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PRÜFEN • ÜBERWACHEN • ZERTIFIZIEREN

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# TEST CERTIFICATE

## No. 230010972

as proof of the Schwerentflammbarkeit according to DIN 4102-1 (May 1998)

English version



| | |
|---|---|
| **Date of application:** | 27.03.2017 |
| **Date of sampling:** | Samples were sent in by the sponsor |
| **Samples delivered on** | 03.05.2012 and 24.03.2017 |
| **Date of testing:** | 11.06.2012, 12.06.2012, 19.04.2017, 20.04.2017, 24.04.2017, 10.05.2017, 12.05.2017, 22.05.2017 and 23.05.2017 |

**Order**

Testing according to DIN 4102-1 (May 1998) class B1

**Description / Name of tested product**

Decoration fabric „Artikel 9000“ and white decoration fabric „Artikel 9002“

**Applied test procedure**

DIN 4102 part 1 (May 1998)

**Remark:** This test certificate is a translation of the original test certificate 230010972 issued 07.06.2017 in German language and is only allowed to be used together with the original test certificate.

This test certificate is valid until 06.06.2022.
The test results only relate to the above named product.
Any change in form or content to a test certificate and the reproduction of a shortened version can only be made by the approval of MPA NRW.
This test certificate consists of 13 pages and 1 enclosure.

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-11142-01-02

egolf

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**Name of tested product:** „Artikel 9000“ and „Artikel 9002“

**Description:**

Fabrics made of polyester FR-fibres
"Artikel 9000": one-sided roughened fabric in different colourings
"Artikel 9002": bleached, white, not roughened fabric

(Details given by the sponsor)

The tested fabrics of type "Artikel 9000" had a velvety surface on one side.
Thickness of „Artikel 9000“: on average 0.8 mm, thickness of “Artikel 9002“: on average: 0.5 mm,
Weight per unit area of the fabrics: on average 308 g/m²
Colour of the tested fabric of type "Artikel 9000": a) white, b) red, c) black

**Special information:** none

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**Results of the Brandschacht test (part 1)**

| row-no. | White fabric "Artikel 9002" | | measurements test specimen A1 | B1 | | |
|---|---|---|---|---|---|---|
| 1 | No. of test specimen arrangement according to DIN 4102, part 15 , table 1 | | 1 | 1 | | |
| 2 | Max. flame height above bottom edge | cm | 40 | 40 | | |
| | Time [1] | min : s | 0:30 | 0:30 | | |
| 4 | Melt through / burn through Time[1] | min : s | 0:03 | 0:03 | | |
| 5 | Observations on the backside of the specimens Flames/smouldering Time [1] | min : s | --[2] | --[2] | | |
| 6 | Discolouration Time [1] | min : s | --[2] | --[2] | | |
| 7 | Burning droplets Start [1] | min : s | --[2] | --[2] | | |
| 8 | Extent sporadic burning droplets | | --[2] | --[2] | | |
| 9 | continually falling particles | | --[2] | --[2] | | |
| 10 | Falling particles which burns Start [1] | min : s | --[2] | --[2] | | |
| 11 | sporadic falling parts | | --[2] | --[2] | | |
| 12 | continually falling particles | | --[2] | --[2] | | |
| 13 | Duration of the burning on the screen bottom (max.) | min : s | --[2] | --[2] | | |
| 14 | Interference of the burner flame by dripping /falling particles Time [1] | min : s | --[2] | --[2] | | |
| 15 | Early termination of the test End of burning at the specimen [1] | min : s | --[2] | --[2] | | |
| 16 | Time of early cancellation of the test [1] | min : s | --[2] | --[2] | | |

[1] Time counting from the start of the test

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**Results of the Brandschachttest (part 2)**

| row-no. | | measurements test specimen A1 | B1 | | |
|---|---|---|---|---|---|
| | Continuous burning after termination of the test | | | | |
| 17 | Duration min : s | --[2)] | --[2)] | | |
| 18 | Number of specimens | --[2)] | --[2)] | | |
| 19 | Front side of the specimen | --[2)] | --[2)] | | |
| 20 | Back side of the specimen | --[2)] | --[2)] | | |
| 21 | Flame length cm | --[2)] | --[2)] | | |
| | Smouldering after termination of the test | | | | |
| 22 | Duration min : s | --[2)] | --[2)] | | |
| 23 | Number of specimens | --[2)] | --[2)] | | |
| | Location | | | | |
| 24 | Lower half of the specimens | --[2)] | --[2)] | | |
| 25 | Upper half of the specimens | --[2)] | --[2)] | | |
| 26 | Front side of the specimen | --[2)] | --[2)] | | |
| 27 | Backside of the specimen | --[2)] | --[2)] | | |
| | Smoke development | | | | |
| 28 | ≤ 400 % x min | 16 | 6 | | |
| 29 | > 400 % x min | --[2)] | --[2)] | | |
| 30 | Diagram in appendix | -- | -- | | |
| | Residual lengths | 67 54 | 56 56 | | |
| 31 | Single values cm | 53 63 | 58 57 | | |
| 32 | Average values cm | 59[3)] | 57[3)] | | |
| 33 | Photo of the specimen on page | -- | -- | | |
| | Smoke temperature | | | | |
| 34 | Maximum value of the averaged values °C | 116 | 116 | | |
| 35 | Time [1)] min : s | 9:30 | 10:00 | | |
| 36 | Diagram in appendix Nr. | -- | -- | | |
| 37 | Remarks: | | | | |

The test occurred on free hanging samples.
Test A1: The samples were flamed in production direction.
Test B1: The samples were flamed across the production direction.

2) Did not occur
3) Due to the average residual length of > 45 cm further tests on the white fabric were not necessary according to DIN 4102-16 section 5.2 b).

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**Results of the Brandschacht test (part 1)**

| row-no. | Fabric "Artikel 9000", Colour: | measurements test specimen red A2 | red B2 | black C2 | |
|---|---|---|---|---|---|
| 1 | No. of test specimen arrangement according to DIN 4102, part 15 , table 1 | 1 | 1 | 1 | |
| 2 | Max. flame height above bottom edge cm | 40 | 40 | 40 | |
| | Time [1] min : s | 0:30 | 0:30 | 0:30 | |
| 4 | Melt through / burn through Time[1] min : s | 0:04 | 0:05 | 0:04 | |
| 5 | Observations on the backside of the specimens Flames/smouldering Time [1] min : s | --[2] | --[2] | --[2] | |
| 6 | Discolouration Time [1] min : s | --[2] | --[2] | --[2] | |
| 7 | Burning droplets Start [1] min : s | --[2] | --[2] | 0:11 | |
| 8 | Extent sporadic burning droplets | --[2] | --[2] | x | |
| 9 | continually falling particles | --[2] | --[2] | --[2] | |
| 10 | Falling particles which burns Start [1] min : s | --[2] | --[2] | --[2] | |
| 11 | sporadic falling parts | --[2] | --[2] | --[2] | |
| 12 | continually falling particles | --[2] | --[2] | --[2] | |
| 13 | Duration of the burning on the screen bottom (max.) min : s | --[2] | --[2] | 0:02 | |
| 14 | Interference of the burner flame by dripping /falling particles Time [1] min : s | --[2] | --[2] | --[2] | |
| 15 | Early termination of the test End of burning at the specimen [1] min : s | --[2] | --[2] | --[2] | |
| 16 | Time of early cancellation of the test [1] min : s | --[2] | --[2] | --[2] | |

[1] Time counting from the start of the test

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**Results of the Brandschachttest (part 2)**

| row-no. | | measurements test specimen A2 | B2 | C2 |
|---|---|---|---|---|
| | Continuous burning after termination of the test | | | |
| 17 | Duration min : s | --[2)] | --[2)] | --[2)] |
| 18 | Number of specimens | --[2)] | --[2)] | --[2)] |
| 19 | Front side of the specimen | --[2)] | --[2)] | --[2)] |
| 20 | Back side of the specimen | --[2)] | --[2)] | --[2)] |
| 21 | Flame length cm | --[2)] | --[2)] | --[2)] |
| | Smouldering after termination of the test | | | |
| 22 | Duration min : s | --[2)] | --[2)] | --[2)] |
| 23 | Number of specimens | --[2)] | --[2)] | --[2)] |
| | Location | | | |
| 24 | Lower half of the specimens | --[2)] | --[2)] | --[2)] |
| 25 | Upper half of the specimens | --[2)] | --[2)] | --[2)] |
| 26 | Front side of the specimen | --[2)] | --[2)] | --[2)] |
| 27 | Backside of the specimen | --[2)] | --[2)] | --[2)] |
| | Smoke development | | | |
| 28 | ≤ 400 % x min | 8 | 5 | 3 |
| 29 | > 400 % x min | --[2)] | --[2)] | --[2)] |
| 30 | Diagram in appendix | -- | -- | 1 |
| | Residual lengths | 52 58 | 55 53 | 58 60 |
| 31 | Single values cm | 51 52 | 60 54 | 61 55 |
| 32 | Average values cm | 53[3)] | 56[3)] | 59[3)] |
| 33 | Photo of the specimen on page | 9 | -- | -- |
| | Smoke temperature | | | |
| 34 | Maximum value of the averaged values °C | 116 | 114 | 117 |
| 35 | Time [1)] min : s | 10:00 | 9:27 | 9:40 |
| 36 | Diagram in appendix Nr. | -- | -- | 1 |
| 37 | Remarks: | | | |

The test occurred on free hanging samples.
Tests A2 and C2: The roughened side of the fabric was flamed across the production direction.
Test B2: The fabric side was flamed across the production direction.

2) Did not occur
3) Due to the average residual length of > 45 cm further tests on the "Artikel 9000" were not necessary according to DIN 4102-16 section 5.2 b).

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**Results of the Brandschacht test (part 1)**

| row-no. | Washed fabrics | | measurements test specimen A3 | B3 | C3 | D3 |
|---|---|---|---|---|---|---|
| 1 | No. of test specimen arrangement according to DIN 4102, part 15 , table 1 | | 1 | 1 | 1 | 1 |
| 2 | Max. flame height above bottom edge | cm | 40 | 50 | 40 | 50 |
| | Time [1] | min : s | 0:30 | 0:30 | 0:30 | 0:30 |
| 4 | Melt through / burn through Time[1] | min : s | 0:03 | 0:02 | 0:03 | 0:02 |
| 5 | Observations on the backside of the specimens Flames/smouldering Time [1] | min : s | 0:03 | -- | 0:04 | 0:03 |
| 6 | Discolouration Time [1] | min : s | -- | -- | -- | -- |
| 7 | Burning droplets Start [1] | min : s | 0:04 | 0:11 | 0:05 | 0:03 |
| 8 | Extent sporadic burning droplets | | x | x | x | x |
| 9 | continually falling particles | | -- | -- | -- | -- |
| 10 | Falling particles which burns Start [1] | min : s | -- | -- | -- | -- |
| 11 | sporadic falling parts | | -- | -- | -- | -- |
| 12 | continually falling particles | | -- | -- | -- | -- |
| 13 | Duration of the burning on the screen bottom (max.) | min : s | -- | 0:02 | 0:01 | 0:01 |
| 14 | Interference of the burner flame by dripping /falling particles Time [1] | min : s | 0:05 | -- | 0:06 | 0:04 |
| 15 | Early termination of the test End of burning at the specimen [1] | min : s | -- | -- | -- | -- |
| 16 | Time of early cancellation of the test [1] | min : s | -- | -- | -- | -- |

[1] Time counting from the start of the test

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**Results of the Brandschachttest (part 2)**

| row-no. | | | measurements test specimen A3 | B3 | C3 | D3 |
|---|---|---|---|---|---|---|
| | Continuous burning after termination of the test | | | | | |
| 17 | Duration | min : s | -- | -- | -- | -- |
| 18 | Number of specimens | | -- | -- | -- | -- |
| 19 | Front side of the specimen | | -- | -- | -- | -- |
| 20 | Back side of the specimen | | -- | -- | -- | -- |
| 21 | Flame length | cm | -- | -- | -- | -- |
| | Smouldering after termination of the test | | | | | |
| 22 | Duration | min : s | -- | -- | -- | -- |
| 23 | Number of specimens | | -- | -- | -- | -- |
| | Location | | | | | |
| 24 | Lower half of the specimens | | -- | -- | -- | -- |
| 25 | Upper half of the specimens | | -- | -- | -- | -- |
| 26 | Front side of the specimen | | -- | -- | -- | -- |
| 27 | Backside of the specimen | | -- | -- | -- | -- |
| | Smoke development | | | | | |
| 28 | ≤ 400 % x min | | 3 | 3 | 3 | 4 |
| 29 | > 400 % x min | | -- | -- | -- | -- |
| 30 | Diagram in appendix | | -- | -- | -- | -- |
| | Residual lengths | | 62 67 | 64 62 | 54 60 | 58 64 |
| 31 | Single values | cm | 58 60 | 58 65 | 59 50 | 65 51 |
| 32 | Average values | cm | 62 | 62 | 56 | 60 |
| 33 | Photo of the specimen on page | | -- | -- | -- | -- |
| | Smoke temperature | | | | | |
| 34 | Maximum value of the averaged values | °C | 121 | 119 | 120 | 121 |
| 35 | Time [1)] | min : s | 9:43 | 9:23 | 9:39 | 9:59 |
| 36 | Diagram in appendix Nr. | | -- | -- | -- | 1 |

37 Remarks:

The test occurred on free hanging samples.
For the fire tests the fabrics were washed by the sponsor 10 times according to DIN EN ISO 6330 5A, E and drying afterwards.
Test A2: White fabric "9000", cut in production direction, flaming of the velvet side
Test B2: Black fabric "9000", cut in production direction, flaming of the velvet side
Test C2: White fabric "9002", cut across the production direction
Test D2: Black fabric "9000", cut across the production direction, flaming of the fabric side

The results of the tests A3 – D3 were taken of the test report no. 230005501-4 of 18.06.2012.

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Picture 1: Appearance of specimen A2 after the test

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**Results of the B2-testing according to DIN 4102-01**
(Tests with flaming the edge of free hanging samples)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the white fabric "Artikel 9002" in production direction

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| (Times stated from start of test) | | | | | |
| Ignition (s) | 1 | 1 | 1 | 1 | 1 |
| Flame passing the limit mark (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Self extinguishment (s) | 12 | 10 | 10 | 9 | 7 |
| Max. height of the flame (cm) | 3 | 3 | 3 | 3 | 2 |
| Continuous burning after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Continuous smouldering after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Extinguishment of flames / glowing after passing the limit mark | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Smoke development (visual observation) | low | | | | |
| Falling of burning particles / droplets time (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |

Remark: 1) Did not occur

Point of flame attack: lower edge of the front side, flaming of the white fabric "Artikel 9002" across the production direction

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| (Times stated from start of test) | | | | | |
| Ignition (s) | 1 | 1 | 1 | 1 | 1 |
| Flame passing the limit mark (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Self extinguishment (s) | 5 | 7 | 5 | 5 | 5 |
| Max. height of the flame (cm) | 3 | 3 | 2 | 3 | 3 |
| Continuous burning after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Continuous smouldering after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Extinguishment of flames / glowing after passing the limit mark | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Smoke development (visual observation) | low | | | | |
| Falling of burning particles / droplets time (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |

Remarks: 1) Did not occur

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**Results of the B2-testing according to DIN 4102-01**
(Tests with flaming the edge of free hanging samples)

Protection of edges: --

Point of flame attack: lower edge of the front side, flaming of the roughened side of the red fabric "Artikel 9000" in production direction

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| (Times stated from start of test) | | | | | |
| Ignition (s) | 1 | 1 | 1 | 1 | 1 |
| Flame passing the limit mark (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Self extinguishment (s) | 6 | 5 | 7 | 5 | 7 |
| Max. height of the flame (cm) | 4 | 4 | 6 | 6 | 5 |
| Continuous burning after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Continuous smouldering after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Extinguishment of flames / glowing after passing the limit mark | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Smoke development (visual observation) | low | | | | |
| Falling of burning particles / droplets time (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |

Remark: 1) Did not occur

Point of flame attack: lower edge of the front side, flaming of the fabric side of the red fabric "Artikel 9000" in production direction

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| (Times stated from start of test) | | | | | |
| Ignition (s) | 1 | 1 | 1 | 1 | 1 |
| Flame passing the limit mark (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Self extinguishment (s) | 4 | 5 | 4 | 4 | 5 |
| Max. height of the flame (cm) | 2 | 2 | 2 | 2 | 2 |
| Continuous burning after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Continuous smouldering after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Extinguishment of flames / glowing after passing the limit mark | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Smoke development (visual observation) | low | | | | |
| Falling of burning particles / droplets time (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |

Remarks: 1) Did not occur

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**Results of the B2-testing according to DIN 4102-01**
(Tests with flaming the surface of free hanging samples)

Point of flame attack: 40 mm above the lower edge of the front side, flaming of the roughened side of the black fabric "Artikel 9000" in production direction

| Specimen No. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| (Times stated from start of test) | | | | | |
| Ignition (s) | 1 | 1 | 1 | 1 | 1 |
| Flame passing the limit mark (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Self extinguishment (s) | 8 | 10 | 8 | 8 | 7 |
| Max. height of the flame (cm) | 5 | 5 | 4 | 4 | 4 |
| Continuous burning after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Continuous smouldering after 20 s | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Extinguishment of flames / glowing after passing the limit mark | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |
| Smoke development (visual observation) | low | | | | |
| Falling of burning particles / droplets time (s) | --[1)] | --[1)] | --[1)] | --[1)] | --[1)] |

Remark: 1) Did not occur

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**Assessment**

- The product described on page 2 fulfilled the requirements of building products according to Baustoffklasse B2. According to the results, the product as tested in the described arrangement also fulfils the requirements of building products according to Baustoffklasse B1. In consequence the product can be classified as

  **Baustoffklasse B1 (schwerentflammbare Baustoffe)**

  according to DIN 4102 part 1 (Mai 1998). This assessment is only valid, if the distance to equal or other plane building products is > 40 mm. The surface of the fabrics may not be covered with paints, coatings or similar products. The resistance of the fire behaviour against climatic influences in the outside was not proofed. Therefore the product may be used as schwerentflammbar only inside of buildings or in otherwise weather protected areas.

- The material does not produce burning droplets / particles.

**Special remark**

- The validity of this test certificate ends on 06.06.2022. The period of validity can be extended on application.
- Since the material is used as decoration fabric it is no building product according to §2 chapter 9 no. 1 MBO. An allgemeines bauaufsichtliches Prüfzeugnis of the test institute respectively an allgemeine bauaufsichtliche Zulassung of Deutsches Institut für Bautechnik, Berlin is not necessary.
- This test certificate is not the requested approval, if the tested material is used as building product according to the German building regulations.

**Marking**

The above mentioned material has to be marked as following:

- "Only schwerentflammbar (class DIN 4102-B1) in a distance of > 40 mm to equal or other plane building products"

The marking shall be done on the material, on an enclosed paper or on the packaging or, if this would be too difficult, on the delivery-note or on an enclosure to the delivery-note.

This test certificate is solely valid in combination with the original test certificate issued in German language and dated of 07.06.2017. In case of doubt, the certificate issued in German language is valid solely.

Erwitte, 07.06.2017
On behalf

Dipl.-Ing. Schreiner
Assistant head of testing body

Materialprüfungsamt MPA NRW 38 Nordrhein-Westfalen

Date of issue of this English version: 13.10.2017

# Fire Test Certificate – Specimen

**Fabric:** IFR Molton CS
**Type:** B1

J&C Joel
Inspiration in every performance

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| | |
|---|---|
| Max. flue gas-temperature = 117 °C<br>at [min : s] 09 : 40<br><br>Smoke-development [% x min]: 3 | Enclosure 1 of test report<br>no. 230010972 of 07.06.2017 |