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Test report No. 230550

for applying of a required "Verwendbarkeitsnachweis"
issued 09.09.2023

Applicant:	**AFS BORU SANAYI A.S.** **Ivedik O.S.B. Havalandirmacilar.** **Cad. No: 153 Yenimahalle-Ankara**
Date of order:	**11.05.2023**
Date of sampling:	***no official sampling of the specimen by a representative of Warringtonfire Frankfurt GmbH***
Date of arrival:	**27.06.2023**
Date of test:	**13.07.2023 (B2), 01.08.2023 (B1)**

Order

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

Description / designation of the test object

Product name: **AFSTPU (Standard)**
AFSTPU (FOODGRADE)

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".

Deutsche Akkreditierungsstelle D-PL-18354-01-00

1. Description of the test material

1.1 Details of the customer:

Product name:	**AFSTPU (Standard)** **AFSTPU (FOODGRADE)**
Face to be tested:	both sides

Product description:

Trade name:	**AFSTPU (Standard)** **AFSTPU (FOODGRADE)**
Sample material:	Thermoplastic Polyurethane
Type of material:	TPU
Thickness:	0,4 mm to 2,0 mm
Total basis weight (0,4 mm): Total basis weight (2,0 mm):	470 g/m² ± 20 % 2400 g/m² ± 20 %
Color:	Transparent
Flame retardant	No
Manufacturer	AFS BORU SANAYI A.S.
Intended end use of product	Industrial Hose

1.2 By Warringtonfire Frankfurt GmbH determined values:

Material:	Kunststoff
Colour:	Transparent
Thickness:	approx. 0,4-0,8 mm and 2,0-2,65 mm
Square weight: Square weight:	782 g/m² 2818 g/m²

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

2. Test results

2.1 Brandschachtprüfung according to DIN 4102-1

Sample A: Material tested in production direction
Sample B: Material tested across to production direction

Test results of the Brandschacht tests part 1						
line no.		Measurements test sample				
			A	B		
1	no. test arrangement according to DIN 4102 part 15, table 1		1	1		
2	flame height max. over lower sample edge	cm	40	40		
	time [1)]	min : s	00:14	00:54		
3	ascertainments on the front side Flaming/glowing time [1)]	min : s	00:05	00:27		
4	melting / burning through time [1)]	min : s	00:09	00:52		
5	ascertainments on the back side Flaming/glowing time [1)]	min : s	no	no		
6	discolouring time [1)]	min : s	no	no		
7	burning droplets begin [1)]	min : s	00:43	01:03		
	extent					
8	occasional dropping of material		yes	yes		
9	constant dropping of material		no	no		
	separating from burning sample parts					
10	begin [1)]	min : s	no	no		
11	occasional separating parts		no	no		
12	constant separating parts		no	no		
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		
	earlier end of test					
15	end of the fire scenario on the sample [1)]	min : s	no	no		
16	time of a possible resulted test stop [1)]	min : s	no	no		

[1)] time from start of test

Test results of the Brandschacht tests part 2						
line no.		Measurements test sample				
			A	B		
	flaming after end of test		nein	nein		
17	duration		nein	nein		
18	number of sample	min : s	nein	nein		
19	front side of sample		nein	nein		
20	backside of sample		nein	nein		
21	flame length	cm	nein	nein		
	glowing after end of test		--/--	--/--		
22	duration	min . s	nein	nein		
23	number of sample		nein	nein		
	place of occurrence		nein	nein		
24	lower sample part		nein	nein		
25	upper sample part		nein	nein		
26	front side of sample		nein	nein		
27	backside of sample					
	smoke density					
28	< 400 % x min		1	2		
29	> 440 % x min					
30	diagram in annex no.		1	2		
	residual length					
31	single results	cm	66,62, 62,60	70,62, 68,69		
32	average of the single results	cm	62	67		
33	photo of the sample on page		5	5		
	smoke temperature					
34	max. of the average results	°C	123	126		
35	time [1)]	min : s	09:30	09:47		
36	diagram in annex no.		1	2		

[1)] time from start of test

Remarks: Since in the tests carried out in the fire shaft, the mean value of the remaining length was > 45 cm, further tests could be dispensed according to DIN 4102-16.

2.1.2 Appearance of the specimen after the test:

Sample 0,4 mm

Probe 2,0 mm

2.2.1 Normal flammability test according to DIN 4102-1

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

Sample 0,4 mm

Sample-no. / Time from start of test	1	2	3	4	5
Ignition point [s]	2	2	2	2	2
Reaching the measuring mark (150mm) within 20 seconds	nein	nein	nein	nein	nein
Self-extinguishing of the flame [s]	-	19	-	18	20
3Max. flame height [mm]	80	40	80	40	40
Time [s]	15	15	15	15	15
End of afterflaming [s]	5	4	5	3	5
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	20	-	20	-	-
Smoke development (visual impression) low / moderate / strong	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

Sample 2,0 mm

Sample-no. / Time from start of test	1	2	3	4	5
Ignition point [s]	2	2	2	2	2
Reaching the measuring mark (150mm) within 20 seconds	nein	nein	nein	nein	nein
Self-extinguishing of the flame [s]	18	15	19	19	-
Max. flame height [mm]	30	30	30	30	30
Time [s]	15	13	15	15	15
End of afterflaming [s]	3	-	4	4	10
End of afterglowing [s]	-	-	-	-	-
Flames extinguished after [s]	-	-	-	-	20
Smoke development (visual impression) low / moderate / strong	low smoke development				
Separating from burning material	no	no	no	no	no
Time [s]	-	-	-	-	-

Remarks: none

2.2.3 Appearance of the specimen after the test:

3. Assessment

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

Building class B1

according to DIN 4102-1 (May 1998).

4. Special note

The fire test result is only valid for the material described in chapter one in the tested colour, surface weight and thickness from 0,4 mm up to 2,0 mm.
The test was carried out in free hanging configuration.
The distance to another plane material must be more or equal then 40 mm.

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.

5. Decision rule and measurement uncertainty

In determining the results, the normative test conditions and limits are not adjusted to account for uncertainties in measurement. The determined measurement uncertainties are not combined with the measured results to evaluate compliance with the product specifications.

Frankfurt, the 09.08.2023

H. Anders / A. Krouhs
Testing Officer

P. Scheinkönig
Technical Leader building product regulation

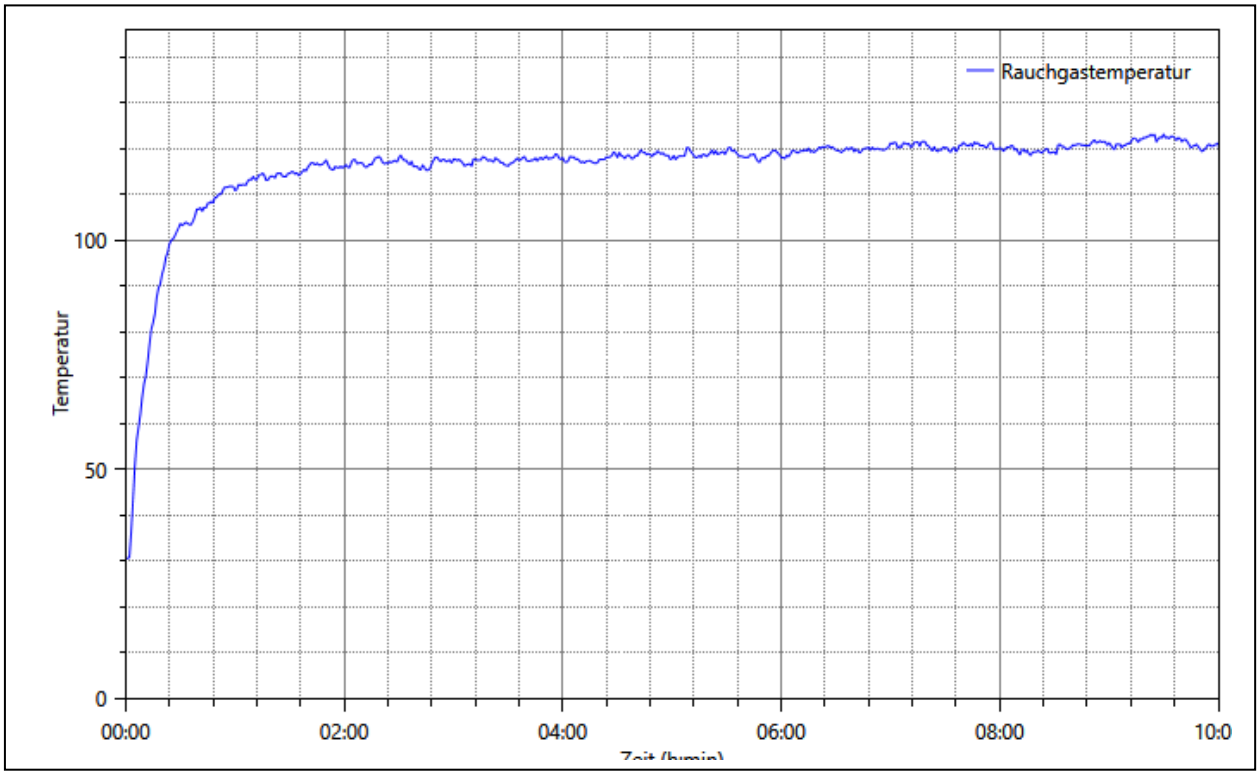
ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-18354-01-00

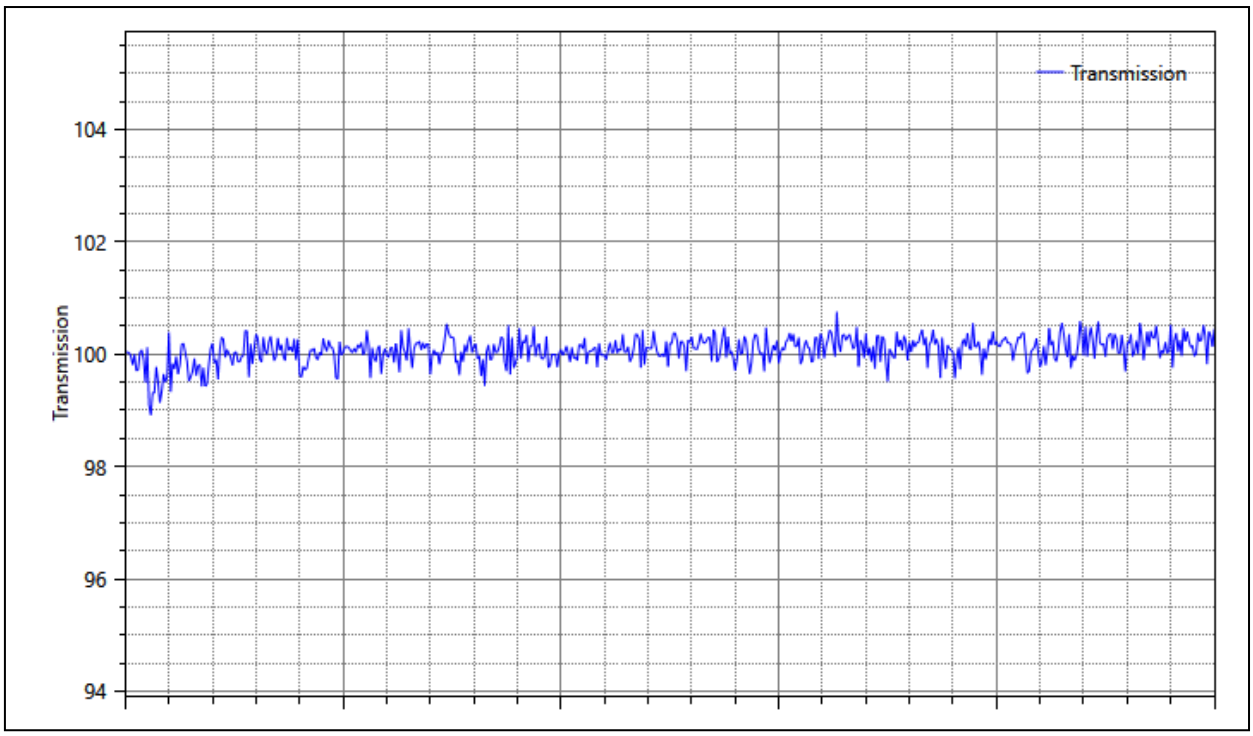
The validity of this test report ends on 12.07.2028.
The results of the tests relate only to the behaviour of the test specimen which is designated on the top.

This test report is a translation of the German version 230550 (issued 09.08.2023). In case of doubt only the German version is valid
This test report contains 8 pages and 2 annexes.

Annex 1 to the Test report No. 230550 issued 09.08.2023

Sample 0,4 mm





Annex 2 to the Test report No. 230550 issued 09.08.2023

Sample 2,0 mm