

Test report No. 230040

for applying of a required “Verwendbarkeitsnachweis”
issued 14.02.2023

Applicant: MERMET SAS.
58 chemin du Mont Maurin
38630 VEYRINS - FRANCE

Date of order: 12.01.2023
Date of sampling: *no official sampling of the specimen by a representative of Warringtonfire Frankfurt GmbH*
Date of arrival: 23.01.2023
Date of test: 13.02.2023

Order

Testing of the flammability (building class B1) according to DIN 4102-1 (May 1998)

Description / designation of the test object

Product name: **SATINE 5501**

Description of the relevant test procedure

DIN 4102 part 1 (Mai 1998)

DIN 4102-16 (January 2021)

This test report does not replace the required „Verwendbarkeitsnachweis“. It is only used for issuing the “Verwendbarkeitsnachweis”.



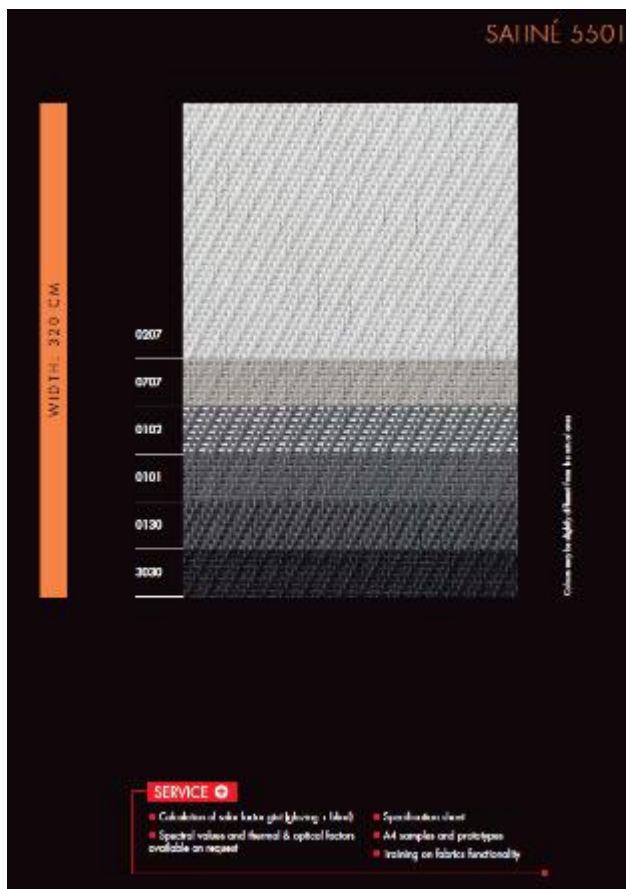
1. Description of the test material

1.1 Details of the customer:

Product name: **SATINE 5501**
Face to be tested: 2 identical sides

Sample / material description:

- a) Main components: 42% fiberglass + 58% PVC
b) Thickness: 0.55mm +/- 5%
c) Grossweight: 450 g/m² +/- 5%
d) Colour: White pearl 0207
Pearl pearl 0707
Charcoal charcoal 3030



Intended end use of product

Solar protection - Internal and external application

1.2 By Warringtonfire Frankfurt GmbH determined values:

Material: fabric
Color: **white**
Thickness: about 0.47 mm
Basis weight: 449 gsm

Material: fabric
Color: **beige**
Thickness: about 0.47 mm
Basis weight: 445 gsm

Material: fabric
Color: **black**
Thickness: about 0.50 mm
Basis weight: 438 gsm

Testing after storing 14- days under climatic conditions (23°C / 50 % rel. humidity).

2. Test results

2.1.1 Brandschachtprüfung according to DIN 4102-1

White Sample A: Material tested longitudinally in production direction

White Sample B: Material tested crosswise in production direction

Test results of the Brandschacht tests part 1						
line no.		Measurements test sample				
			A	B		
1	<u>no. test arrangement according to DIN 4102 part 15, table 1</u>		1	1		
2	<u>flame height max. over lower sample edge</u> time ¹⁾	cm	1	1		
		min : s	80	80		
3	<u>ascertainties on the front side</u> Flaming/glowing time ¹⁾	min : s	00:13	00:16		
4	<u>melting / burning through</u> time ¹⁾	min : s	00:04	00:04		
5	<u>ascertainties on the back side</u> Flaming/glowing time ¹⁾	min : s	no	no		
6		discolouring time ¹⁾	min : s	no	no	
7	<u>burning droplets</u> begin ¹⁾ extent occasional dropping of material constant dropping of material	min : s	no	no		
8						
9						
10	<u>separating from burning sample parts</u> begin ¹⁾ occasional separating parts constant separating parts	min : s	no	no		
11						
12						
13	duration of burning on the sieve tray (max.)	min : s	no	no		
14	influence on the burner flame by dropping of / separating material time ¹⁾	min : s	no	no		
15	<u>earlier end of test</u> end of the fire scenario on the sample ¹⁾	min : s	no	no		
16	time of a possible resulted test stop ¹⁾	min : s				

¹⁾ time from start of test

Test results of the Brandschacht tests part 2					
line no.		Measurements test sample			
			A	B	
17	<u>flaming after end of test</u> duration	min : s	no	no	
18	number of sample		no	no	
19	front side of sample	cm	no	no	
20	backside of sample		no	no	
21	flame length		no	no	
22	<u>glowing after end of test</u> duration	min . s	--/--	--/--	
23	number of sample		no	no	
	place of occurrence		no	no	
24	lower sample part		no	no	
25	upper sample part		no	no	
26	front side of sample		no	no	
27	backside of sample		no	no	
28	<u>smoke density</u> < 400 % x min		58	61	
29	> 440 % x min				
30	diagram in annex no.		1	2	
31	<u>residual length</u> single results	cm	38 / 38 36 / 39	39 / 39 39 / 38	
32	average of the single results	cm	37	38	
33	photo of the sample on page		6	6	
34	<u>smoke temperature</u> max. of the average results	°C	113	110	
35	time ¹⁾	min : s	09:49	09:49	
36	diagram in annex no.		1	2	

¹⁾ time from start of test

Remarks: none

2.1.2 Appearance of the specimen after the test:

<p>White Sample A: Material tested longitudinally in production direction</p> 	<p>White Sample B: Material tested crosswise in production direction</p> 

2.2.1 Brandschachtprüfung according to DIN 4102-1

Beige Sample A: Material tested longitudinally in production direction

Beige Sample B: Material tested longitudinally in production direction

Beige Sample C: Material tested longitudinally in production direction

Test results of the Brandschacht tests part 1						
line no.		Measurements test sample				
			A	B	C	
1	<u>no. test arrangement according to DIN 4102 part 15, table 1</u>		1	1	1	
2	<u>flame height max. over lower sample edge</u> time ¹⁾	cm	1	1	80	
		min : s	80	80	80	
3	<u>ascertainties on the front side</u> Flaming/glowing time ¹⁾	min : s	00:13	00:14	00:14	
4	<u>melting / burning through</u> time ¹⁾	min : s	00:04	00:04	00:04	
5	<u>ascertainties on the back side</u> Flaming/glowing time ¹⁾	min : s	no	no	no	
6		discolouring time ¹⁾	min : s	no	no	no
7	<u>burning droplets</u> begin ¹⁾ extent	min : s	no	no	no	
8		occasional dropping of material				
9		constant dropping of material				
10	<u>separating from burning sample parts</u> begin ¹⁾	min : s	no	no	no	
11		occasional separating parts				
12		constant separating parts				
13	duration of burning on the sieve tray (max.)	min : s	no	no	no	
14	influence on the burner flame by dropping of / separating material time ¹⁾	min : s	no	no	no	
15	<u>earlier end of test</u> end of the fire scenario on the sample ¹⁾	min : s	no	no	no	
16		time of a possible resulted test stop ¹⁾	min : s			

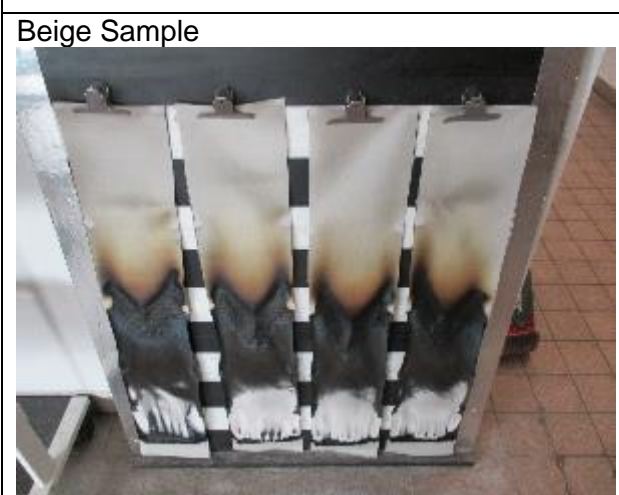
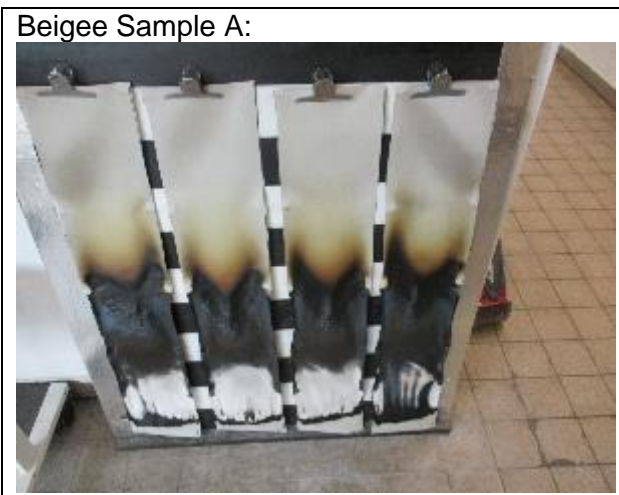
¹⁾ time from start of test

Test results of the Brandschacht tests part 2						
line no.		Measurements test sample				
			A	B	C	
17	<u>flaming after end of test</u> duration	min : s	no	no	no	
18	number of sample		no	no	no	
19	front side of sample	cm	no	no	no	
20	backside of sample		no	no	no	
21	flame length		no	no	no	
22	<u>glowing after end of test</u> duration	min . s	--/--	--/--	--/--	
23	number of sample		no	no	no	
	place of occurrence		no	no	no	
24	lower sample part		no	no	no	
25	upper sample part		no	no	no	
26	front side of sample		no	no	no	
27	backside of sample		no	no	no	
28	<u>smoke density</u> < 400 % x min		58	61	55	
29	> 440 % x min					
30	diagram in annex no.		3	4	5	
31	<u>residual length</u> single results	cm	38 / 38 36 / 39	39 / 39 39 / 38	37 / 38 37 / 39	
32	average of the single results	cm	37	38	37	
33	photo of the sample on page		9	93	9	
34	<u>smoke temperature</u> max. of the average results	°C	113	110	111	
35	time ¹⁾	min : s	09:49	09:49	10:00	
36	diagram in annex no.		3	4	5	

¹⁾ time from start of test

Remarks: none

2.2.2 Appearance of the specimen after the test:



Test results

2.3.1 Brandschachtprüfung according to DIN 4102-1

Black Sample A: Material tested longitudinally in production direction

Test results of the Brandschacht tests part 1					
line no.		Measurements test sample			
			A		
1	<u>no. test arrangement according to DIN 4102 part 15, table 1</u>		1		
2	<u>flame height max. over lower sample edge</u> time ¹⁾	cm	80		
		min : s	00:15		
3	<u>ascertainties on the front side</u> Flaming/glowing time ¹⁾	min : s	00:04		
4	<u>melting / burning through</u> time ¹⁾	min : s	00:00		
5	<u>ascertainties on the back side</u> Flaming/glowing time ¹⁾	min : s	no		
6	discolouring time ¹⁾	min : s	no		
7	<u>burning droplets</u> begin ¹⁾	min : s	no		
8	extent				
9	occasional dropping of material constant dropping of material				
10	<u>separating from burning sample parts</u> begin ¹⁾	min : s	no		
11	occasional separating parts				
12	constant separating parts				
13	duration of burning on the sieve tray (max.)	min : s	no		
14	influence on the burner flame by dropping of / separating material time ¹⁾	min : s	no		
15	<u>earlier end of test</u> end of the fire scenario on the sample ¹⁾	min : s	no		
16	time of a possible resulted test stop ¹⁾	min : s			

¹⁾ time from start of test

Test results of the Brandschacht tests part 2					
line no.		Measurements test sample			
			A		
17	<u>flaming after end of test</u> duration	min : s	no		
18	number of sample		no		
19	front side of sample	cm	no		
20	backside of sample		no		
21	flame length		no		
22	<u>glowing after end of test</u> duration	min . s	--/--		
23	number of sample		no		
	place of occurrence		no		
24	lower sample part		no		
25	upper sample part		no		
26	front side of sample		no		
27	backside of sample	no			
28	<u>smoke density</u> < 400 % x min		56		
29	> 440 % x min				
30	<u>diagram in annex no.</u>		6		
31	<u>residual length</u> single results	cm	44 / 41 40 / 40		
32	average of the single results	cm	41		
33	photo of the sample on page		12		
34	<u>smoke temperature</u> max. of the average results	°C	109		
35	time ¹⁾	min : s	10:00		
36	diagram in annex no.		6		

¹⁾ time from start of test

Remarks: none

2.3.2 Appearance of the specimen after the test:

White Sample A: Material tested longitudinally in production direction



2.4.1 Normal flammability test according to DIN 4102-1

Test with edge ignition without deposit
Flame application on: lower sample edge
Edge ignition

length direction: **white**

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	15	15	15	15	15
Max. flame height [mm]	50	50	50	50	50
Time [s]	5	5	5	5	5
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) _{low / moderate / strong}	strength smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

cross-direction **white**

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	15	15	15	15	15
Max. flame height [mm]	50	50	50	50	50
Time [s]	5	5	5	5	5
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) _{low / moderate / strong}	strength smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

2.4.2 Appearance of the sample after the small burner test:



2.5.1 Normal flammability test according to DIN 4102-1

Test with edge ignition without deposit
Flame application on: lower sample edge
Edge ignition

length direction: **beige**

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	15	15	15	15	15
Max. flame height [mm]	50	50	50	50	50
Time [s]	5	5	5	5	5
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) _{low / moderate / strong}	strength smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

cross-direction **beige**

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	15	15	15	15	15
Max. flame height [mm]	50	50	50	50	50
Time [s]	5	5	5	5	5
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) _{low / moderate / strong}	strength smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

2.5.2 Appearance of the sample after the small burner test:



2.6.1 Normal flammability test according to DIN 4102-1

Test with edge ignition without deposit
Flame application on: lower sample edge
Edge ignition

length direction: **black**

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	15	15	15	15	15
Max. flame height [mm]	50	50	50	50	50
Time [s]	5	5	5	5	5
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) _{low / moderate / strong}	strength smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

cross-direction **black**

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	1	1	1	1	1
Reaching the measuring mark within 20 seconds	no	no	no	no	no
Self-extinguishing of the flame [s]	15	15	15	15	15
Max. flame height [mm]	50	50	50	50	50
Time [s]	5	5	5	5	5
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) _{low / moderate / strong}	strength smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

2.6.2 Appearance of the sample after the small burner test:



Assessment

The material described in chapter one fulfils the requirements of the building class B2 according to DIN 4102-1 (Mai 1998).

The determined test results show that the material also fulfils the requirements

of the building class B1

according to DIN 4102-1 (Mai 1998).

Special note

The fire test result is only valid for the material described in chapter one in the tested colours, square weight and thickness. The test was carried out in free hanging configuration.

The distance to another plane material must be more or equal then 40 mm.

According to DIN 4102-16 Section 5.2, the test result includes all colour settings.

The material wasn't tested after an outside storage.

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 test report does not replace the required „Verwendbarkeitsnachweis“. It is only used for issuing the “Verwendbarkeitsnachweis”.

Decision rule and measurement uncertainty

When determining the results, the normatively specified test conditions and Limits not adjusted to account for measurement uncertainties. The determined measurement uncertainties are not related to the measured results combined to assess compliance with product specifications

Frankfurt, the 14th February 2023



H. Schmid
Creator



P. Scheinkönig
Prüfstellenleiter Bau-PVO



This Test report is valid until 12.02.2028

The results of the tests relate only to the behaviour of the test specimen which is designated on the top.

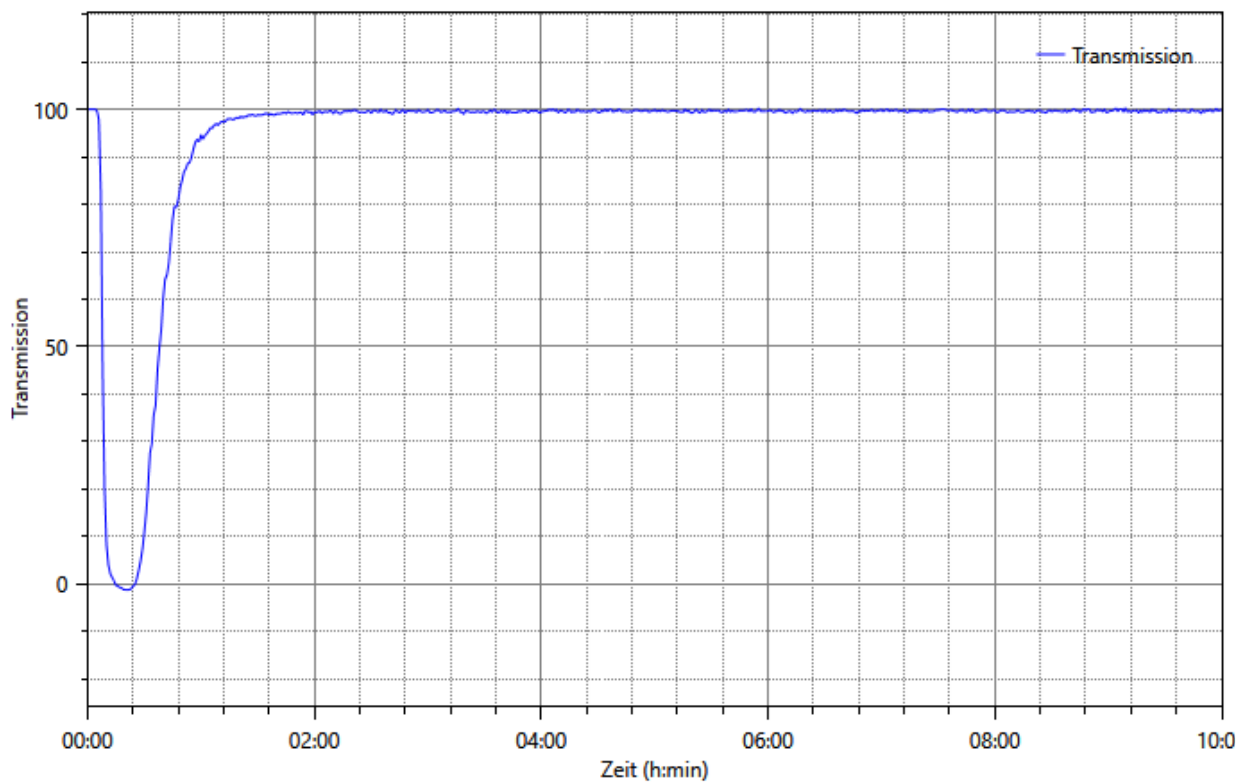
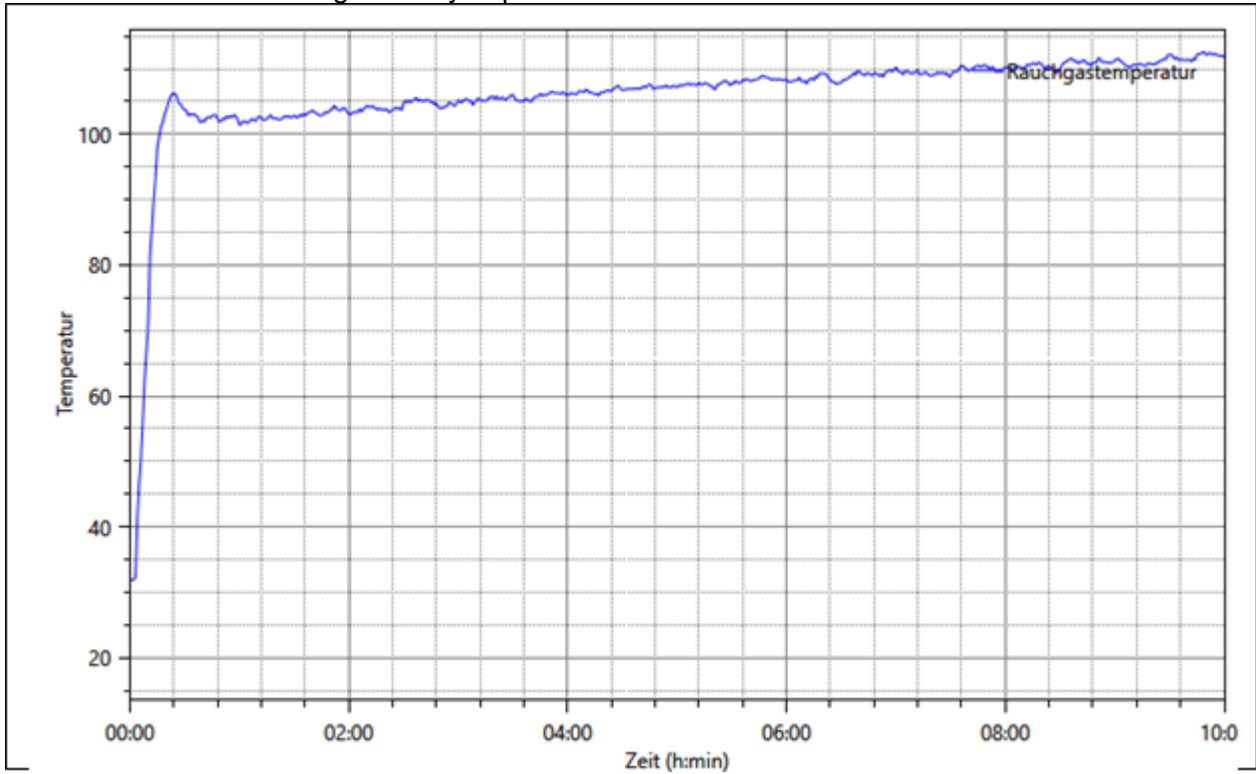
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This test report is a translation of the German version 230040 (issued 14.02.2023). In case of doubt only the German version is valid
This test report contains 19 pages and 6 annexes.

Annex 1 to the Test report No. 230040 issued 14.02.2023

Sample A:

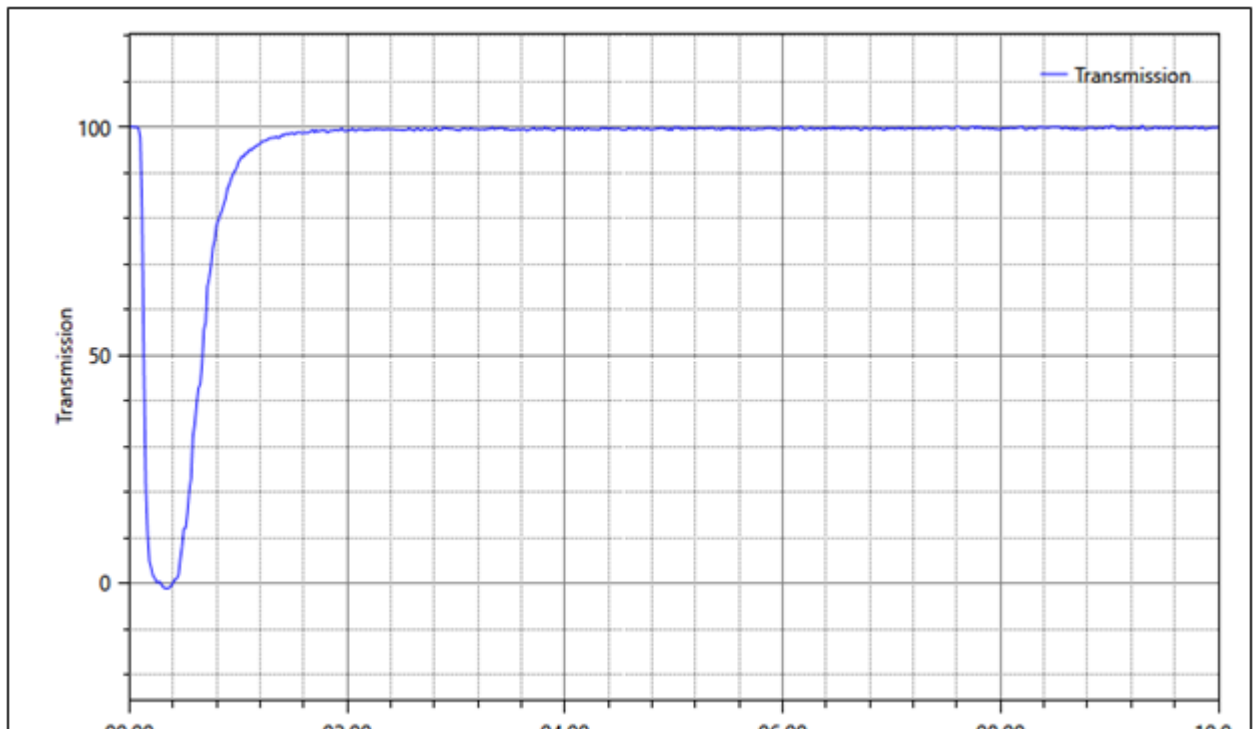
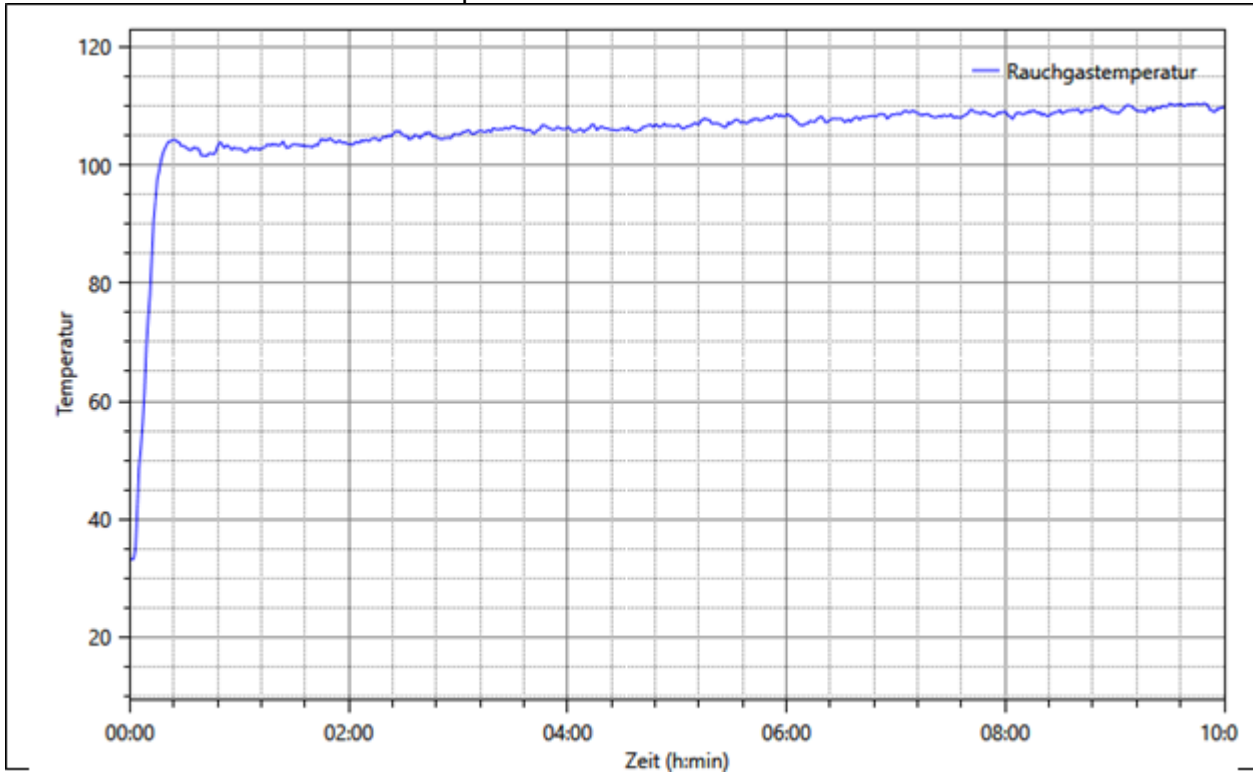
White Material tested longitudinally in production direction



Annex 2 to the Test report No. 230040 issued 14.02.2023

Sample B:

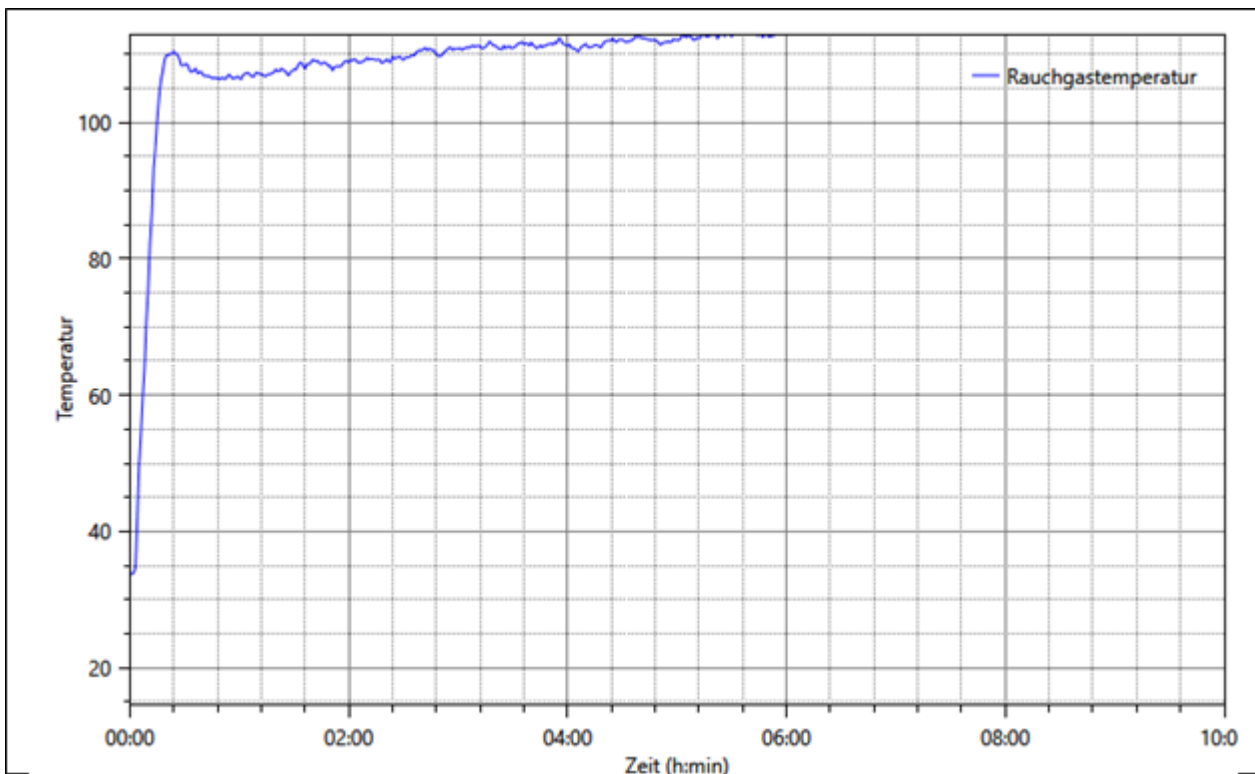
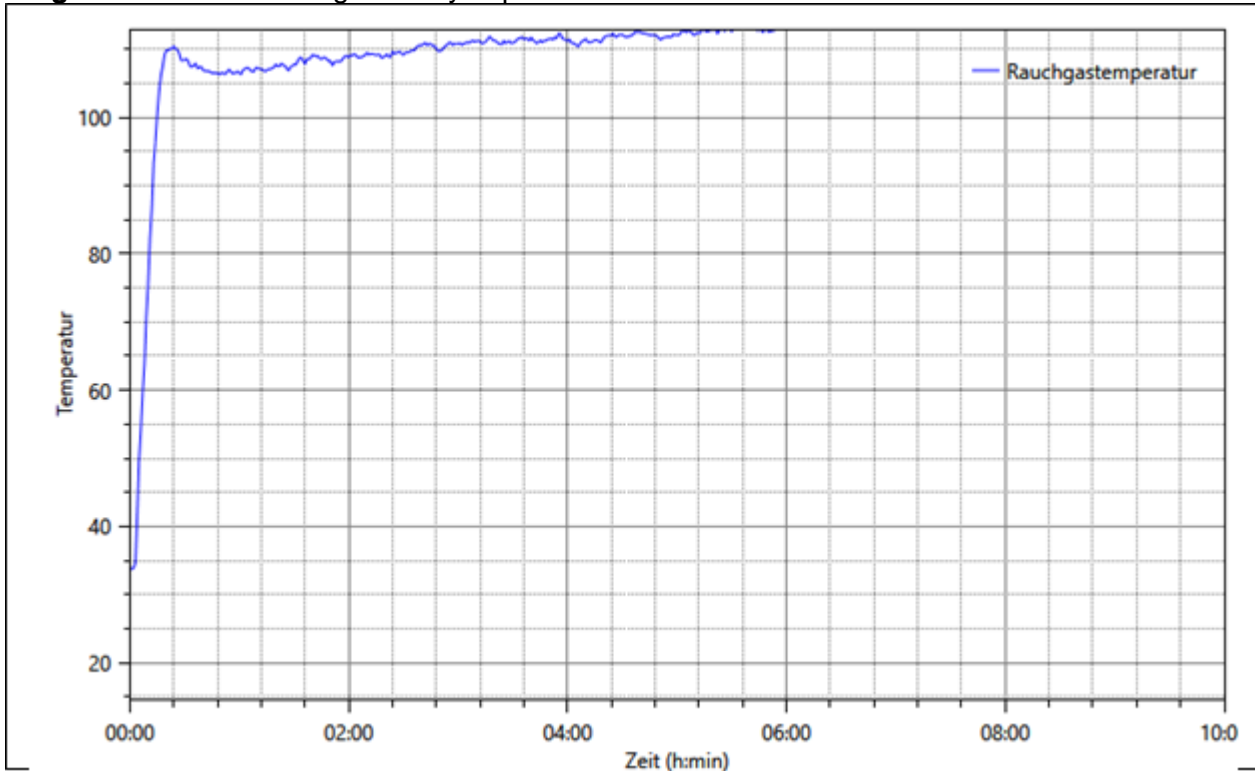
White Material tested crosswise in production direction



Annex 3 to the Test report No. 230040 issued 14.02.2023

Sample A:

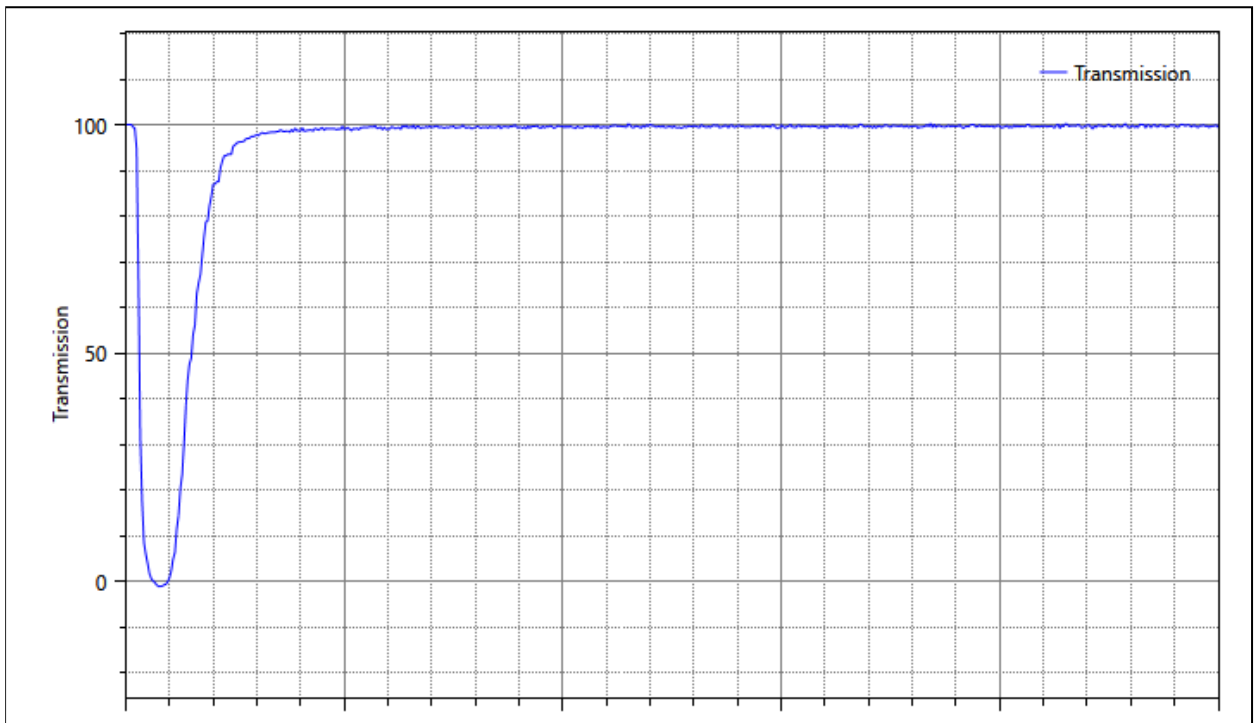
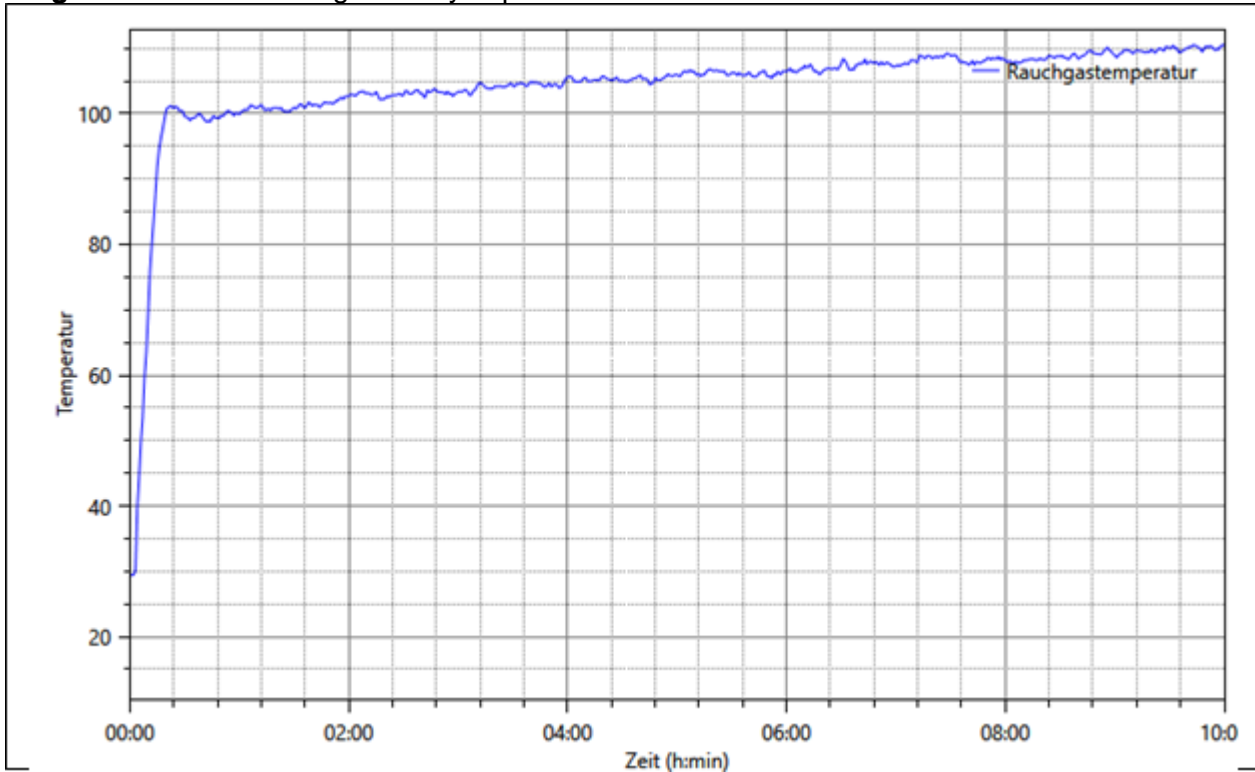
Beige Material tested longitudinally in production direction



Annex 4 to the Test report No. 230040 issued 14.02.2023

Sample B:

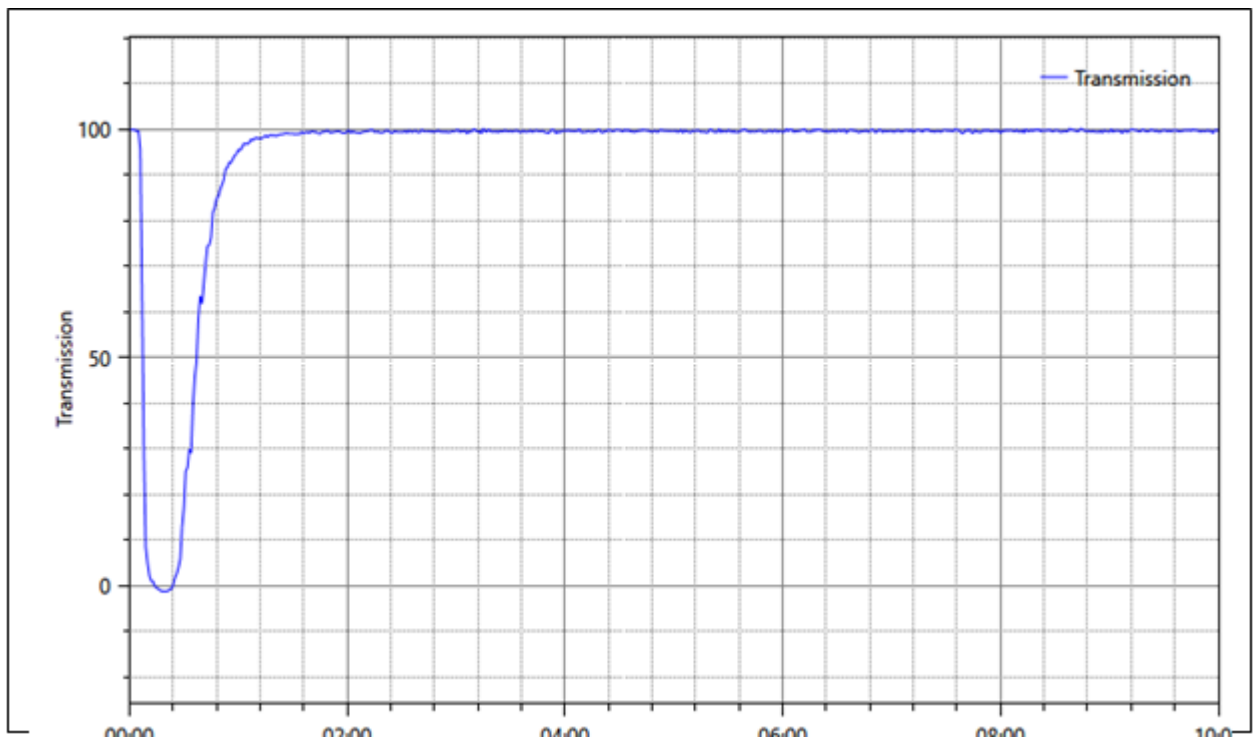
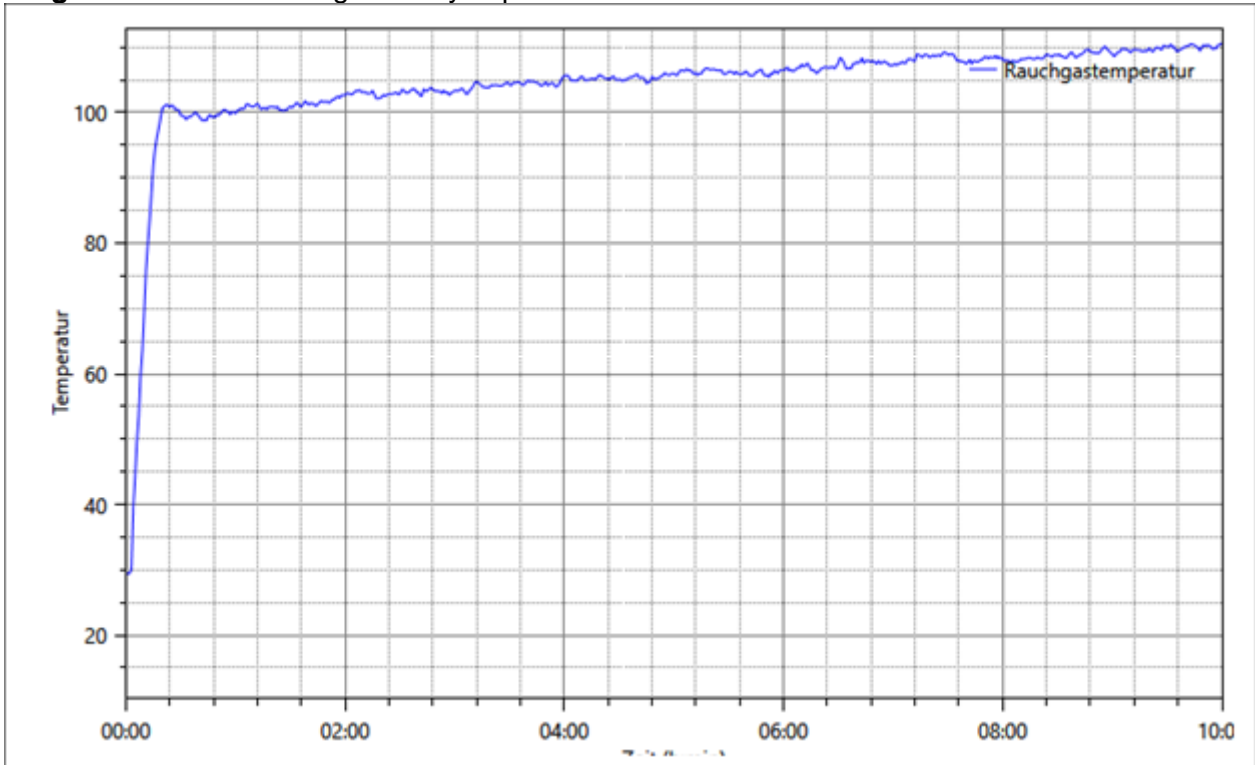
Beige Material tested longitudinally in production direction



Annex 5 to the Test report No. 230040 issued 14.02.2023

Sample C:

Beige Material tested longitudinally in production direction



Annex 6 to the Test report No. 230040 issued 14.02.2023

Black Material tested longitudinally in production direction

