

# PRÜFZEUGNIS (Test Certificate)

900 6806 023/PZ-88-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 two-component polyurethane varnish "Quantum Multilayer Varnish Q-T230-xx<sup>1</sup>" with Hardener „HPU6300“  
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 30. April 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-88-var dated 12. Mai 2023. In cases of doubt, the German version applies.

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<sup>1</sup> The „xx“ as part of the product name is replaced by numbers representing the different grades of gloss of the varnish system

## 1. Material description

Colourless two-component polyurethane multicoat varnish "Quantum Q-T230-xx" in the gloss levels matt (Q-T230-10), silk-matt (Q-T230-15) and silk gloss (Q-T230-30), applied on flame-retardant (DIN 4102-B1) particle boards - also with veneer.

Mixing ratio (by weight):	varnish : hardener = 10 : 1	
Application rate (wet):	2 x 120 g/m <sup>2</sup>	
Type of application:	Compressed air spraying	
Field of application:	Interior fittings	
Trade name:	„Quantum Mehrschichtlack Q-T230-xx“ „HPU6300“	
Receipt of samples:	a)	27 <sup>th</sup> November 2018 (Eingangs-Nr. 18/375)
	b)	04 <sup>th</sup> Dezember 2019 (Eingangs-Nr. 19/376)
	c)	17 <sup>th</sup> Dezember 2020 (Eingangs-Nr. 20/346)
	d)	02 <sup>nd</sup> Februar 2022 (Eingangs-Nr. 22/15)
	e)	05 <sup>th</sup> Dezember 2022 (Eingangs-Nr. 22/258)
Quantity:	a)	25 kg "Q-T230-30" (Batch:31709144) 1 Container Hardener „HPU6300“
	b)	25 kg "Q-T230-15" (Batch:01240239018) 1 Container Hardener „HPU6300“
	c)	25 kg "Q-T230-10" (Batch:32009514) 1 Container Hardener „HPU6300“
	d)	25 l "Q-T230-30" (Batch:32007724) 2,5 l Hardener „HPU6300“
	e)	25 l "Q-T230-10" (Batch:32205053) 0,5 l Hardener „HPU6300" (Batch:2109383501)

## 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 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 4102:2015) 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
	reached after:	s	15	15
	Smoke development:	low	low	low
	Burning droplets:	none	none	none
b)	Max. flame height within 20 s:	cm	4	4
	reached after:	s	15	15
	Smoke development:	low	low	low
	Burning droplets:	none	none	none
c)	Max. flame height within 20 s:	cm	4	4
	reached after:	s	15	15
	Smoke development:	low	low	low
	Burning droplets:	none	none	none
d)	Max. flame height within 20 s:	cm	3	3
	reached after:	s	15	15
	Smoke development:	low	low	low
	Burning droplets:	none	none	none
e)	Max. flame height within 20 s:	cm	3	3
	reached after:	s	15	15
	Smoke development:	low	low	low
	Burning droplets:	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	80-90	80-90	90-100	90	80-90
3	Time of appearance <sup>1)</sup> min:s	1:45	1:35	2:20	2:30	2:00
4	Occurrence of holes in the material Time of appearance <sup>1)</sup> min:s	-	-	-	-	-
5	Observations of the reverse face of the specimen Flames / Glowing Time of appearance <sup>1)</sup> min:s	-	-	-	-	-
6	Discolouring Time of appearance <sup>1)</sup> min:s	-	-	-	-	-
7	Burning droplets Beginning <sup>1)</sup> min:s	-	-	-	-	-
	Continued burning on sieve tray s	-	-	-	-	-
8	Sporadically dripping sample material	-	-	-	-	-
9	Steady dripping sample material	-	-	-	-	-
10	Burning dripping sample parts Beginning <sup>1)</sup> 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 <sup>1)</sup> min:s	-	-	-	-	-
15	Premature end of experiment End of fire reaction on the specimen <sup>1)</sup> min:s	-	-	-	-	-
16	Time of premature finishing the test, if done so <sup>1)</sup> min:s	-	-	-	-	-

<sup>1)</sup> 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
17	<u>Afterburning after the end of the test</u>					
18	Duration min:s	-	-	-	-	-
19	Number of specimen					
20	On front face of the specimen					
21	On reverse face of the specimen					
21	Flame height cm	-	-	-	-	-
22	<u>Afterglow after end of test</u>					
23	Duration min:s	-	-	-	-	-
24	Number of specimen					
25	Location of glowing					
26	Lower half of the specimen					
27	Upper half of the specimen					
28	Front face of the specimen					
29	Reverse face of the specimen					
28	<u>Smoke density</u>					
29	$\leq 400 \% \cdot \text{min}$	16	12	10	6	19
30	$\geq 400 \% \cdot \text{min}$ (very strong smoke development)	-	-	-	-	-
31	Graph in annex No.	1	2	3	4	5
31	<u>Residual length</u>					
32	Single results of each specimen cm	25 / 27 26 / 25	21 / 22 21 / 21	20 / 20 19 / 19	20 / 20 20 / 21	17 / 18 18 / 17
33	Average of each specimen assembly cm	26 *)	21 **)	20 ***)	20 ***)	18 ***)
34	Photo of the test assembly in annex No.	-	-	-	-	-
34	<u>Flue gas temperature</u>					
35	Maximum of the average value °C	143	142	153	148	141
36	Time of appearance <sup>1)</sup> min:s	3:47	6:28	6:04	6:15	6:40
37	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				

<sup>1)</sup> 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 two-component 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 two-component 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 30. April 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.

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Der Prüflingenieur  
The Engineer in Charge

Dipl.-Ing. Ernst Willand



Der stellv. Leiter der Prüfstelle  
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