearboard ASLAN CB90"

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

31.01.2023

result

The examined product meets

- glued on massive mineral substrates with a density ≥ 1500 kg/m³ and a thickness ≥ 6 mm
- glued massive mineral substrates with a density ≥ 650 kg/m³ and a thickness ≥ 11 mm
- glued on non-combustible building boards

the requirements of class B1 for "schwerentflammbare"

(hardly flammable) building materials according to DIN 4102, part 1

(May 1998).

This test report includes 5 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)

"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This test report must not be published and copied without preceding agreement of the test laboratory and if agreed, only during validity and unchanged concerning appearance and contents.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 26637:

"AntiGraffiti ASLAN SL95"

According to the manufacturer the tested material is a transparent PET foil

with aqueous acrylate adhesive.

characteristic values determined by the test laboratory:

area weight: about 105 g/m²

thickness: about 0,08 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. According to DIN 4102-16, part 4.4.c the self-adhesive foil was glued on following gypsum plasterboards:

Gypsum boards according to DIN EN 520: thickness (12,5  $\pm$  0,5) mm, density (700  $\pm$  100) kg/m<sup>3</sup>, class A2-s1,d0 according to EN 13501-1.

#### 3. Arrangement of samples -glued on gypsum boards-

#9900	flaming in transverse direction
#9930	flaming in machine direction
#9944	flaming in transverse direction
#9945	flaming in transverse direction

#### 4. <u>Date of test</u> CW 06 and CW 07 in 2018



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

<u>5. l</u>	5. Results The test has been examined according to DIN 4102 (Mai 1998)											
	Measurement	F	Result with	the teste	d specim	en	Dim.					
line no	Test number	#9900	#9930	#9944	#9945							
=	flamed direction	transv.	machine	transv.	transv.							
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	7	7	7	7							
2 3	Maximum flame height above bottom edge of the specimen Time 1)	70 1:50	70 1:32	60 0:47	60 0:39	220	cm min:s					
4	Burn through of foil / melting Time 1)	.1.	./.	J.		u	min:s					
5 6	Observations on the back side of the specimen Flames / Glowing Time <sup>1)</sup> Change of color Time <sup>1)</sup>	 J.  J.	 .f.  .f.	 J.  J.	 ./.  ./.	  	min:s					
7	Falling of burning droplets Start 1) Extent	./. ./.	./. ./.	.J. .J.	.I. .I.		min:s					
8 9	sporatic falling of burning droplets <sup>2)</sup> continuous falling of burning droplets <sup>2)</sup>	./. ./.	./. ./.	./. ./.	./. 		min:s					
10	Falling of burning droplets Start 1) Extent	./. ./.	.f. .f.	.I. .I.	./. ./.		min:s					
11 12	sporatic falling of burning droplets <sup>2)</sup> continuous falling of burning droplets <sup>2)</sup>	./.	./.	.J.	/.	***						
13	Afterflame time at the bottom of the sieve (max.)	J.	J.	<i>.</i> ].	./.		min:s					
14	Impairment of the burner by dropping or falling material: Time 1)	J.	J.	.I.	.I.		min:s					
15	Premature end of test Final occurance of burning at the specimen 1)	./.	.1.	.1.	.I.		min:s					
16	Time of eventually end of test 1)	./.	./.	./.	./.		min:s					
17 18 19 20 21	Afterflame after end of test Time <sup>1)</sup> Number of specimen Front side of specimen <sup>2)</sup> Back side of specimen <sup>2)</sup> flame length	.f. .f. .f. .f.	J. J. J. J.	.I. .I. .I. .I.	.I. .I. .I. .I.	 	min:s					
22 23 24 25 26	Afterglow after end of test Time 1) Number of specimen Place of appearance Lower half of the specimen 2) Upper half of the specimen 2) Front side of specimen 2)	J.	J. J. J. J. J. J.	J.	J.		min:s					
27	Back side of specimen 2)	J.	./.	J.	Ĵ.							

	Measurement	F	esult with	the teste	d specim	en	Dim.
line no.	Test number	#9900	#9930	#9944	#9945	***	
<u>.</u> =	flamed direction	transv.	machine	transv.	transv.	h	
28 29 30	Density of smoke ≤ 400 % * min > 400 % * min <sup>4)</sup> Diagram: encl. no.	6 ./.	4 ./. 2	4 ./. 3	4 ./. 4		% * min % * min
31	Residual lengths: individual value <sup>3)</sup> Specimen 1 Specimen 2 Specimen 3 Specimen 4		33 31 29 28	32 35 35 35 33	34 37 37 31		cm cm cm
32	Average value, individual test 3)	27	30	34	35		
33	Photo of specimen in enclosure no.	1	2	3	4		
34 35	Flue gas temperature Maximum of average value Time <sup>1)</sup>	109 01:56	108 01:38	107 07:55	105 01:38		°C 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 2) checked

<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

lineno	measurement	Result with the tested specimen								
Ξ	test-no.	#9900	#9930	#9944	#9945	-	dime nsion			
	flamed direction flamed side	transv.	machine	transv.	transv.					
1	residual length	27	30	34	35		cm			
2	max. smoke temperature	109	108	107	105	4450	°C			
3	density of smoke - integral	6	4	4	4		%min			
4	remarks: none						70111111			

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
  - o regular building materials for the required proof of accordance
  - o for not regular building materials for the required proof of applicability

Fladunger

#### 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, 02.05.2018

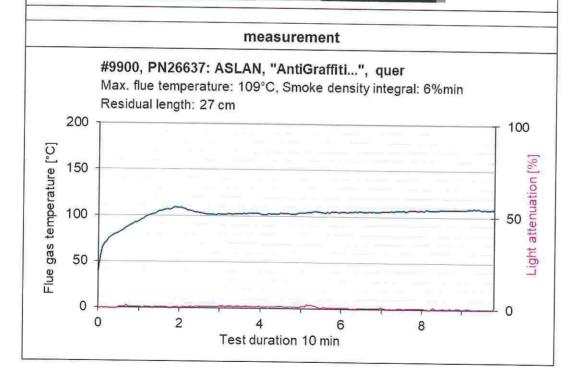
clerk in charge:

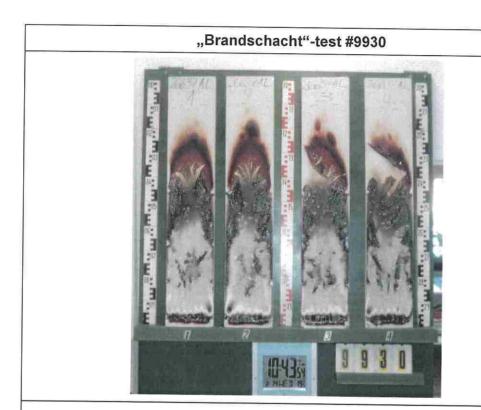
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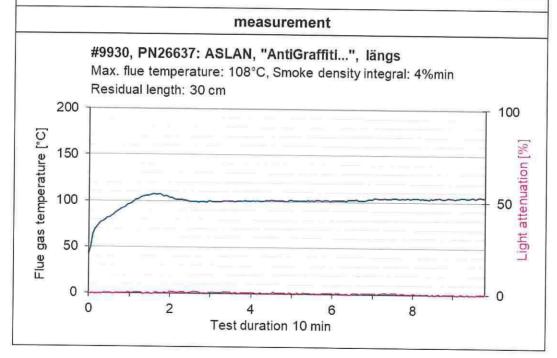
Head of the test laboratory:

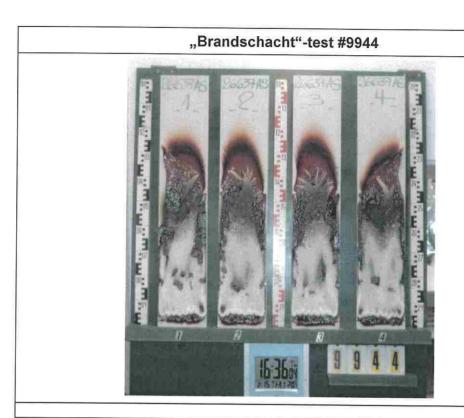
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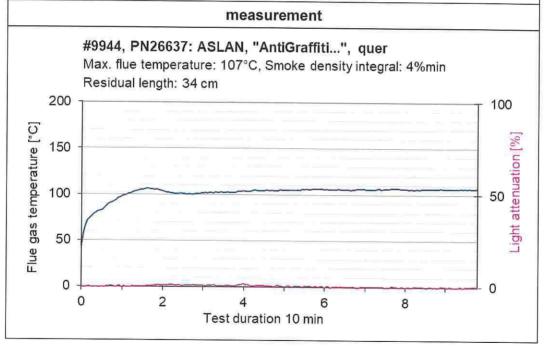


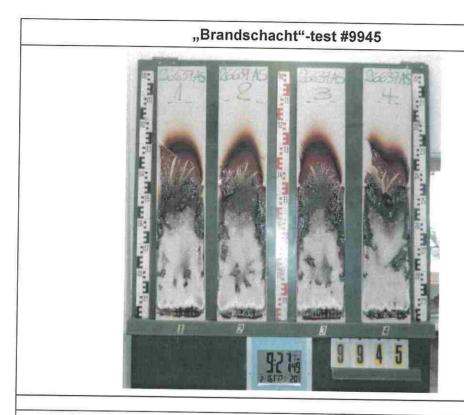


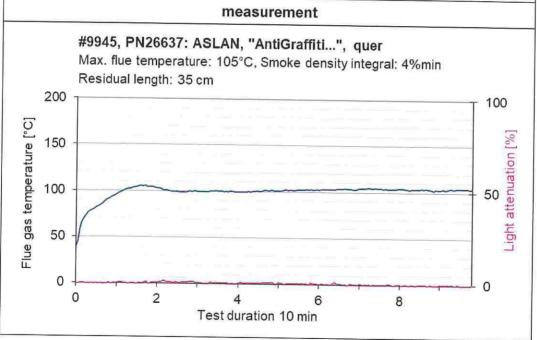












#### Prüfinstitut Hoch Lerchenweg 1 D-97650 Fladungen

# Test for normal flammability classifying B2 according to DIN 4102

1. <u>Description of test material in condition as delivered</u> 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 gypsum plasterboards / flaming in machine direction and in transverse direction

4. Date of test

CW 07 2018

#### 5. Results

PN 26637: flaming in transverse direction		edge-test						surface-test					
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	Ë
ignition <sup>1)</sup>	1	1	1	1	1		1						s
reaching the mark of measurement <sup>1)2)</sup>	./.	./.	.J.	J.	./.		./.		4-	-			s
max. flame height	3	3	3	3	3		1	-					cm
Time	15	15	15	15	15		4			-			
self cessation of the flames end of afterflame <sup>1)</sup>	15	15	15	15	15		15			1			s
end of glowing <sup>1)</sup>	20	20	20	20	20	-	./.			1			s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-		-/-			-			
smoke development (visual)	moderate								mode	erate			J.
dropping of burning material during 20 s1)	-/-	-/-	-/-	-/-	-/-	I	-/-						s
Appearance after test: burned out till max. height 4 cm x width 2,5 cm													

PN 26637: flaming in machine direction		edge-test						surface-test					
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	Ë
ignition <sup>1)</sup>	1						1						s
reaching the mark of measurement <sup>1)2)</sup>	-/-						-/-					<u>.</u> .	s
max. flame height	3						1						cm
time	15						4						
self cessation of the flames end of afterflame <sup>1)</sup>	15						15	<b>FI</b> -					s
end of glowing <sup>1)</sup>	21						-/-						s
flames were extinguished after1)	-/-						-/-						s
smoke development (visual)	moderate moderate												
dropping of burning material during 20 s <sup>1)</sup>	-/-	-					-/-						s
Appearance after test: burned out till max. height 4cm x width 2,5cm													

<sup>1)</sup> time mentioned from the beginning of the test 2) during 20 Sec

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.

<sup>-/-</sup> no appearance -- no information

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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

ASLAN, Schwarz GmbH & Co. KG

Oberauel 2

D-51491 Overath

description of samples

transparent self-adhesive foil consisting of PET

name of the material

"AntiGraffiti ASLAN SL95"

"Clearboard ASLAN CB90"

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

31.01.2023

result

The examined product meets

- glued on massive mineral substrates with a density ≥ 1500 kg/m³ and a thickness ≥ 6 mm
- glued massive mineral substrates with a density ≥ 650 kg/m³ and a thickness ≥ 11 mm
- glued on non-combustible building boards

the requirements of class B1 for "schwerentflammbare"

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According to the manufacturer the tested material is a transparent PET foil

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characteristic values determined by the test laboratory:

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thickness: about 0,08 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. According to DIN 4102-16, part 4.4.c the self-adhesive foil was glued on following gypsum plasterboards:

Gypsum boards according to DIN EN 520: thickness (12,5  $\pm$  0,5) mm, density (700  $\pm$  100) kg/m<sup>3</sup>, class A2-s1,d0 according to EN 13501-1.

#### 3. Arrangement of samples -glued on gypsum boards-

#9900	flaming in transverse direction
#9930	flaming in machine direction
#9944	flaming in transverse direction
#9945	flaming in transverse direction

#### 4. <u>Date of test</u> CW 06 and CW 07 in 2018



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

<u>5. l</u>	5. Results The test has been examined according to DIN 4102 (Mai 1998)											
	Measurement	F	Result with	the teste	d specim	en	Dim.					
line no	Test number	#9900	#9930	#9944	#9945							
=	flamed direction	transv.	machine	transv.	transv.							
1	Number of specimen arrangement acc. to. DIN 4102/T15, schedule 1	7	7	7	7							
2 3	Maximum flame height above bottom edge of the specimen Time 1)	70 1:50	70 1:32	60 0:47	60 0:39	220	cm min:s					
4	Burn through of foil / melting Time 1)	.1.	./.	J.		u	min:s					
5 6	Observations on the back side of the specimen Flames / Glowing Time <sup>1)</sup> Change of color Time <sup>1)</sup>	 J.  J.	 .f.  .f.	 J.  J.	 ./.  ./.	  	min:s					
7	Falling of burning droplets Start 1) Extent	./. ./.	./. ./.	.J. .J.	.I. .I.		min:s					
8 9	sporatic falling of burning droplets <sup>2)</sup> continuous falling of burning droplets <sup>2)</sup>	./. ./.	./. ./.	./. ./.	./. 		min:s					
10	Falling of burning droplets Start 1) Extent	./. ./.	.f. .f.	.I. .I.	./. ./.		min:s					
11 12	sporatic falling of burning droplets <sup>2)</sup> continuous falling of burning droplets <sup>2)</sup>	./.	./.	.J.	/.	***						
13	Afterflame time at the bottom of the sieve (max.)	J.	J.	<i>.</i> ].	./.		min:s					
14	Impairment of the burner by dropping or falling material: Time 1)	J.	J.	.I.	.I.		min:s					
15	Premature end of test Final occurance of burning at the specimen 1)	./.	.1.	.1.	.I.		min:s					
16	Time of eventually end of test 1)	./.	./.	./.	./.		min:s					
17 18 19 20 21	Afterflame after end of test Time <sup>1)</sup> Number of specimen Front side of specimen <sup>2)</sup> Back side of specimen <sup>2)</sup> flame length	.f. .f. .f. .f.	J. J. J. J.	.I. .I. .I. .I.	.I. .I. .I. .I.	 	min:s					
22 23 24 25 26	Afterglow after end of test Time 1) Number of specimen Place of appearance Lower half of the specimen 2) Upper half of the specimen 2) Front side of specimen 2)	J.	J. J. J. J. J. J.	J.	J.		min:s					
27	Back side of specimen 2)	J.	./.	J.	Ĵ.							

ا	Measurement	R	esult with	the teste	d specime	en	Dim.
line no.	Test number	#9900	#9930	#9944	#9945	***	
≟	flamed direction	transv.	machine	transv.	transv.		1 -
28 29 30	Density of smoke ≤ 400 % * min > 400 % * min <sup>4)</sup> Diagram: encl. no.	6 ./. 1	4 ./. 2	4 ./. 3	4 ./. 4		% * min % * min
31	Residual lengths: individual value <sup>3)</sup> Specimen 1 Specimen 2 Specimen 3 Specimen 4		33 31 29 28	32 35 35 35 33	34 37 37 31		cm cm cm
32	Average value, individual test 3)	27	30	34	35		
33	Photo of specimen in enclosure no.	1	2	3	4		
34 35	Flue gas temperature Maximum of average value Time <sup>1)</sup>	109 01:56	108 01:38	107 07:55	105 01:38		°C min:s
36	Diagram: encl. no.	1	2	3	4		
37	Remarks: - none -					<b></b>	

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

lineno	measurement	Result with the tested specimen								
Ξ	test-no.	#9900	#9930	#9944	#9945		dime			
	flamed direction flamed side	transv.	machine	transv.	transv.					
1	residual length	27	30	34	35		cm			
2	max. smoke temperature	109	108	107	105		°C			
3	density of smoke - integral	6	4	4	4		%min			
4	remarks: none						70111111			

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).
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Fladunger

#### 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, 02.05.2018

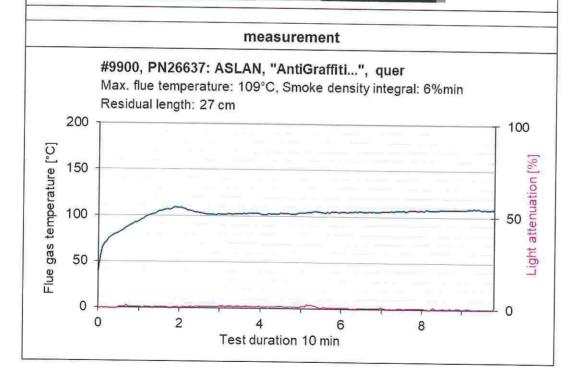
clerk in charge:

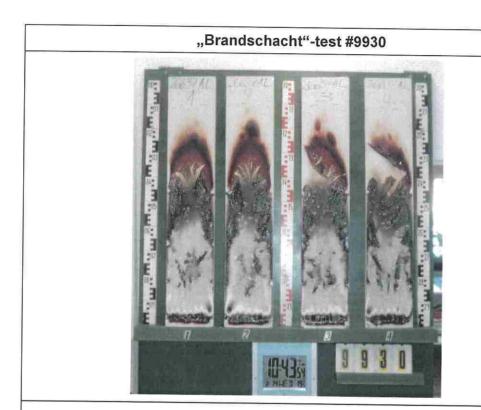
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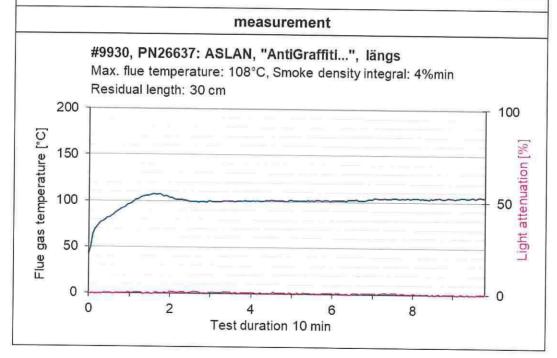
Head of the test laboratory:

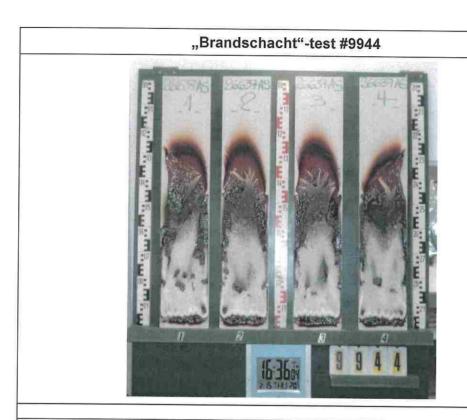
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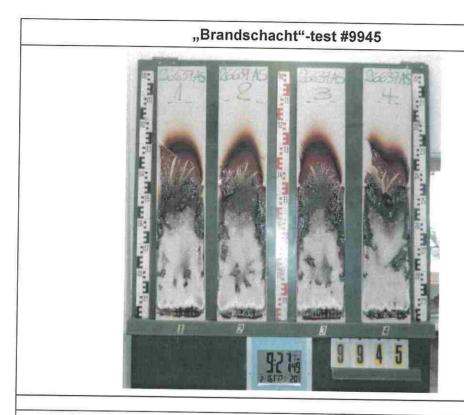


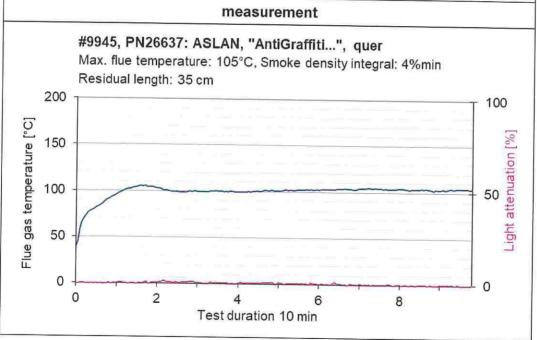






#### measurement #9944, PN26637: ASLAN, "AntiGraffiti...", quer Max. flue temperature: 107°C, Smoke density integral: 4%min Residual length: 34 cm 200 100 Flue gas temperature [°C] Light attenuation [%] 150 100 50 0 0 2 8 Test duration 10 min





#### Prüfinstitut Hoch Lerchenweg 1 D-97650 Fladungen

# Test for normal flammability classifying B2 according to DIN 4102

1. <u>Description of test material in condition as delivered</u> 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 gypsum plasterboards / flaming in machine direction and in transverse direction

4. Date of test

CW 07 2018

#### 5. Results

PN 26637: flaming in transverse direction		edge-test						surface-test					
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	Ë
ignition <sup>1)</sup>	1	1	1	1	1		1						s
reaching the mark of measurement <sup>1)2)</sup>	./.	./.	.J.	J.	./.		./.		4-	-			s
max. flame height	3	3	3	3	3		1	-					cm
Time	15	15	15	15	15		4			-			
self cessation of the flames end of afterflame <sup>1)</sup>	15	15	15	15	15		15			1			s
end of glowing <sup>1)</sup>	20	20	20	20	20	-	./.			1			s
flames were extinguished after <sup>1)</sup>	-/-	-/-	-/-	-/-	-/-		-/-			-			
smoke development (visual)	moderate								mode	erate			J.
dropping of burning material during 20 s1)	-/-	-/-	-/-	-/-	-/-	I	-/-						s
Appearance after test: burned out till max. height 4 cm x width 2,5 cm													

PN 26637: flaming in machine direction		edge-test						surface-test					
samples no.	1	2	3	4	5	6	1	2	3	4	5	6	Ë
ignition <sup>1)</sup>	1						1						s
reaching the mark of measurement <sup>1)2)</sup>	-/-						-/-					<u>.</u> .	s
max. flame height	3						1						cm
time	15						4						
self cessation of the flames end of afterflame <sup>1)</sup>	15						15	<b>FI</b> -					s
end of glowing <sup>1)</sup>	21						-/-						s
flames were extinguished after1)	-/-						-/-						s
smoke development (visual)	moderate moderate												
dropping of burning material during 20 s <sup>1)</sup>	-/-	-					-/-						s
Appearance after test: burned out till max. height 4cm x width 2,5cm													

<sup>1)</sup> time mentioned from the beginning of the test 2) during 20 Sec

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.

<sup>-/-</sup> no appearance -- no information