



Flame Retardant fabric for FR-clothing

MADEIRA-320

100% COTTON

320 GSM / TWILL 3/1



| | |
|---------------------|------------------------------------|
| Fabric name | Madeira-320 |
| Fabric weight | 320 ± 10 gsm |
| Composition | 100% Cotton |
| Full width | 152 ± 2 cm |
| Weave | Twil 3/1 |
| Finishes | Flame Retardant |
| Application | FR jackets, trousers and coveralls |
| Washing instruction | |

FR & SPECIAL PROPERTIES

| | | |
|-----------------|--------------------------------------|--------------------|
| Flame retardant | EN ISO 11612 A1 & A2, B1, C1, E3, F1 | 50×75°C ISO 15797 |
| | EN ISO 11611 Class 1 | 50×75°C ISO 15797 |
| Industrial Wash | EN ISO 11612 A1 & A2 | 100×75°C ISO 15797 |

PHYSICAL PROPERTIES

| | | warp | weft |
|---------------------------------------|------------------|-------------|------|
| Tensile strength, N | ISO 13934-1:1999 | 1600 | 1000 |
| Tearing strength, N | ISO 13937-2:2000 | 22 | 17 |
| Dimensional Stability To Washing, max | ISO 5077 | 3% | |
| Abrasion Resistance | ISO 12947-2:1999 | 26,500 rubs | |
| Pilling Resistance | ISO 12945-2:2001 | 3-4 | |

COLOUR FASTNESS

| | | | Light | Mid | Dark | Special |
|---------------------------------|-------------|--------------------|---------------------|-------------------------|-----------------------------|---------|
| | | | Orange, Yellow, Red | Green, Grey, Royal Blue | Dark Navy, Navy, Royal Blue | Black |
| Wash Fastness Method E2S (95°C) | ISO 105-C06 | Colour Change | 4-5 | 4-5 | 4-5 | 4 |
| | | Stain on Polyester | 4-5 | 4-5 | 4 | 4 |
| | | Stain on Cotton | 4 | 4 | 4 | 3-4 |
| Rub Fastness | ISO 105-X12 | Wet | 3 | 3 | 2-3 | 2 |
| | | Dry | 4 | 4 | 4 | 4 |
| Light Fastness | ISO 105-B02 | | 3 | 4 | 4 | 4 |

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CERTIFICATE OF TEST

Certificate of test n°

23EP0116

AITEX declares that the articles:

Given by the company:

“Fabric MADEIRA-320”

According to information supplied by the customer:
Fabric reference: MADEIRA-320
Composition and percentage: 100% Cotton
Weight: 320 gsm
Colour: Dark Navy
Others: FR-Twill 3/1

Shanghai XM Group LTD

Room 2403, 88 Guangxin Road
CN-200063
SHANGHAI

Complies with the requirements of the standard/s:

EN ISO 11612:2015. Protective clothing. Clothing to protect against heat and flame.

| | TEST | RESULTS | | REQUIREMENTS | REPORT No. |
|--------------|----------------------------------------------------------------------------|------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Clause 6.2.1 | Heat resistance (180)°C after 50 washing cycles | Warp: -0,4 % | Weft: -0,4 % | No ignite, no melt and no shrink by more than 5% | 2019CN0658 |
| Clause 6.3 | Limited flame spread as received and after 50 washing cycles (Procedure B) | A2 | | No specimen must ignite toward the top or toward the edges No specimen shall give flaming or molten debris The afterflame time is ≤ 2 s The afterglow time is ≤ 2 s | 2019CN0658 |
| Clause 6.4 | Dimensional change after 5 washing cycles | Warp: -2,0 % | Weft: -2,0 % | ≤ ± 3% | 2019CN0658 |
| Clause 6.5.1 | Tensile strength after 50 washing cycles | Warp: 1500 N | Weft: 970 N | ≥ 300 N | 2019CN0658 |
| Clause 6.5.2 | Tear strength after 50 washing cycles | Warp: 21 N | Weft: 17 N | ≥ 10 N | 2019CN0658 |
| Clause 7.2 | Convective heat after 50 washing cycles | Level B1 HTI ^a 24: 5,6 s | | Level B1 4 ≤ RHTI ^a 24 < 10 | 2019CN0658 |
| Clause 7.3 | Radiant heat after 50 washing cycles | Level C1 RHTI ^a 24: 12,2 s | | Level C1 7 ≤ RHTI ^a 24 < 20 | 2019CN0658 |
| Clause 7.6 | Contact heat after 50 washing cycles | Level F1 t: 7,7 s | | Level F1 5 ≤ t _c < 10 | 2019CN0658 |

Remark: Washing instructions according to Standard EN ISO 15797:2018, table 4, procedure 2 (75°C) and A type drying (tumble drying).

The test results above indicated are shown in the testing report:

2019CN0658

Issued by AITEX on: 19/09/2019.

This document is of application for the tested sample, according to the tests that have been done in the previously mentioned dates in the reports above shown. This does not imply any monitoring or control activity on this product done by AITEX. This document is a test summary and does not imply a product certification.

Signed by: Raquel Muñoz González
Manager Innovation Area



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por ISABEL LLOPIS
LUMBRERAS
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CERTIFICATE OF TEST

Certificate of test n°

23EP0116

AITEX declares that the articles:

Given by the company:

"Fabric MADEIRA-320"

According to information supplied by the customer:
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Composition and percentage: 100% Cotton
Weight: 320 gsm
Colour: Dark Navy
Others: FR-Twill 3/1

Shanghai XM Group LTD

Room 2403, 88 Guangxin Road
CN-200063
SHANGHAI

Complies with the requirements of the standard/s:

EN ISO 11611:2015. Protective clothing. Clothing to protect against heat and flame.

| TEST | | RESULTS | | REQUIREMENTS | REPORT No. |
|-------------|----------------------------------------------------------------------------|-----------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Clause 6.2 | Tensile strength after 50 washing cycles | Warp: 1500 N | Weft: 970 N | ≥ 400 N | 2019CN0658 |
| Clause 6.3 | Tear strength after 50 washing cycles | Warp: 21 N | Weft: 17 N | ≥ 15 N | 2019CN0658 |
| Clause 6.7 | Limited flame spread as received and after 50 washing cycles (Procedure B) | A2 | | No specimen must ignite toward the top or toward the edges No specimen shall give flaming or molten debris The afterflame time is ≤ 2 s The afterglow time is ≤ 2 s | 2019CN0658 |
| Clause 6.6 | Dimensional change after 5 washing cycles | Warp: -2,0 % | Weft: -2,0 % | ≤ ± 3% | 2019CN0658 |
| Clause 6.8 | Small splashes of molten metal after 50 washing cycles | Class 1 22 drops | | Class 1 15 ≤ drops < 25 | 2019CN0658 |
| Clause 6.9 | Radiant heat after 50 washing cycles | Class 1 RHTI ^a 24: 12,2 s | | Class 1 7 ≤ RHTI ^a 24 < 16 | 2019CN0658 |
| Clause 6.10 | Electrical insulation after 50 washing cycles | 4,74·10 ⁷ Ω | | > 10 ⁶ Ω | 2019CN0658 |

Remark: Washing instructions according to Standard EN ISO 15797:2018, table 4, procedure 2 (75°C) and A type drying (tumble drying).

The test results above indicated are shown in the testing report:

2019CN0658

Issued by AITEX on: 19/09/2019.

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Manager Innovation Area



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Test Summary n°

19CN0581

AITEX declares that the articles:

Given by the company:

"FABRIC MADEIRA-320"

Information according to the customer:
Fabric reference: Madeira-320
Composition & percentage: 100% Cotton, FR-Twill 3/1
Weight: 320 gsm
Color: Dark Navy (SG)
Others: FRL-200-JH-LT

SHANGHAI XM GROUP LTD
Room 2403, 88 Guangxin Road
CN-200063
SHANGHAI

Complies with the requirements of the standard/s:

EN ISO 11612:2016 PROTECTIVE CLOTHING. CLOTHING TO PROTECT AGAINST HEAT AND FLAME.

- 6.2 Heat resistance (180)°C – Pass - (x 50 washing cycles, 75 °C, Tumble Dryer A).
- 6.3.2 Limited flame spread. Method A – A1 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.3.3 Limited flame spread. Method B – A2 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.5.1 Tensile strength – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.5.2 Tear Resistance – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.2 Convective heat – B1 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.3 Radiant heat – C1 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.5 Molten iron splash – E3 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.6 Contact heat – F1 - (x 50 washing cycles, 75°C, Tumble Dryer A).

EN ISO 11611:2016 PROTECTIVE CLOTHING FOR USE IN WELDING AND ALLIED PROCESSES.

- 6.2 Tensile strength – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.7.2 Limited flame spread. Method A – A1 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.7.3 Limited flame spread. Method B – A2 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.8 Impact of spatter – Class 2 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.9 Radiant heat – Class 1 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.10 Electrical resistance – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).

Remark: washing instructions according to Standard EN ISO 15797:2018, Table 4 procedure 2 and 50 washing cycles, at 75°C washing temperature and type A drying (tumble dryer).

The test results above indicated are shown in the testing report/s:

2019CN0581

Issued by AITEX on: 29/10/2019

This document is of application for the tested sample, according to the tests that have been done in the previously mentioned dates in the reports above shown. This does not imply any monitoring or control activity on this product done by AITEX.

This document is a test summary and does not imply a product certification.

Signed by: Raquel Muñoz González
Manager Innovation Area



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CERTIFICATE OF TEST

Certificate of test n°

23EP0216

AITEX declares that the articles:

Given by the company:

"MADEIRA-320"

According to information supplied by the customer:
Fabric ref.- MADEIRA-320
Composition and percentage: 100% Cotton, FR-Twill 3/1
Weight: 320 gsm
Colour: Black
Others (if any) 443

XM TEXTILES EUROPE UAB

Darius ir Gireno st. 42A Office 509
LT-02189
Vilnius

Complies with the requirements of the standard/s:

EN ISO 13688:2013 Protective clothing. General requirements.

| Clause | TEST | RESULTS | REQUIREMENTS | REPORT No. |
|--------|---------------------------|---------|----------------|------------|
| 4.2 | Determination of pH value | pH=6.50 | 3.5 < pH < 9.5 | 2023EP0215 |

EN ISO 11612:2015. Protective clothing. Clothing to protect against heat and flame.

| Clause | TEST | RESULTS | REQUIREMENTS | REPORT No. |
|--------|-----------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 6.3 | Limited flame spread as received and after 100 washing cycles (Procedure A) | A1 | No specimen must ignite toward the top or toward the edges No specimen shall give hole formation of 5 mm or greater in any direction No specimen shall give flaming or molten debris The afterflame time is ≤ 2 s The afterglow time is ≤ 2 s | 2023EP0215 |
| | Limited flame spread as received and after 100 washing cycles (Procedure B) | A2 | No specimen must ignite toward the top or toward the edges No specimen shall give flaming or molten debris The afterflame time is ≤ 2 s The afterglow time is ≤ 2 s | 2023EP0215 |

Remark: Washing instructions according to Standard EN ISO 15797:2018, table 4, procedure 2 (75°C) and A type drying (tumble dry).

The test results above indicated are shown in the testing report:

2023EP0215

Issued by AITEX on: 23/02/2023.

This document is of application for the tested sample, according to the tests that have been done in the previously mentioned dates in the reports above shown. This does not imply any monitoring or control activity on this product done by AITEX. This document is a test summary and does not imply a product certification.

Signed by: Raquel Muñoz González
Manager Innovation Area

Test Summary nº

19CN0581

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Given by the company

"FABRIC MADEIRA-320"

Information according to the customer:
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Composition & percentage: 100% Cotton, FR-Twill 3/1
Weight: 320 gsm
Color: Dark Navy (SG)
Others: FRL-200-JH-LT

SHANGHAI XM GROUP LTD
Room 2403, 88 Guangxin Road
CN-200063
SHANGHAI

Complies with the requirements of the standard/s

EN ISO 11612:2016 PROTECTIVE CLOTHING. CLOTHING TO PROTECT AGAINST HEAT AND FLAME.

- 6.2 Heat resistance (180)°C – Pass - (x 50 washing cycles, 75 °C, Tumble Dryer A).
- 6.3.2 Limited flame spread. Method A – A1 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.3.3 Limited flame spread. Method B – A2 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.5.1 Tensile strength – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.5.2 Tear Resistance – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.2 Convective heat – B1 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.3 Radiant heat – C1 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.5 Molten iron splash – E3 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 7.6 Contact heat – F1 - (x 50 washing cycles, 75°C, Tumble Dryer A).

EN ISO 11611:2016 PROTECTIVE CLOTHING FOR USE IN WELDING AND ALLIED PROCESSES.

- 6.2 Tensile strength – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.7.2 Limited flame spread. Method A – A1 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.7.3 Limited flame spread. Method B – A2 – (as received and after 50 washing cycles, 75°C, Tumble Dryer A).
- 6.8 Impact of spatter – Class 2 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.9 Radiant heat – Class 1 - (x 50 washing cycles, 75°C, Tumble Dryer A).
- 6.10 Electrical resistance – Pass - (x 50 washing cycles, 75°C, Tumble Dryer A).

Remark: washing instructions according to Standard EN ISO 15797:2015, Table 4 procedure 2 and 50 washing cycles, at 75°C washing temperature and type A drying (tumble dryer).

The test results above indicated are shown in the testing report/s:

2019CN0581

Issued by AITEX on: 20/10/2019

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