

# Test report No. 2019-2213-1

for applying of a required “Verwendbarkeitsnachweis”  
issued 12.12.2019

**Applicant:** LG Hausys Europe GmbH  
Lyoner Str. 15 (ARTICOM C69)  
  
D – 60525 Frankfurt am Main

**Date of order:** 03.09.2019  
**Date of sampling:** *no official sampling of the specimen by a representative of Warringtonfire Frankfurt GmbH*  
**Date of arrival:** 27.11.2019  
**Date of test:** 11.12.2019

## Order

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

## Description / designation of the test object

Produktname: HI-MACS Alpine White S028  
HI-MACS Red S025  
HI-MACS Black Pearl G010

## Description of the relevant test procedure

DIN 4102 part 1 (Mai 1998)

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: HI-MACS Alpine White S028  
HI-MACS Red S025  
HI-MACS Black Pearl G010

Face to be tested: Smooth top

### Product description:

Trade name: HI-MACS®

Sample material: Plate material

Material type: Solid surface

Production technique: Solid plate

Total thickness: 12 mm

Total area weight: 62 kg (full Plate at 2,79 m<sup>2</sup>)

Colour: Alpine White S028  
Red S025  
Black Pearl G010

Fire protecting agent: Standard plate

Manufacturer: LG Hausys Ltd.

Intended end use of product: Furnishings and sanitary applications in private and public institutions

1.2 By Warringtonfire Frankfurt GmbH determined values:

Plates material

Colour:	white	red	blacj
Thickness:	12,43 mm	11,85 mm	12,06 mm
Square weight:	21,632 kg/m <sup>2</sup>	20,137 kg/m <sup>2</sup>	20,773 kg/m <sup>2</sup>

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

Sample A: Material tested in production direction. Colour: white  
 Sample B: Material tested in production direction. Colour: red  
 Sample C: Material tested in production direction. Colour: black

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 <sup>1)</sup>	cm	70	100	90	
		min : s	07:55	09:17	09:30	
3	<u>ascertainties on the front side</u> Flaming/glowing time <sup>1)</sup>	min : s	02:38	03:06	03:01	
4	<u>melting / burning through</u> time <sup>1)</sup>	min : s	no	no	no	
5	<u>ascertainties on the back side</u> Flaming/glowing time <sup>1)</sup>	min : s	no	no	no	
		6	discolouring time <sup>1)</sup>	min : s	no	no
7	<u>burning droplets</u> begin <sup>1)</sup> 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 <sup>1)</sup>	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 <sup>1)</sup>	min : s	no	no	no	
		15	<u>earlier end of test</u> end of the fire scenario on the sample <sup>1)</sup>	min : s	no	no
16	time of a possible resulted test stop <sup>1)</sup>	min : s				

<sup>1)</sup> 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	yes	00:47	00:43		
18	number of sample		00:52	4	4		
19	front side of sample	cm	4	yes	yes		
20	backside of sample		yes	no	no		
21	flame length		ca.40	ca.40	ca.40		
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		1	2	1		
29	> 440 % x min		--/--	--/--	--/--		
30	<u>diagram in annex no.</u>		1	2	3		
31	<u>residual length</u> single results	cm	40 / 40 38 / 41	29 / 28 27 / 27	30 / 29 28 / 31		
32	average of the single results		cm	39	27	29	
33	photo of the sample on page			8	8	8	
34	<u>smoke temperature</u> max. of the average results	°C	154	177	177		
35	time <sup>1)</sup>		min : s	10:00	09:56	10:00	
36	<u>diagram in annex no.</u>			1	2	3	

<sup>1)</sup> time from start of test

Remarks: Drawn off film.  
Smooth top flames

2.1.2 Brandschachtprüfung according to DIN 4102-1

Sample D: Material tested in production direction. Colour: red  
Sample E: Material tested in production direction. Colour: red

Test results of the Brandschacht tests part 1						
line no.		Measurements test sample				
			D	E		
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 <sup>1)</sup>	cm	90	100		
		min : s	09:15	09:04		
3	<u>ascertainties on the front side</u> Flaming/glowing time <sup>1)</sup>	min : s	02:46	03:05		
4	<u>melting / burning through</u> time <sup>1)</sup>	min : s	no	no		
5	<u>ascertainties on the back side</u> Flaming/glowing time <sup>1)</sup>	min : s	no	no		
		min : s	no	no		
6	discolouring time <sup>1)</sup>	min : s	no	no		
7	<u>burning droplets</u> begin <sup>1)</sup> extent	min : s	no	no		
8	occasional dropping of material					
9	constant dropping of material					
10	<u>separating from burning sample parts</u> begin <sup>1)</sup>	min : s	no	no		
11	occasional separating parts					
12	constant separating parts					
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 <sup>1)</sup>	min : s	no	no		
15	<u>earlier end of test</u> end of the fire scenario on the sample <sup>1)</sup>	min : s	no	no		
16	time of a possible resulted test stop <sup>1)</sup>	min : s				

<sup>1)</sup> time from start of test

Test results of the Brandschacht tests part 2					
line no.		Measurements test sample			
			D	E	
17	<u>flaming after end of test</u> duration	min : s	00:42	00:45	
18	number of sample		4	4	
19	front side of sample	cm	yes	yes	
20	backside of sample		no	no	
21	flame length		ca.40	ca.40	
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		1	0	
29	> 440 % x min		--/--	--/--	
30	diagram in annex no.		4	5	
31	<u>residual length</u> single results	cm	26 / 27 27 / 28	30 / 31 30 / 27	
32	average of the single results	cm	27	29	
33	photo of the sample on page		9	9	
34	<u>smoke temperature</u> max. of the average results	°C	187	176	
35	time <sup>1)</sup>	min : s	10:00	09:59	
36	diagram in annex no.		4	5	

<sup>1)</sup> time from start of test

Remarks: Drawn off film.  
Smooth top flames

2.1.3 Appearance of the specimen after the test:



Sample A



Sample B



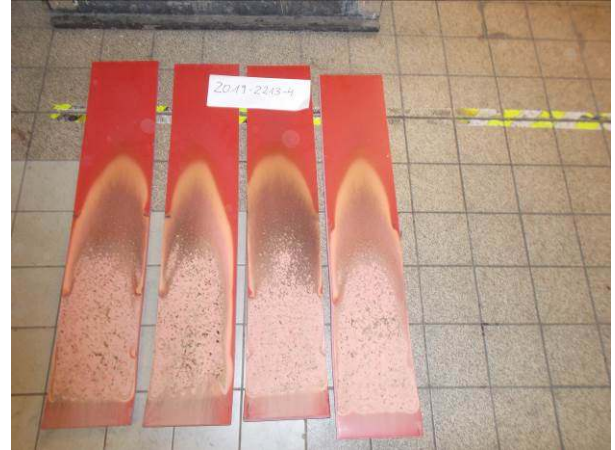
Sample C



2.1.4 Appearance of the specimen after the test:



Sample D



Sample E

2.2 Normal flammability test according to DIN 4102-1

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

Colour: white

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	3	3	3	3	3
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]	20	20	20	20	20
Time [s]	15	15	15	15	15
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) <sub>low / moderate / strong</sub>	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: Drawn off film.  
Smooth top flames

Colour: red

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	3	3	3	3	3
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]	20	20	20	20	20
Time [s]	15	15	15	15	15
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) <sub>low / moderate / strong</sub>	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: Drawn off film.  
Smooth top flames

2.3 Normal flammability test according to DIN 4102-1

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

Colour: black

Sample-no.	1	2	3	4	5
Time from start of test					
Ignition point [s]	3	3	3	3	3
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]	20	20	20	20	20
Time [s]	15	15	15	15	15
End of afterflaming [s]	-	-	-	-	-
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	-
Smoke development (visual impression) <sub>low / moderate / strong</sub>	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: Drawn off film.  
Smooth top flames

3. 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 colour, thickness 1 up to 19 mm and square weight.

The test was carried out in free hanging configuration.

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

According to DIN 4102-16 section 4.2, all colours are included in the test result.

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”.

This test report replaces the report 2019-2213 issued 12.12.2019 (date of signature) which is invalid from now on.

Frankfurt, the 13<sup>th</sup> March 2020



H. Anders  
Tester in Charge



P. Scheinkönig  
Prüfstellenleiter Bau-PVO



This Test report is valid until 10.12.2024.

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

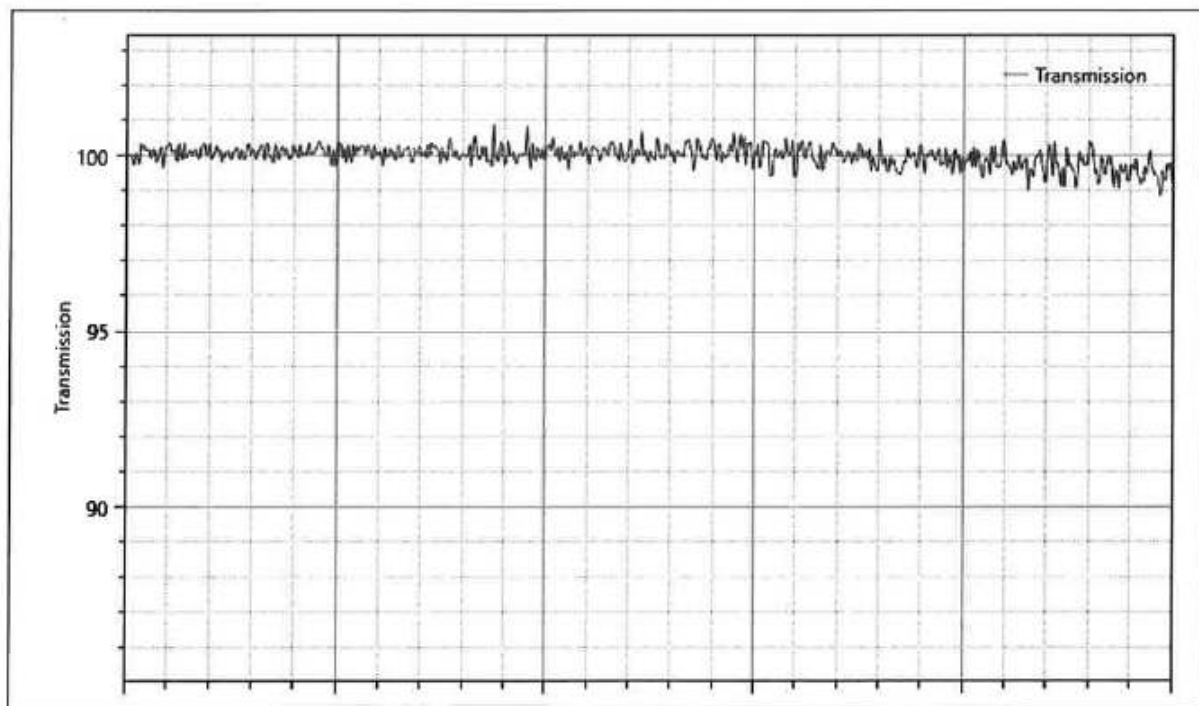
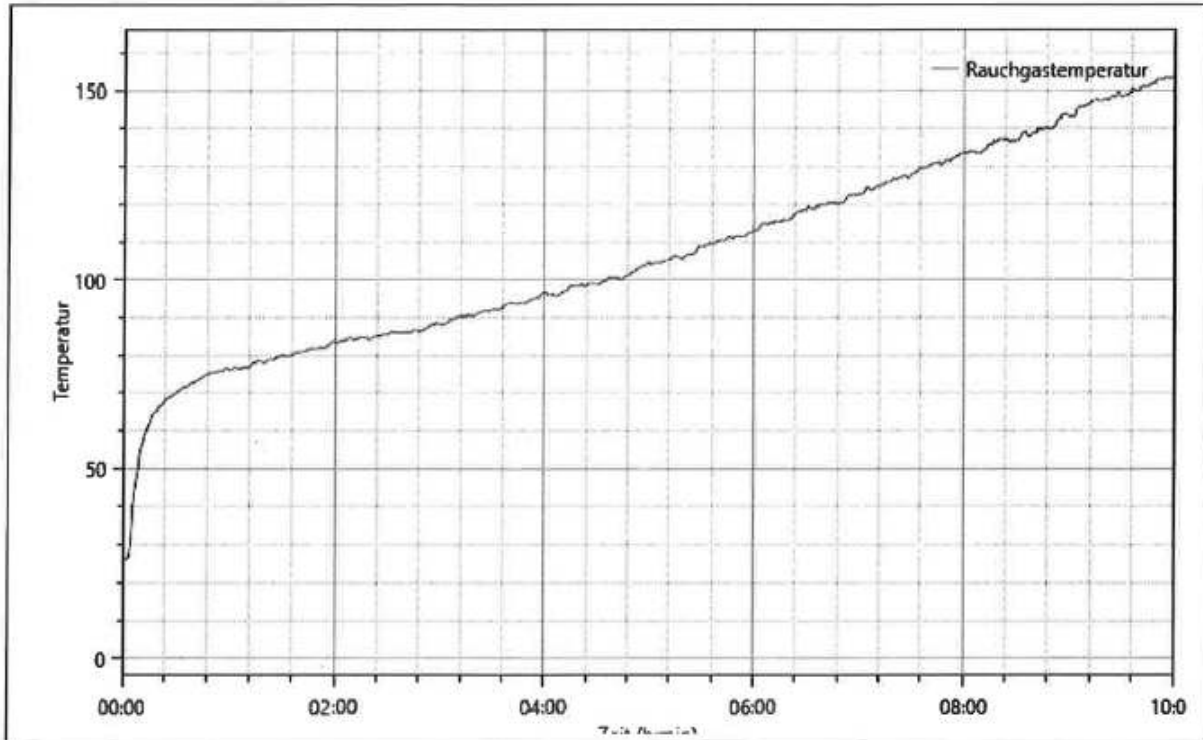
Test reports are only allowed to be published or reproduced, not changed in form and tenor without permission of the Warringtonfire Frankfurt GmbH. The abridged account of a test report is only allowed with the agreement of the Warringtonfire Frankfurt GmbH.

This test report is a translation of the German version 2019-2213-1 (issued 13.03.2020). In case of doubt only the German version is valid

This test report contains 13 pages and 5 annexes.

Annex 1 to the Test report No. 2019-2213-1 issued 12.12.2019

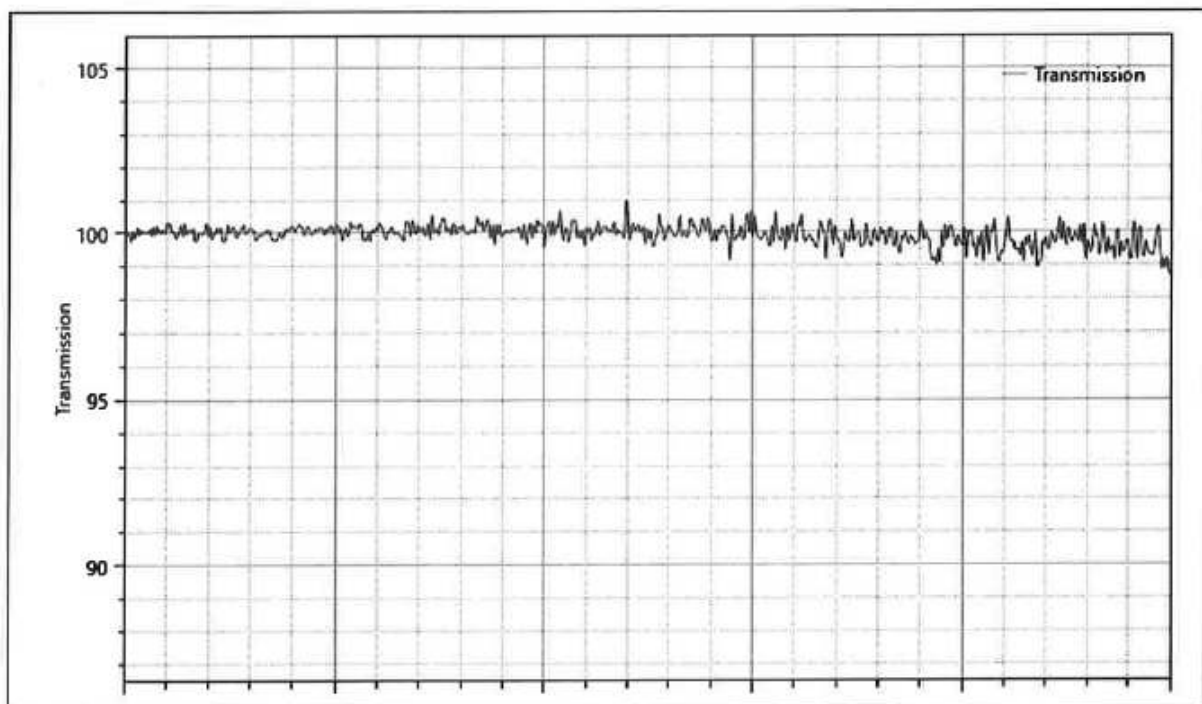
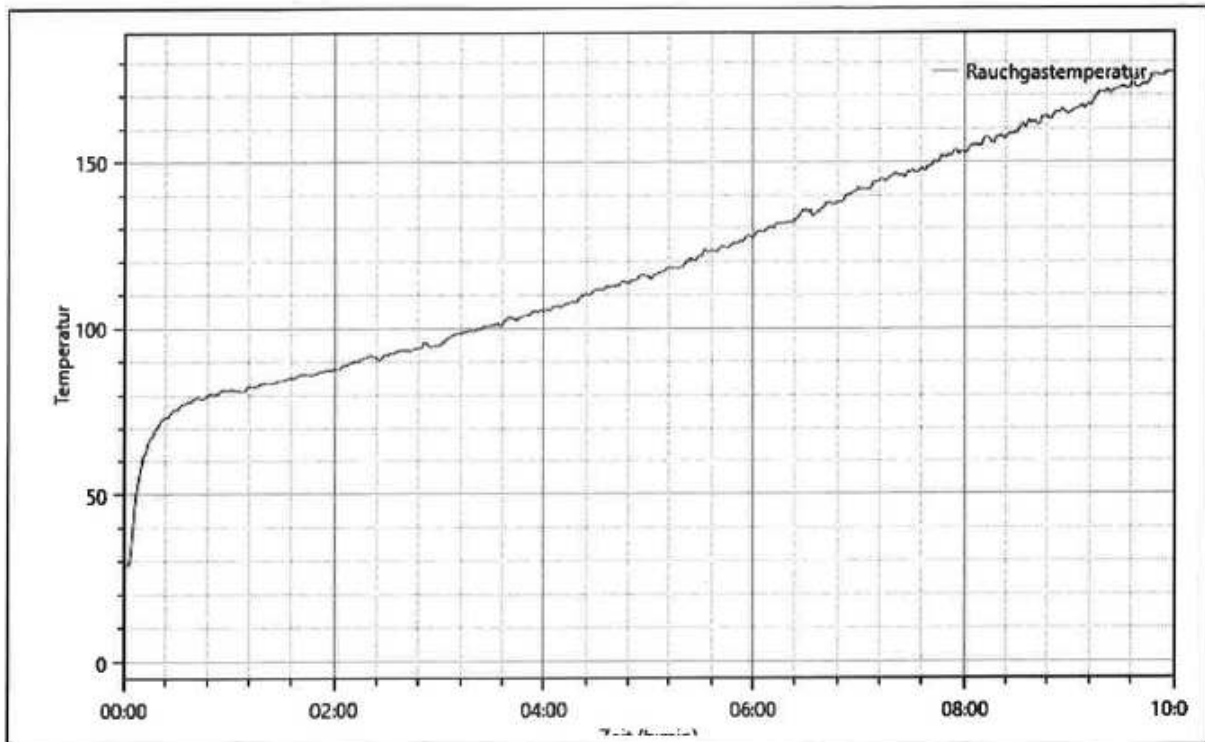
Sample A:





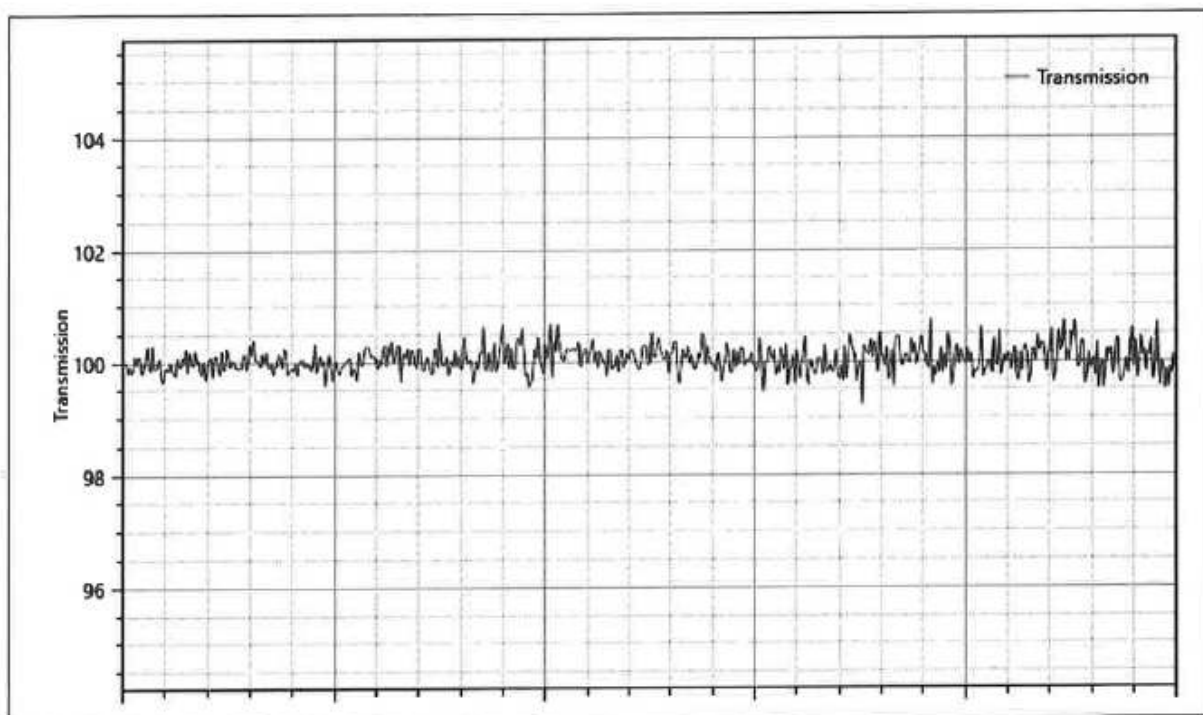
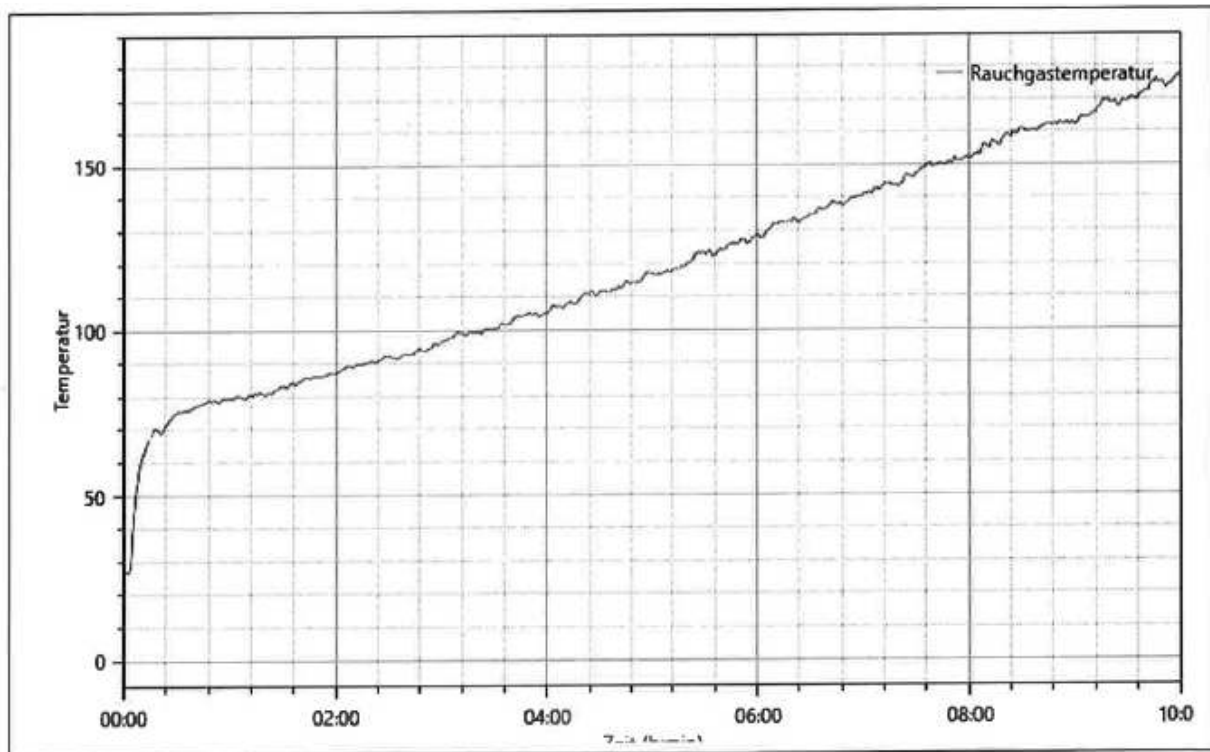
Annex 2 to the Test report No. 2019-2213-1 issued 12.12.2019

Sample B:



Annex 3 to the Test report No. 2019-2213-1 issued 12.12.2019

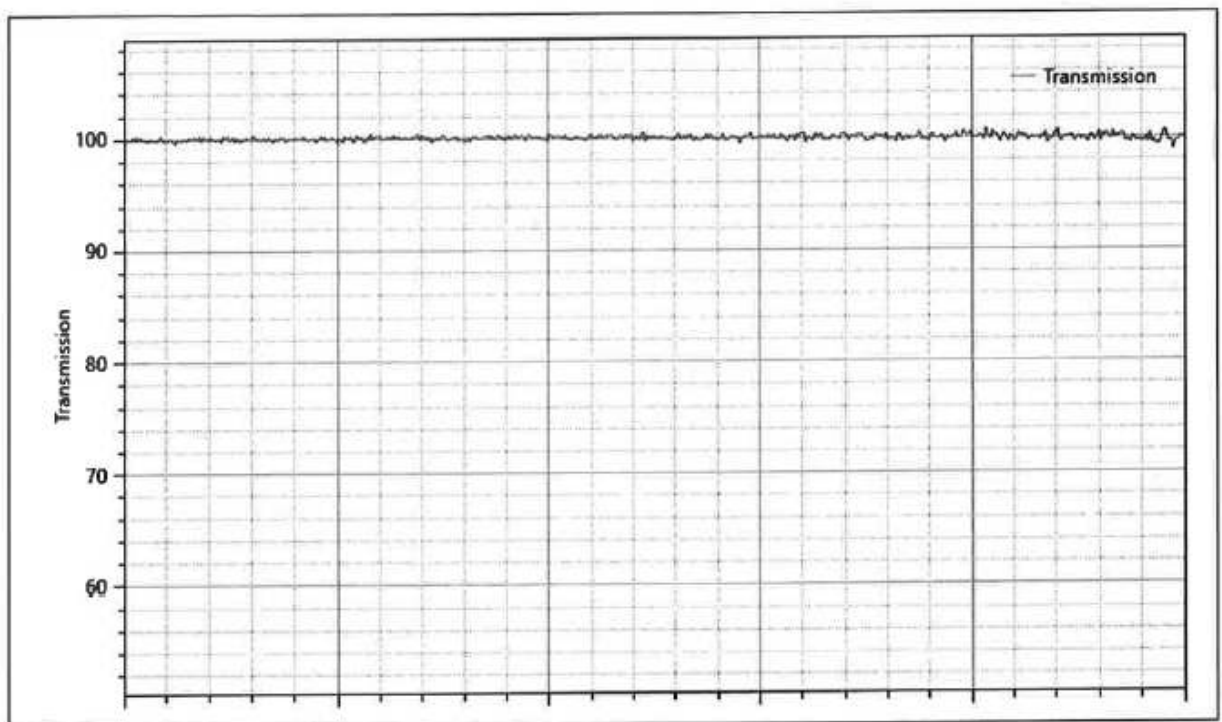
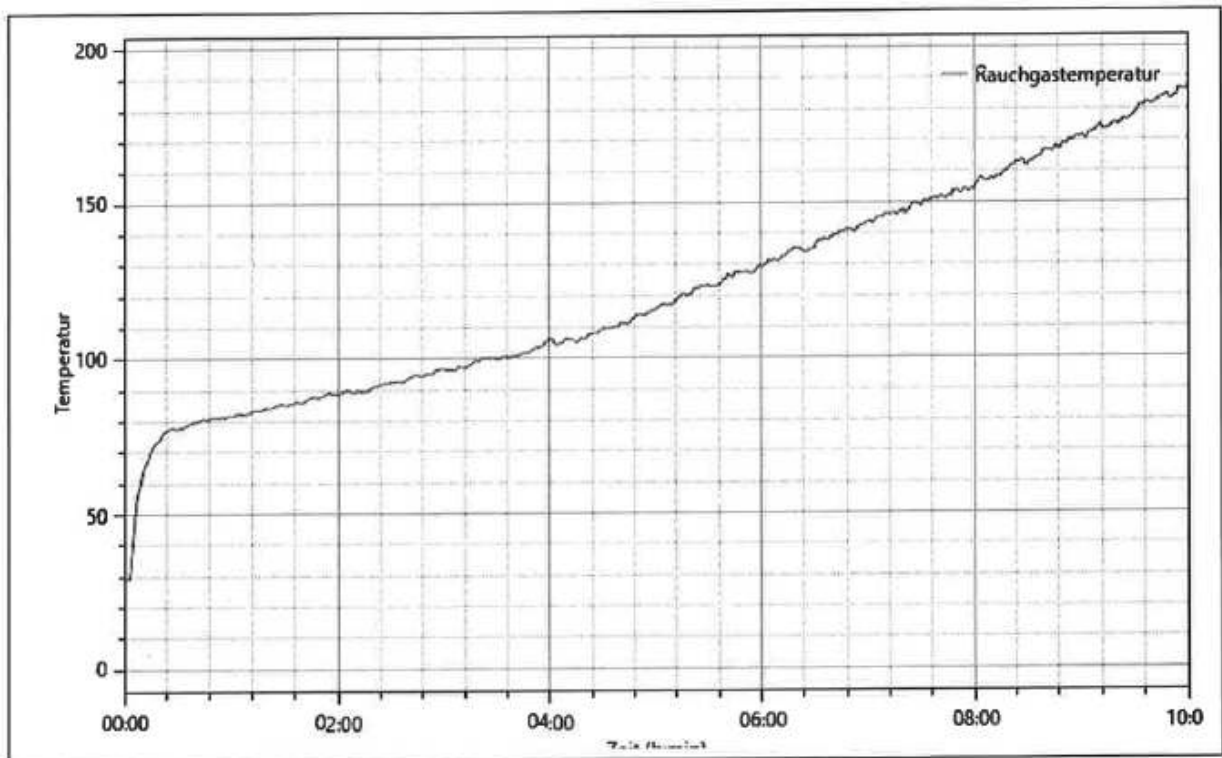
Sample C:





Annex 4 to the Test report No. 2019-2213-1 issued 12.12.2019

Sample D:



Annex 5 to the Test report No. 2019-2213-1 issued 12.12.2019

Sample E:

