

TEST REPORT
IN-01446/2021-1

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Date of issue: August 02nd, 2021

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TEST REPORT

Report number: IN-01446/2021

Total pages: 14

SAMPLE RECEIVED

Information provided by the applicant:

Description: DIM OUT FR
Reference: CASTELLI
Composition: 100% PES FR; Weight: 370 g/m²
Color: White; Thickness: 1,5 mm

Internal description and identification:

Description: Fabric
Reference: M-01446/21



Date of entry: June 29th, 2021

REQUESTED TESTS

- TEXTILES AND TEXTILE PRODUCTS. BURNING BEHAVIOUR. CURTAINS AND DRAPES. DETAILED PROCEDURE TO DETERMINE THE IGNIABILITY OF VERTICALLY ORIENTED SPECIMENS (SMALL FLAME)
EN 1101:1995/A1:2005
- TEXTILES AND TEXTILE PRODUCTS. BURNING BEHAVIOUR. CURTAINS AND DRAPES. MEASUREMENT OF FLAME SPREAD OF VERTICALLY ORIENTED SPECIMENS WITH LARGE IGNITION SOURCE
EN 13772 :2011
- TEXTILES AND TEXTILE PRODUCTS. FIRE BEHAVIOUR. CURTAINS AND DRAPERIES. CLASSIFICATION SCHEME
EN 13773:2003



**TEXTILES AND TEXTILE PRODUCTS. BURNING BEHAVIOUR.
COURTAINS AND DRAPES. DETAILED PROCEDURE TO
DETERMINE THE IGNIABILITY OF VERTICALLY ORIENTED
SPECIMENS (SMALL FLAME)**

Test standard:	EN 1101:1995/A1:2005
According to:	N.A.
Date of completion:	July 08 th – 12 th , 2021

Test equipment:
Vertical flammability test equipment, JBA, no. EQ299
Chronometer, VENTIX, no. EQ1389
Anemometer, TESTO, no. PA075
Washing machine, WASCATOR FOM 71 MP-Lab, no. EQ418
Balance, SARTORIUS, no. EQ116

Test conditions:
Conditioning of specimens: ≥ 24 hours at $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 65% r.h. $\pm 5\%$ r.h.
Test atmosphere: $23,5^{\circ}\text{C}$ and 65,1% r.h.
Internal identification of specimens: M-01446/21
Type of test: After 1 washing cycle (1 washing cycle = 1 wash + 1 dry)
Pre-treatment of the test sample: According to the applicant's request <ul style="list-style-type: none">• DOMESTIC WASHING, according to EN ISO 6330:2012, washing procedure: 3N<ul style="list-style-type: none">○ Temperature: 30°C○ Washing powder: Without phosphates ECE-98○ Total mass of the specimens: 318,5 g○ Type of load: Panels composed of four thicknesses of 100% textured polyester knitted fabric, with a mass per unit area of $(310 \pm 20) \text{ g/m}^2$, and dimensions of $(20 \pm 4) \text{ cm} \times (20 \pm 4) \text{ cm}$○ Total counterweight mass: 1666,0 g○ Total load: $(2 \pm 0,1) \text{ kg}$• Drying: Procedure A – Air drying (each cycle)• Cycles: 1 (wash cycle = wash + dry)
Number of specimens (according to UNE-EN ISO 6940:2004): 24 (12 lengthwise, 12 widthwise)
Dimensions of the specimens: $200 \pm 2 \text{ mm} \times 80 \pm 2 \text{ mm}$
Flame height: $40 \text{ mm} \pm 2 \text{ mm}$
Test equipment setting (EN ISO 6940:2004): Procedure B – Ignition from the bottom edge (burner tilted 30°)
Air speed: $< 0,2 \text{ m/s}$
Type of gas: Commercial propane

Results:

Preliminary test, according to EN 1101:1996/A1:2005, section 7			
Lengthwise / Warp		Widthwise / Weft	
Flame application time (s)	Results	Flame application time (s)	Results
1	O	1	O
2	O	2	O
3	O	3	O
4	O	4	O
5	O	5	O
10	O	10	O
15	O	15	O
20	O	20	O

X: Ignition / O: Non-ignition

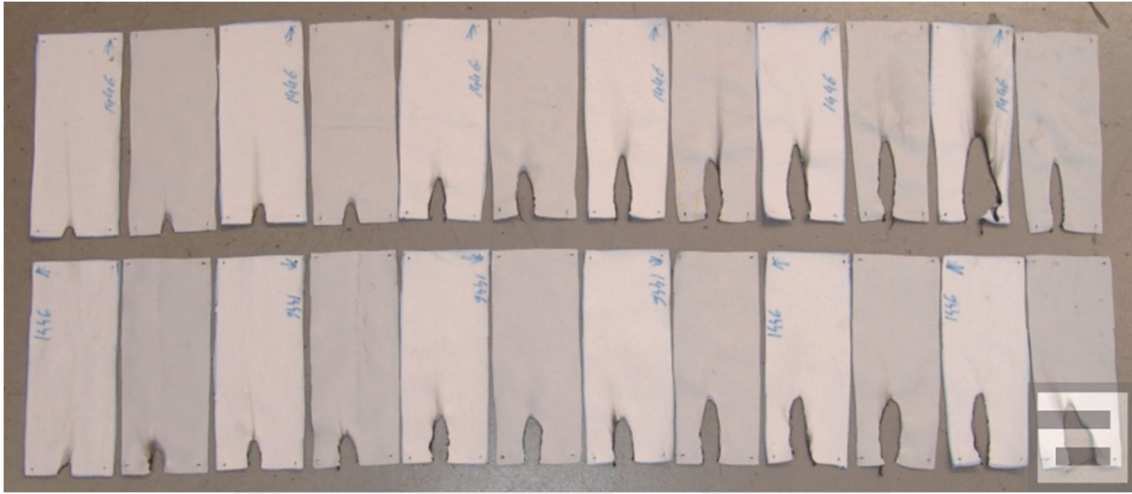
Test according to EN ISO 6940:2004, section 11				
Specimen no.	Lengthwise / Warp		Widthwise / Weft	
	Flame application time (s)	Results	Flame application time (s)	Results
# 1	20	O	20	O
# 2	20	O	20	O
# 3	20	O	20	O
# 4	20	O	20	O
# 5	20	O	20	O

X: Ignition / O: Non-ignition

Mean ignition time, according to EN ISO 6940 - Annex B.2				
Flame application time (s)	Lengthwise / Warp		Widthwise / Weft	
	Number of ignition cases	Number of cases of non-ignition	Number of ignition cases	Number of cases of non-ignition
20	0	5	0	5
Comments	---		----	

	Lengthwise / Warp	Widthwise / Weft
Mean ignition time (s)	≥ 20	≥ 20
Minimum ignition time (s)	≥ 20	
Ignition of the specimen within 20 s	No	

Picture after testing:





**TEXTILES AND TEXTILE PRODUCTS. BURNING BEHAVIOUR.
 CURTAINS AND DRAPES. MEASUREMENT OF FLAME
 SPREAD OF VERTICALLY ORIENTED SPECIMENS WITH
 LARGE IGNITION SOURCE**

Standard:	EN 13772 :2011
According to:	N.A.
Date of completion:	July 08 th – 27 th , 2021

Test equipment:	
Vertical flammability test equipment, JBA, no. EQ299	
Chronometer, IHM, no. EQ2140	
Anemometer, TESTO, no. PA075	
Millimeter ruler, no. EQ285	
Washing machine, WASCATOR FOM 71 MP-Lab, no. EQ2080	
Balance, SARTORIUS, no. EQ116	

Test conditions:	
Conditioning of specimens: ≥ 24 hours / (20 ± 2) °C / (65 ± 5) % r.h.	
Testing atmosphere: 22,7 °C / 53,1 % r.h.	
Internal identification of specimens: M-01446/21	
Type of test: In-as received conditions and after domestic washing	
Pre-treatment of the specimens: <ul style="list-style-type: none"> • DOMESTIC WASHING, according to EN ISO 6330:2012, washing procedure: 3N <ul style="list-style-type: none"> ○ Temperature: 30°C ○ Washing powder: Without phosphates ECE-98 ○ Total mass of the specimens: 342,3 g ○ Type of load: Panels composed of four thicknesses of 100% textured polyester knitted fabric, with a mass per unit area of (310 ± 20) g/m², and dimensions of (20 ± 4) cm x (20 ± 4) cm ○ Total counterweight mass: 1667,8 g ○ Total load: $(2 \pm 0,1)$ kg • Drying: Procedure A – Air drying (each cycle) • Cycles: 12 (1 wash cycle = wash + dry) 	
Sampling (according to EN 13772:2011): <ul style="list-style-type: none"> • Number of specimens: 8 per type of test (4 lengthwise, 4 widthwise) • Dimensions of the specimens: 560 mm \pm 2 mm x 170 mm \pm 2 mm 	
Material with different sides: Yes <ul style="list-style-type: none"> • Side A (dark color) • Side B (light color) 	
Tested side: In the case of visual differences between the two sides of the fabric, the test is carried out on the most unfavourable side, this being the side with the highest char length	
Reference material used: <ul style="list-style-type: none"> • Standard cotton fabric (MR006) 	

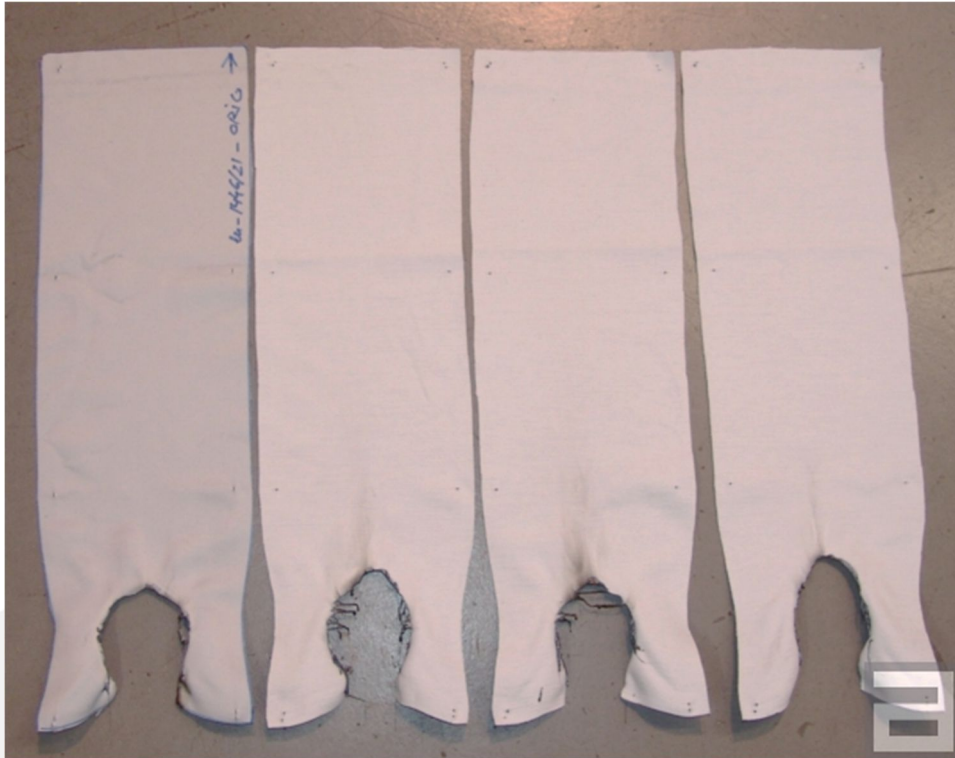
<ul style="list-style-type: none"> • Standard cotton marker thread (MR007) • Standard paper filter (MR008)
Temperature increase ratio between 40°C and 100°C: (3,0 ± 1) °C/s
Flame height: 40 mm ± 2 mm
Test equipment settings (according to EN ISO 6941:2003): Procedure B – Ignition from the bottom edge (burner tilted 30°)
Air speed: < 0,2 m/s
Type of gas: Commercial propane

Results:

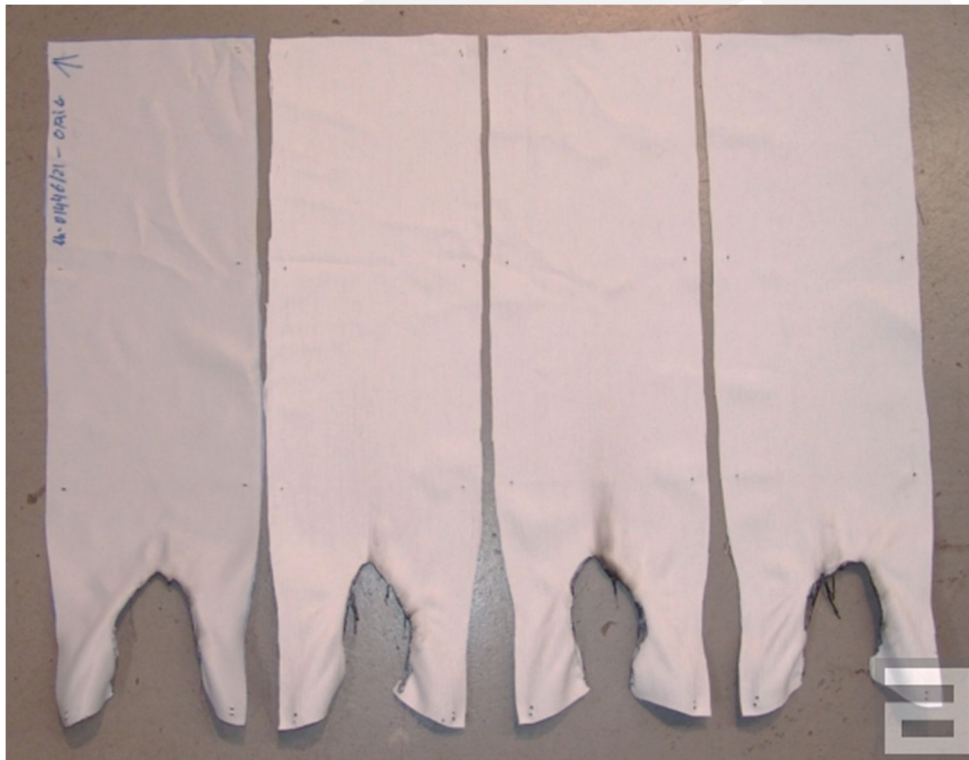
	In as-received conditions							
	Lengthwise / Warp				Widthwise / Weft			
Specimen no.	#1	#2	#3	#4	#1	#2	#3	#4
Tested side	A	B	B	B	A	B	B	B
Time elapsed from flame application to break 1 st marking thread (s)	-	-	-	-	-	-	-	-
Time elapsed from flame application to break 3 rd marking thread (s)	-	-	-	-	-	-	-	-
Uncertainty (s)	-				-			
1 st marking thread breaking	No	No	No	No	No	No	No	No
2 nd marking thread breaking	No	No	No	No	No	No	No	No
3 rd marking thread breaking	No	No	No	No	No	No	No	No
Specimen burns and extinguishes before the 1 st marking thread	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Length of the damaged area (mm)	119	124	120	128	123	127	127	118
Uncertainty (mm)	± 6				± 7			
Ignited dripping or residues burn the filter paper	No	No	No	No	No	No	No	No

	After washing cycles							
	Lengthwise / Warp				Widthwise / Weft			
Specimen no.	#1	#2	#3	#4	#1	#2	#3	#4
Tested side	A	B	B	B	A	B	A	A
Time elapsed from flame application to break 1 st marking thread (s)	-	-	-	-	-	-	-	-
Time elapsed from flame application to break 3 rd marking thread (s)	-	-	-	-	-	-	-	-
Uncertainty (s)	-				-			
1 st marking thread breaking	No	No	No	No	No	No	No	No
2 nd marking thread breaking	No	No	No	No	No	No	No	No
3 rd marking thread breaking	No	No	No	No	No	No	No	No
Specimen burns and extinguishes before the 1 st marking thread	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Length of the damaged area (mm)	121	131	115	124	121	112	127	112
Uncertainty (mm)	± 7				± 12			
Ignited dripping or residues burn the filter paper	No	No	No	No	No	No	No	No

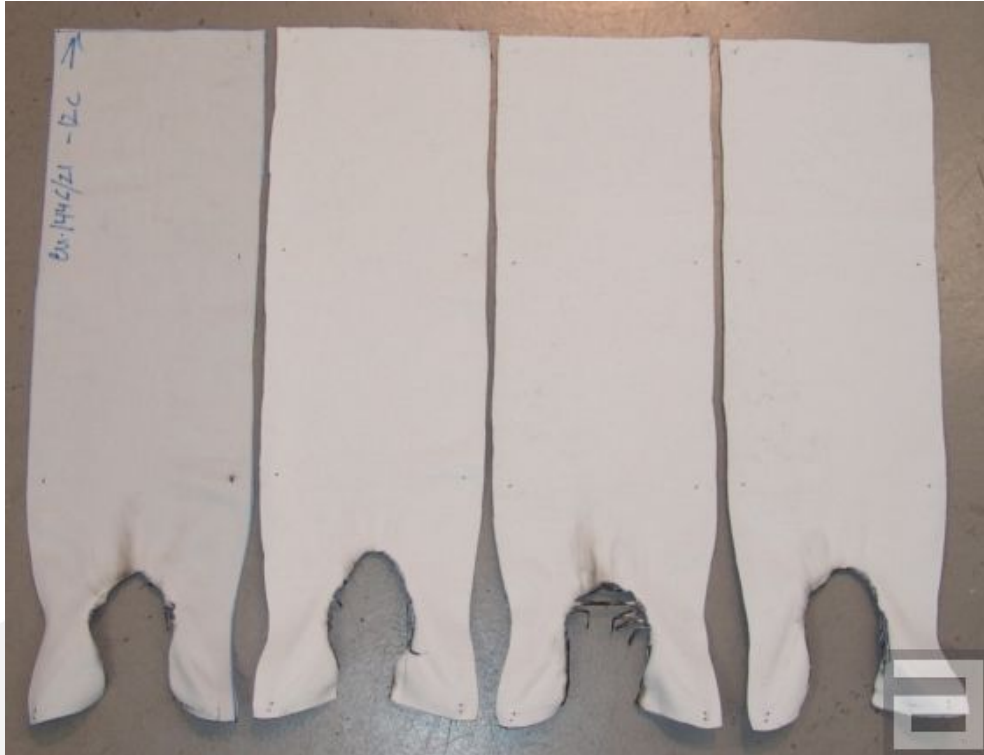
Pictures after testing:



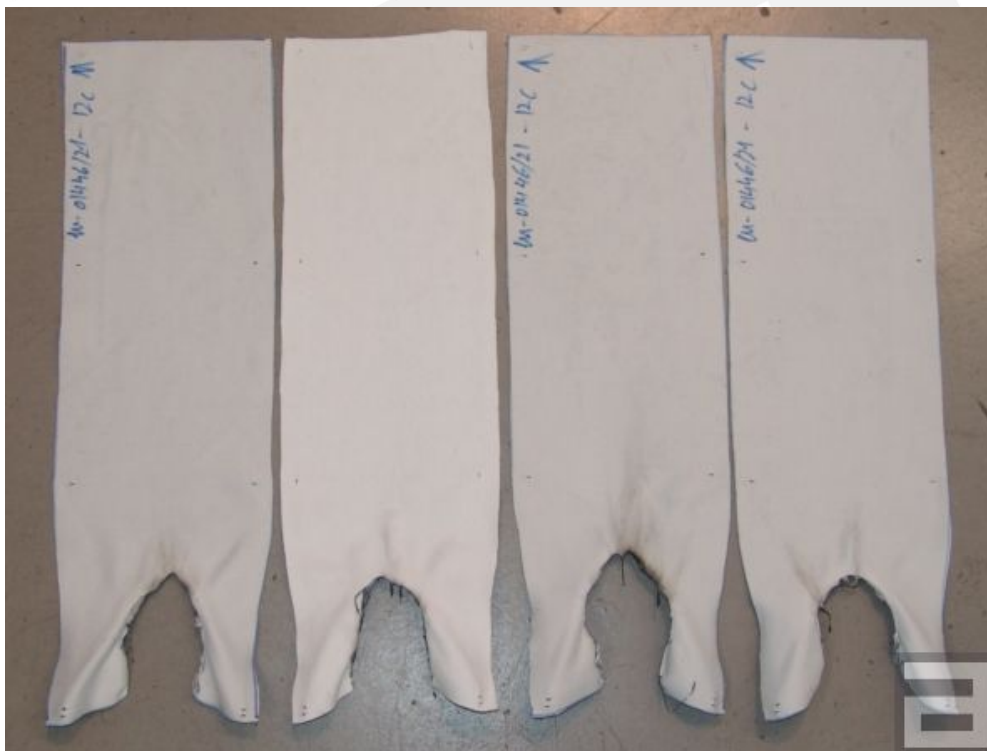
As-received conditions. Direction: Lengthwise / Warp



As-received conditions. Direction: Widthwise / Weft



After washing cycles. Direction: Lengthwise / Warp



After washing cycles. Direction: Widthwise / Weft



**TEXTILES AND TEXTILE PRODUCTS. FIRE BEHAVIOUR.
 CURTAINS AND DRAPERIES. CLASSIFICATION SCHEME**



Test standard:	EN 13773:2003
According to:	N.A.
Date of completion:	July 08 th – 30 th , 2021

Classification criteria, according to EN 13773:2003, section 5, table 1

Class	Flammability	Flame spread
1	Non-ignition according to standard EN 1101:1995/A1:2005	First marking thread unaffected, without traces of flame action, according to the standard EN 13772:2011
2	Non-ignition according to standard EN 1101:1995/A1:2005	Third marking thread unaffected, without traces of flame action, according to the standard EN 13772:2011
3	Non-ignition according to standard EN 1101:1995/A1:2005	Third marking thread affected, and/or traces of flame action, according to standard EN 13772:2011
4	Ignition according to standard EN 1101:1995/A1:2005	Unaffected third marking thread without traces of flame action, according to standard EN 1102:2016
5	Ignition according to standard EN 1101:1995/A1:2005	Affected third marking thread and/or traces of flame action, according to standard EN 1102:2016

CLASSIFICATION	CLASS 1
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SIGNATURE OF AUTHORISED PERSONNEL

	
Advanced Technology Services Technical Manager - Materials Area	Advanced Technology Services Head of Department
Albert Briz	Jordi Jamilena

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