Materialprüfungsanstalt
Universität Stuttgart
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Materialprüfungsanstalt Universität Stuttgart

PRÜFZEUGNIS (Test Certificate)

900 6806 023/PZ-307-var/E *)

Auftraggeber: (Client)	Akzo Nobel Hilden GmbH Düsseldorfer Straße 96-100 40721 Hilden
Betreff: Subject	Reaction to fire testing according to DIN 4102-1, "Baustoffklasse B1"
Prüfmaterial: (Test Material)	Colourless multicoat three-component polyurethane varnish „Speed SP-T290-90", consisting of the filler „Speed SP-S191" and the varnisch „Speed SP-T290-90" on flame-retardant (DIN 4102-B1) particleboard – also veneered – as a flame-retardant building material ("Baustoffklasse DIN 4102-B1")
Datum: (Date)	12. Mai 2023
Gültigkeitsdauer: (Period of Validity)	until 31. März 2028
Hinweis: (Notes)	If the above-mentioned building material is not used as a building product according to MBO § 2, Para. 10, an *„allgemeines bauaufsichtliches Prüfzeugnis (abP)"* is not required. This test certificate does not apply if the tested building material is used as a building product within the meaning of the building regulations of the federal states (MBO § 17, Para. 1). This test certificate does not replace a possibly necessary certification according to German building regulations. This test certificate can serve as a basis in the building supervisory procedure: - in the case of regulated building products for the required certificates of conformity - in the case of non-regulated building products, for the required proof of usability. The explanations in DIN 4102-1, Annex D, in particular on third-party inspection, are to be particularly observed.

**) This test certificate is the English version of our test certificate 900 6806 023/PZ-307-var dated 12. Mai 2023. In cases of doubt, the German version applies.*

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1. Material description

Colourless multicoat three-component polyurethane varnish „Speed SP-T290-90“, consisting of the three-component filler „Speed SP-S191“ and the three-component varnisch „Speed SP-T290-90“ (high gloss), thinner “S9004”
applied on flame-retardant (DIN 4102-B1) particle boards - also with veneer.

Mixing ratio (by weight):	Filler : Häardener : Activator : Thinner= 100 : 100 : 2 : 20 Varnish : Hardener : Activator = 100 : 100 : 2		
Application rate (wet):	Filler 2 x ca. 100 g/m² Varnish 1 x ca. 100 g/m²		
Type of application:	Compressed air spraying		
Field of application:	Interior fittings		
Trade name:	Filler „Speed SP-S191“ Varnish „Speed SP-T290-90“ Hardener “HSP1” Activator „ASP2” Thinner „S9004“		
Receipt of samples:	a)	27th November 2018	(Eingangs-Nr. 18/375)
	b)	04 th Dezember 2019	(Eingangs-Nr. 19/376)
	c)	17 th Dezember 2020	(Eingangs-Nr. 20/346)
	d)	02 nd Februar 2022	(Eingangs-Nr. 22/15)
	e)	05 th Dezember 2022	(Eingangs-Nr. 22/258)
Quantity:	a)	5 l Filler „Speed SP-S191“ (Batch 023839019) 5 l Varnish „Speed SP-T290-90“ (Batch 023807143) 5 l Hardener “HSP1” 0,5 l Activator „ASP2”	
	b)	5 l Filler „Speed SP-S191“ (Batch 023925106) 5 l Varnish „Speed SP-T290-90“ (Batch 023923069) 5 l Hardener “HSP1” 0,5 l Activator „ASP2”	
	c)	5 l Filler „Speed SP-S191“ (Batch 023016062) 5 l Varnish „Speed SP-T290-90“ (Batch 023009151) 5 l Hardener “HSP1” 0,5 l Activator „ASP2”	
	d)	5 l Filler „Speed SP-S191“ (Batch 023127091) 5 l Varnish „Speed SP-T290-90“ (Batch 023115144) 5 l Hardener “HSP1“ (Batch 023816046) 0,5 l Activator „ASP2” (Batch 023830095)	
	e)	5 l Filler „Speed SP-S191“ (Batch 023206138) 5 l Varnish „Speed SP-T290-90“ (Batch 023115144) 5 l Hardener “HSP1“ (Batch 023206139) 125 ml Activator „ASP2” (Batch 023120172) 5 l Thinner „S9004“	

2. Sample preparation

Test specimen made of fire-retardant (DIN 4102-B1) particle boards, 1000 mm x 190 mm x 12 mm, were coated on one side with the paint system in the presence of an employee of the MPA Stuttgart (in situ or online) at the company headquarters in Hilden. The carrier boards had been provided by the MPA in each case.

For the B2 tests, 190 mm x 90 mm samples were been cut from the coated particleboard test specimen.

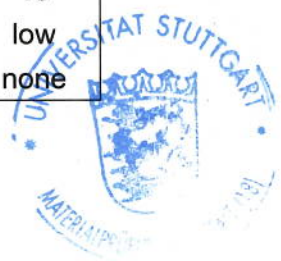
3. Test procedure

The tests had been carried out according to DIN 4102-1:1998 and DIN 4102-16:2015 or DIN 4102-16 : 2021 (is equivalent to DIN 4102-16 : 2015) in the fire shaft according to DIN 4102-15:1990 and the approval principles for the proof of the low flammability of building materials (version August 1994), published by the "Deutsches Institut für Bautechnik (DIBt)" in Berlin.

4. Test results

4.1 Test according to DIN 4102, clause 6.2, "Baustoffklasse B2"

sample		Test:	1	2	3
a)	Max. flame height within 20 s:	cm	4	4	4
	reached after:	s	15	15	15
	Smoke development:		low	low	low
	Burning dropplets:		none	none	none
b)	Max. flame height within 20 s:	cm	4	4	4
	reached after:	s	15	15	15
	Smoke development:		low	low	low
	Burning dropplets:		none	none	none
c)	Max. flame height within 20 s:	cm	4	4	4
	reached after:	s	15	15	15
	Smoke development:		low	low	low
	Burning dropplets:		none	none	none
d)	Max. flame height within 20 s:	cm	3	3	3
	reached after:	s	15	15	15
	Smoke development:		low	low	low
	Burning dropplets:		none	none	none
e)	Max. flame height within 20 s:	cm	4	4	4
	reached after:	s	15	15	15
	Smoke development:		low	low	low
	Burning dropplets:		none	none	none



4.2. Test according to DIN 4102, clause 6.1 – "Baustoffklasse B1"

The fire shaft test ("Brandschacht") A, B, C on the samples a), b), c) were carried out on free-hanging specimens without any substrates.

4.2.1. Results of fire shaft tests ("Brandschacht") (part 1)

Line No.			Test Results of Specimen Assembly A	B	C	D	E
1	No. of fastening method according to DIN 4102-15, table 1		7	7	7	7	7
2	Max. flame height above the lower edge of the sample	cm	> 100	> 100	> 100	> 100	> 100
3	Time of appearance [1)]	min:s	2:00	1:35	1:50	2:40	2:00
4	Occurrence of holes in the material Time of appearance [1)]	min:s	-	-	-	-	-
5	Observations of the reverse face of the specimen Flames / Glowing Time of appearance [1)]	min:s	-	-	-	-	-
6	Discolouring Time of appearance [1)]	min:s	-	-	-	-	-
7	Burning droplets Beginning [1)]	min:s	-	-	-	-	-
	Continued burning on sieve tray	s					
8	Sporadically dripping sample material		-	-	-	-	-
9	Steady dripping sample material		-	-	-	-	-
10	Burning dripping sample parts Beginning [1)]	min:s	-	-	-	-	-
	Amount:						
11	Sporadically dripping sample material		-	-	-	-	-
12	Steady dripping sample material		-	-	-	-	-
13	Duration of continued burning on the sieve bottom (max.)	min:s	-	-	-	-	-
14	Impairment of the burner flame due to dripping/falling material Time of appearance [1)]	min:s	-	-	-	-	-
	Premature end of experiment						
15	End of fire reaction on the specimen [1)]	min:s	-	-	-	-	-
16	Time of premature finishing the test, if done so [1)]	min:s	-	-	-	-	-

[1)] Elapsed time from the start of the test (t=0) shall be recorded

4.2.2 Results of fire shaft tests ("Brandschacht") (part 2)

Line No.			Test Results of Specimen Assembly A	B	C	D	E
	Afterburning after the end of the test						
17	Duration	min:s	-	-	-	-	-
18	Number of specimen						
19	On front face of the specimen						
20	On reverse face of the specimen						
21	Flame height	cm	-	-	-	-	-
	Afterglow after end of test						
22	Duration	min:s	-	-	-	-	-
23	Number of specimen						
	Location of glowing						
24	Lower half of the specimen						
25	Upper half of the specimen						
26	Front face of the specimen						
27	Reverse face of the specimen						
	Smoke density						
28	≤ 400 % · min		12	17	24	18	18
29	≥ 400 % · min (very strong smoke development)		–	–	–	–	–
30	Graph in annex No.		1	2	3	4	5
	Residual length						
31	Single results of each specimen	cm	21 / 21 22 / 22	17 / 18 18 / 18	16 / 15 15 / 16	21 / 23 22 / 22	15 / 17 20 / 18
32	Average of each specimen assembly	cm	22 *)	18 **)	16 ***)	22 ***)	18 ***)
33	Photo of the test assembly in annex No.		–	–	–	–	–
	Flue gas temperature						
34	Maximum of the average value	°C	147	138	194	177	188
35	Time of appearance [1]	min:s	2:26	2:18	2:38	2:43	3:15
36	Graph in annex No.		1	2	3	4	5
37	Notes:		Residual length of the non coated particle board: *) 24 cm **) 20 cm ***) 18 cm Appearance of the samples after the fire tests: Back side intact				

[1] Elapsed time from the start of the test (t=0) shall be recorded

5. Classification

All tested samples met the requirements for building materials according to DIN 4102, part 1, clause 6.1.2.2 and clause 6.2 for class B2.

Thus, the product as described in section 1 meets the requirements for building materials according to class B1 of DIN 4102-1:1998.

No sample parts fell off during the test according to DIN 4102-1:1998, clause 6.2.5 and according to DIN 4102-16:2015 neither burning nor glowing.

According to DIN 4102-16:2015, clause 9.3, the material is considered to be non-molten-dripping.

6. Notes

6.1 The containers of the coating system must be labelled according to DIN 4102-1, clause 7 with the following marking:

„DIN 4102 – B1, aufgebracht auf schwerentflammbaren (DIN 4102-B1) Holzspanplatten"

6.2 The assessment in section 5 only applies to the coating system described in section 1 and tested as in section 3, applied to flame-retardant (DIN 4101-B1) particleboard - also veneered.

Used in connection with other materials its fire performance is likely to be influenced this negatively, that the given classification in section 5 is no longer valid.

Fire performance in connection with other materials is to be tested and classified separately.

6.3 For outdoor use, DIN 4102-16 : 2015, clause 6.2 requires proof that the requirements for building materials of building material class B1 "schwerentflammbar" (flame-retardant) are met even after 2 and 5 years of outdoor weathering. This proof has not (yet) been provided.

6.4 The validity of the assessment in section 5 of this test certificate ends on 31th of March 2028

The period of validity may be extended upon application.
Verification testing is necessary for this purpose.

6.5 This test certificate does not replace an „allgemeines bauaufsichtliches Prüfzeugnis (abP)" or an "allgemeine bauaufsichtliche Zulassung (abZ)" that may be required.

Abteilung Brandschutz / *Fire Safety Department*
Referat Brandverhalten von Baustoffen / *Section Reaction to Fire*

Der Prüfingenieur
The Engineer in Charge

Dipl.-Ing. Ernst Willand

UNIVERSITÄT STUTTGART
MATERIALPRÜFUNG

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The Debuty Head of the Testing Centre

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