Materialprüfungsanstalt
Universität Stuttgart
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Materialprüfungsanstalt
Universität Stuttgart

PRÜFZEUGNIS (Test Certificate)

900 6806 023/PZ-322-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)	Colorless coating system "Aqualit A-PS130" with "Aqualit A-PT260..." in various gloss levels, each with hardener "HWA6000" applied to flame-retardant (DIN 4102-B1) chipboard - also veneered - as a flame-retardant building material (Baustoffklasse DIN 4102-B1)
Datum: (Date)	30. October 2023
Gültigkeitsdauer: (Period of Validity)	until 31. October 2028
Hinweis: (Notes)	The tested building-material not being used as a construction product according to German building regulations MBO § 2, Abs. 10, no „allgemeines bauaufsichtliches Prüfzeugnis“ is required. This test certificate is not valid, if the tested product is utilised as construction product according to German building regulations (MBO § 17, Abs. 1). This test certificate is in no case a substitute for any required certification according to German building regulations. In cases where approvals are required by German building regulations and authorities, this test certificate may be utilised for issuing these approvals according to Bauregelliste: - Übereinstimmungsnachweise (certificate of conformity) - Verwendbarkeitsnachweise (allgemeines bauaufsichtliches Prüfzeugnis, allgemeine bauaufsichtliche Zulassung) The notes in annex D of DIN 4102-1 with reference to third-party-control are to be considered in particular.

**) This test certificate is the English version of our test certificate 900 6806 023/PZ-322-var dated 30. October 2023. In cases of doubt, the German version applies.*

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1. Material description

Colorless coating system, consisting of "Aqualit A-PS130"
and "Aqualit A-PT260..." in the gloss levels satin gloss "...-45" and satin matt "...-20" with hardener "HWA6000" applied to flame-retardant (DIN 4102-B1) chipboard - also veneered.

Mixing ratio (by weight):	Parquet base without hardener Parquet coating : Hardener 20 : 1		
Application rate (wet):	Parquet base 1 x 120 g/m² Parquet coating 1 x 120 g/m²		
Type of application:	Compressed air spraying		
Field of application:	Interior fitting		
Trade name:	„Aqualit A-PS130“ „Aqualit A-PT260-20, Aqualit A-PT260-45“ “HWA 6000“		
Receipt of samples:	a)	04. December 2019	(Receipt-No. 19/376)
	b)	17. December 2020	(Receipt-No. 20/346)
	c)	02. February 2022	(Receipt-No. 22/15)
	d)	05. December 2022	(Receipt-No. 22/258)
	e)	02. May 2023	(Receipt-No. 23/214)
Quantity:	a)	1l “Aqualit A-PS130“ 0,94 l „Aqualit A-PT260-20” 250 ml “HWA 6000“	
	b)	1l “Aqualit A-PS130“ 0,94 l „Aqualit A-PT260-20”) 250 ml “HWA 6000“	
	c)	5 l “Aqualit A-PS130“ 5 l „Aqualit A-PT260-20” 2,5l “HWA 6000“	
	d)	5 l “Aqualit A-PS130“ 4,8 l „Aqualit A-PT260-45” 2,5 l “HWA 6000“	
	e)	5 l “Aqualit A-PS130“ 4,8 l „„Aqualit A-PT260-20” 2,5 l “HWA 6000“	

2. Sample preparation

Samples of flame-retardant (DIN 4102-B1) chipboard, 1000 mm x 190 mm x 12 mm, were coated on one side with the varnish in the presence of an employee of the MPA University of Stuttgart in accordance with the manufacturer's instructions. The carrier boards were provided by the MPA.

For the B2 tests, 190 mm x 90 mm samples were cut from the coated chipboard samples.

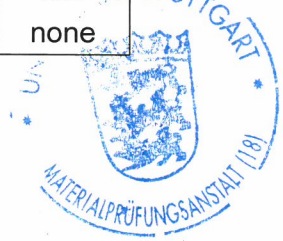
3. Test procedure

The tests had been performed according to standard DIN 4102-1: 1998, DIN 4102-16: 2015 and DIN 4102-16: 2021 using the Brandschacht according to DIN 4102-15: 1990 and the „Zulassungsgrundsätze für den Nachweis der Schwerentflammbarkeit von Baustoffen (Baustoffklasse DIN 4102-B1)", issued by Deutsches Institut für Bautechnik, Berlin.
The fire test had been conducted on free-hanging samples without substrate.

4. Test results

4.1 Tests according to DIN 4102-1 clause 6.2, „Baustoffklasse B2"

Sample		Test:	1	2	3
a)	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
b)	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
c)	Max. flame height within 20 s:	cm	4	5	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	4	4	4
	reached after:	s	15	15	15
	Smoke development:		low	low	low
	Burning dropplets:		none	none	none
e)	Max. flame height within 20 s:	cm	3	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, D, E on the samples a), b), c), d), e) were carried out on free-hanging specimens without any substrates.

4.2.1 Results of the fire shafts test („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	90-100	90-100	90-100	80-90	>100
3	Time of appearance [1]	min/s	1:35	1:45	2:00	3:10	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	min/s	–	–	–	–	–
16	on the specimen [1] Time of premature finishing the test,	min/s	–	–	–	–	–

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

4.2.2 Results of the fire shaft tests (Brandschachtprüfung) (Teil 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		43	14	21	23	16
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	22 / 23 23 / 22	21 / 22 21 / 21	20 / 21 20 / 20	17 / 17 16 / 17	20 / 19 17 / 18
32	Average of each specimen assembly	cm	22 *)	21 *)	20 **)	17 **)	18 ***)
33	Photo of the test assembly in annex No.		–	–	–	–	–
	Flue gas temperature						
34	Maximum of the average value	°C	151	149	148	140	141
35	Time of appearance [1]	min/s	6:33	6:19	5:31	6:09	6:24
36	Graph in annex No.		1	2	3	4	5
37	Notes: Residual length of the non coated particle board: *) 20 cm **) 18 cm ***) 17 cm Appearance of the samples after the fire tests: Back side intact						

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 4102-16:2021 neither burning nor glowing.

According to DIN 4102-16:2021, clause 10.3, 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: 2021, clause 7.2 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 31. October 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
Referat Brandverhalten von Baustoffen

Der Prüfingenieur

M.Sc. Sebastian B. Wachsmann

UNIVERSITÄT STUTTGART
MATERIALPRÜFUNGSANSTALT (18)

Der Leiter der Prüfstelle

Dipl.-Ing. (BA) Harald Schillo

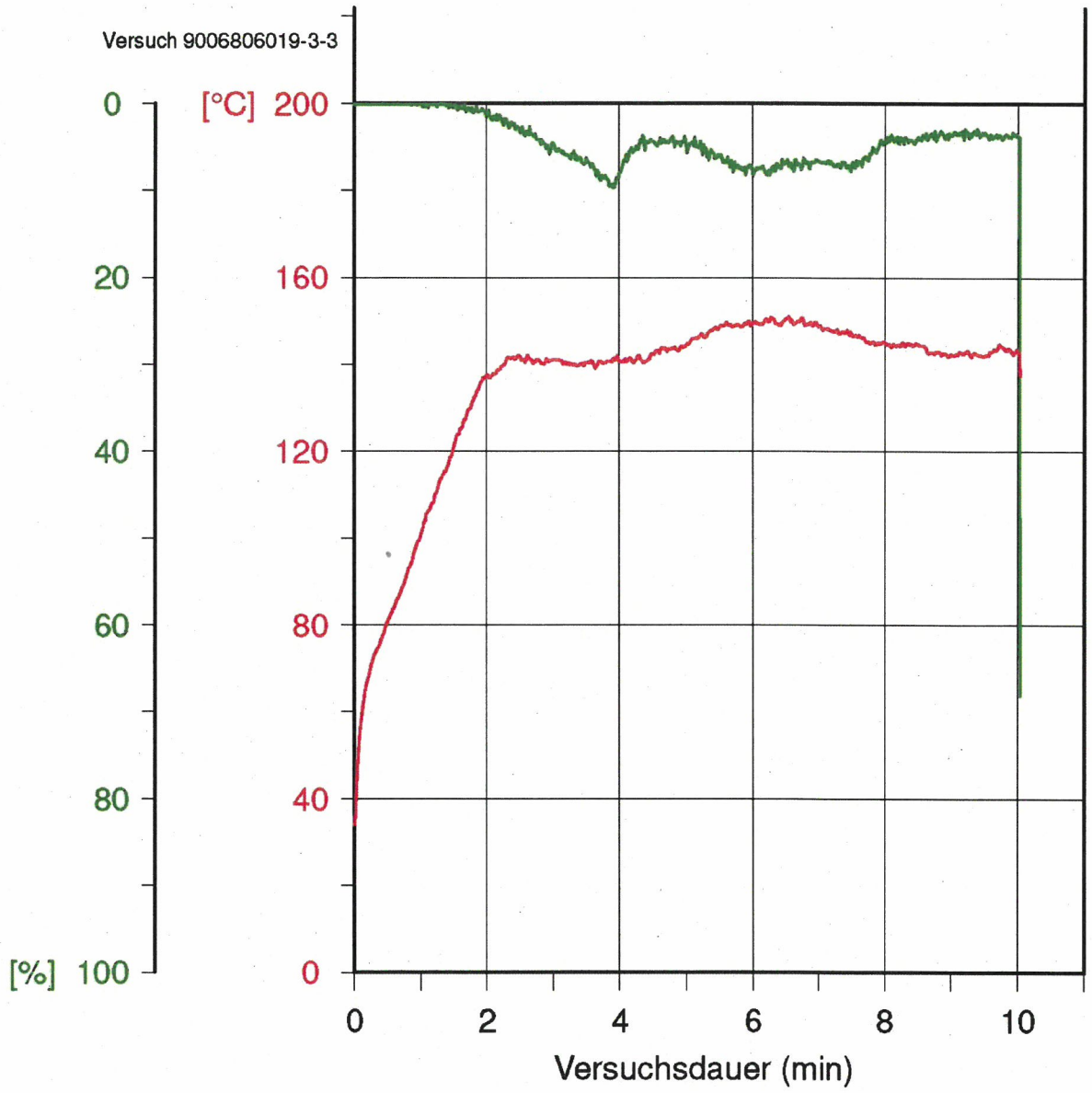


Abb. Verlauf des Brandschachtversuchs A322-19

max. Rauchgastemp.	151 °C
erreicht nach	6:33 min:sec
max. Rauchdichte	10 %
Integralwert	43 %*min

Figure 1: Results of fire shaft test A (“Brandschachtversuch”), (smoke density, flue gas temperature)

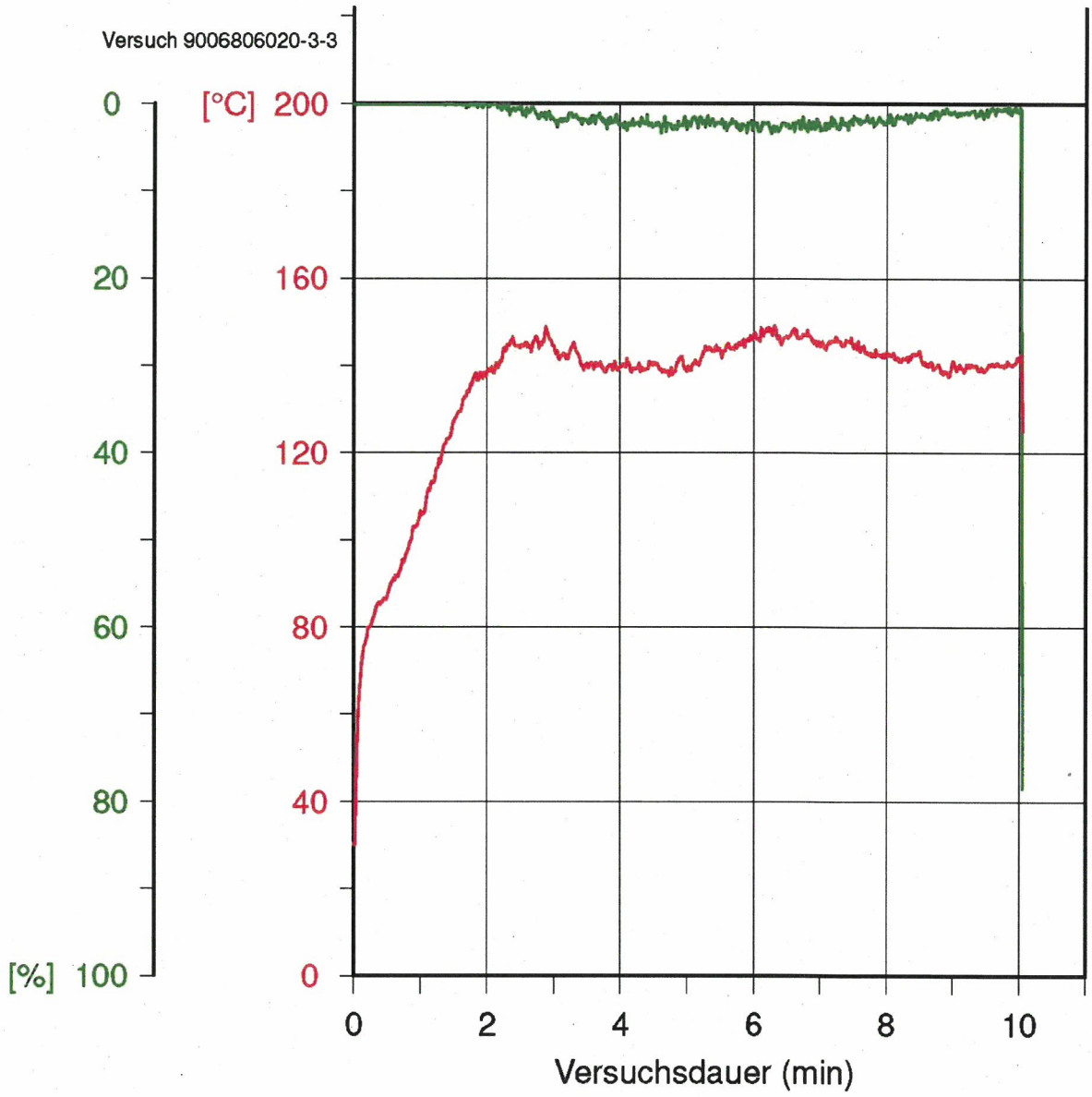


Abb. Verlauf des Brandschachtversuchs A322-20

max. Rauchgastemp.	149 °C
erreicht nach	6:19 min:sec
max. Rauchdichte	3 %
Integralwert	14 %*min

Figure 2: Results of fire shaft test A (“Brandschachtversuch”), (smoke density, flue gas temperature)

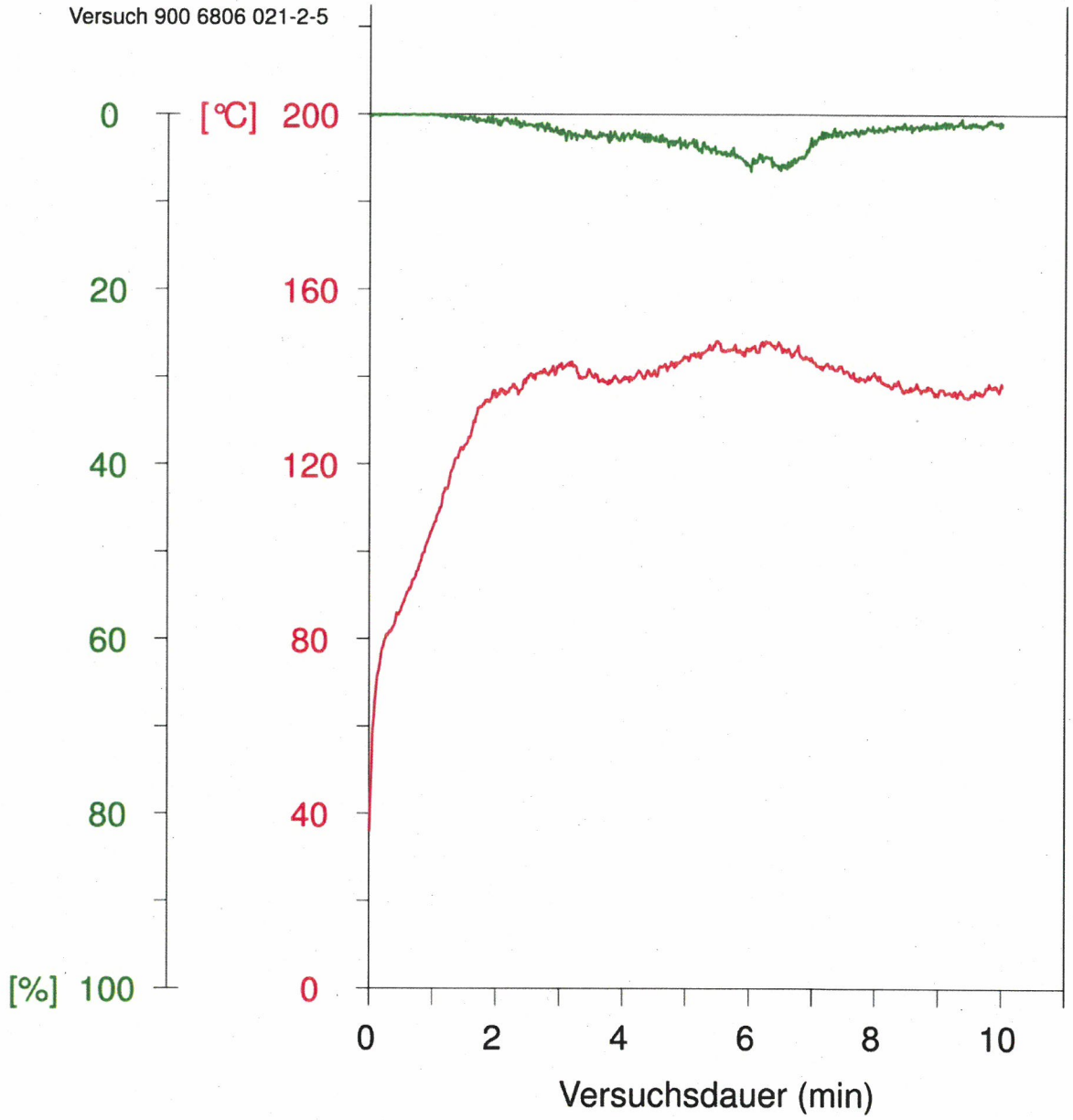


Abb. Verlauf des Brandschachtversuchs A322/21

max. Rauchgastemp.	148 °C
erreicht nach	5:31 min:sec
max. Rauchdichte	7 %
Integralwert	21 %*min

Figure 3: Results of fire shaft test A (“Brandschachtversuch”), (smoke density, flue gas temperature)

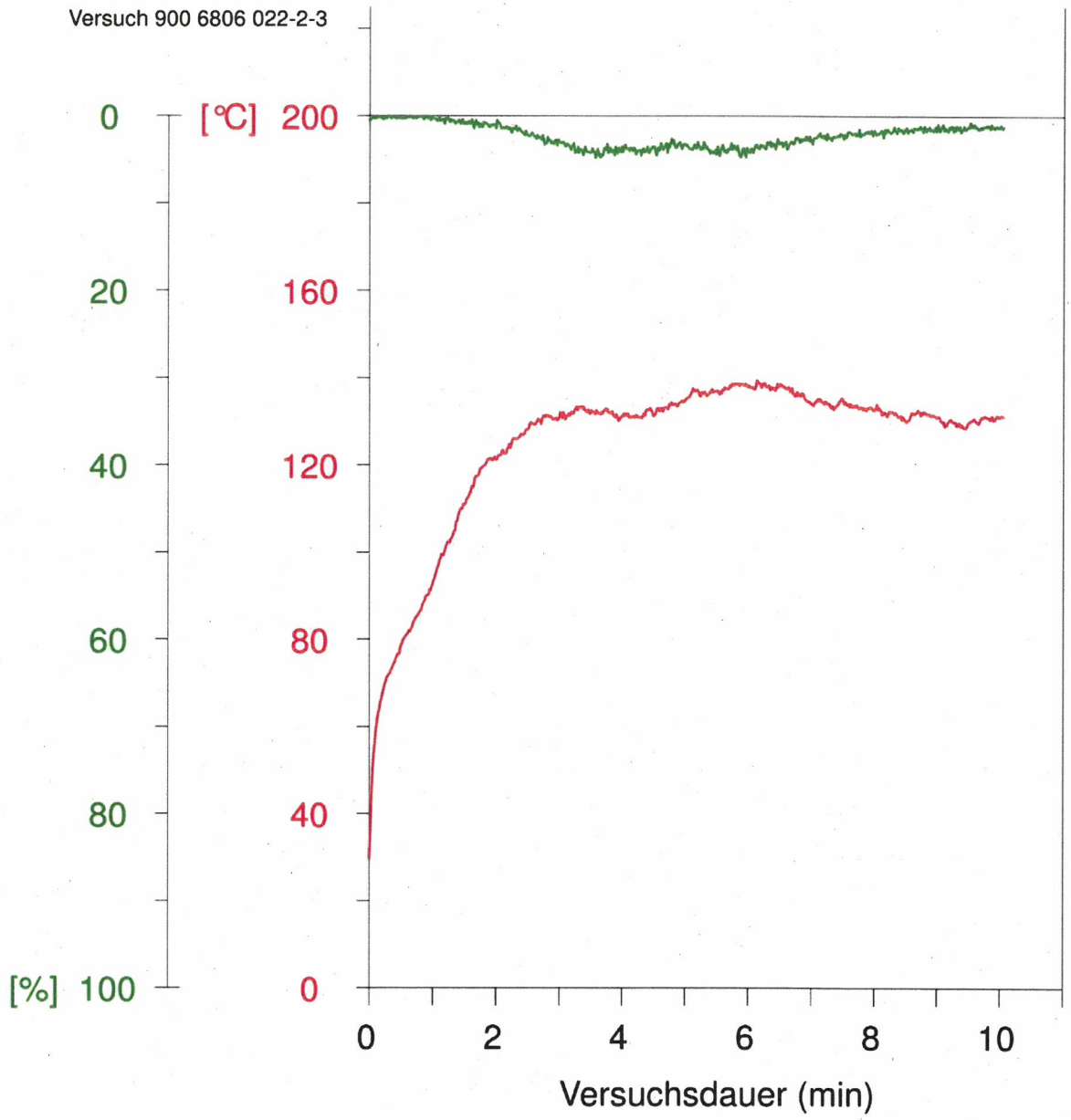


Abb. Verlauf des Brandschachtversuchs A322-22

max. Rauchgastemp.	140 ℃
erreicht nach	6:09 min:sec
max. Rauchdichte	5 %
Integralwert	23 %*min

Figure 4: Results of fire shaft test A (“Brandschachtversuch”), (smoke density, flue gas temperature)

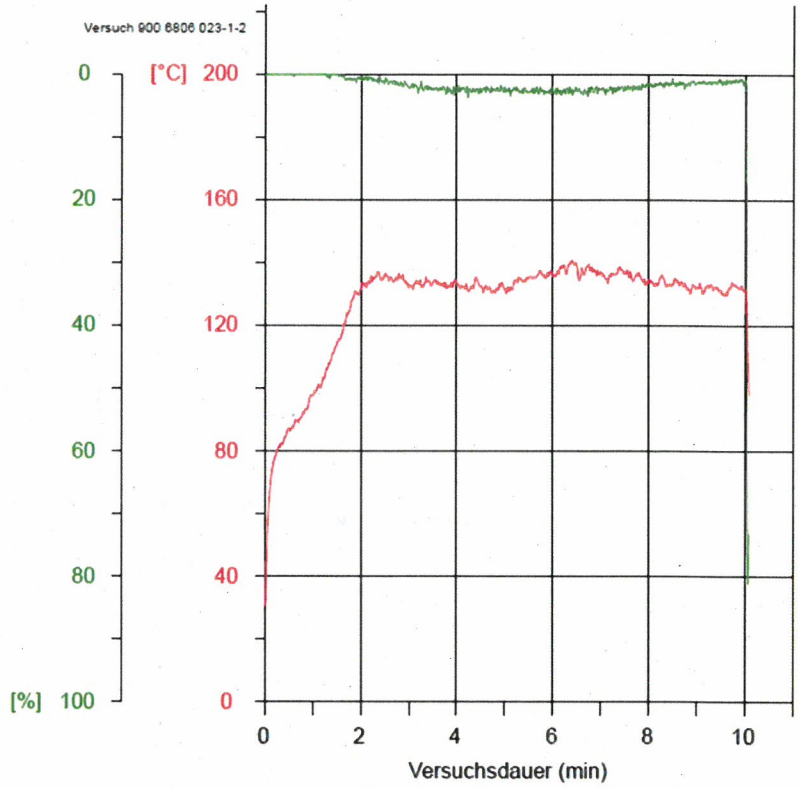


Abb. 5 Verlauf des Brandschachtversuchs E

max. Rauchgastemp.	141 °C
erreicht nach	6:24 min:sec
max. Rauchdichte	4 %
Integralwert	16 %*min

Figure 5: Results of fire shaft test A (“Brandschachtversuch”), (smoke density, flue gas temperature)