

TEST REPORT

2020EP3118

DATE OF RECEPTION

17/12/2020

DATE TESTS

Starting: 17/12/2020

Ending: 23/12/2020

APPLICANT

ARITEKS BOYACILIK TICATET VE SANAYI AS
Hekimsuyu Cad No:36
TR-34250 ISTANBUL
KUCUKKOY

Att. IbrahimSusin

IDENTIFICATION AND DESCRIPTION OF SAMPLES

REFERENCES

ArWoWear 260 Moda Pro- 5277

TESTS CARRIED OUT

- PRE-TREATMENT FOR DOMESTIC WASHING AND DRYING PROCEDURES FOR TEXTILE TESTING.
- ELECTRIC ARC TEST.



SAMPLE DESCRIPTION

PHOTOGRAPHY

Numero de muestras analizadas

1

Numero de fotos

1



Reference ⁽¹⁾

ArWoWear 260 Moda Pro- 5277

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RESULTS

PRE-TREATMENT FOR DOMESTIC WASHING AND DRYING PROCEDURES FOR TEXTILE TESTING

Standard

ISO 6330:2012

Standard deviation

Reference

Sample1 ArWoWear 260 Moda Pro- 5277

Units

1

Equipment Wascator 13492E12

Dryer machine ELECTROLUX
13430E12

Washing procedure 4N **Washing cycles** 5

Drying procedure

F (tumble dryer)

Washing powder

ECE detergent 98 + sodium perborate + TAED

Units	Dry mass of the samples	Counterweight mass	Equipment
1	0,920 Kg	1,000 Kg of Polyester	Wascator 13492E12

Start and finish date

18/12/2020 - 18/12/2020

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RESULTS

ELECTRIC ARC TEST

Standard	EN 61482-1-2: 2014 equivalent to IEC 61482-1-2: 2014
Principle of the Box test method	Determine the behaviour of materials against to thermal risk when exposed to heat energy from electric arc with specific characteristics Materials performance for this procedure is determined from the amount of the heat transmitted through the specimen and other thermal parameters
Sample type	Woven fabric, black colour with a weight does not provided by the customer

Test conditions	
Class	Class 1
Testing atmosphere	22,00 °C 43,00 % RH
Test current I_{class} for class 1	4 kA \pm 5%
Calibration test current	3645,08 A
Average direct exposure incident energy E_{i0}	158,6 kJ/m ²
Arc duration	500 ms \pm 5%
Average real arc duration	475,8 ms
Test voltage	400 V \pm 5%
Average real test voltage	395,02 V
Average real Arc Energy W_{arc}	176,99 kJ

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RESULTS

ELECTRIC ARC TEST

Test conditions	
Gap between electrodes	(30 ± 1) mm
Distance between the electrodes and sample	(300 ± 5) mm

Electrodes type

Electrodes Cu/Al

Measurement uncertainty

Temperature 17% of the measured value in °C

Equivalent energy 17% of the measured value in kJ/m²

Time ± 0,390 s

Technician performing the test

David Lazaro

Person verifying the test report

Lucía Martínez

Pre-treatment

5 washing cycles at 40°C, according to standard ISO 6330:2012, method 4N; and F drying

Pre-conditioning of the test specimens

24h. in indoor ambient conditions between (18-28)°C and between (45-75)% RH

Starting and ending pre-conditioning date

22/12/2020 - 23/12/2020

Observation or deviation of the standard

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RESULTS

ELECTRIC ARC TEST

Testing date 23/12/2020
Reference ArWoWear 260 Moda Pro- 5277
VISUALLY OBTAINED DATA

Property	Measurement	Specimen 1	Specimen 2	Specimen 3	Specimen 4
	Class	1	1	1	1
Burning time	Video	0,00 s	0,00 s	0,00 s	0,00 s
Hole formation >5mm	Visual	No	No	No	No
Melting through to the inner side	Visual	No	No	No	No
Embrittlement	Visual	No	No	No	No
Damage on the outside	Visual	No	No	No	No
Charring on the outside	Visual	Yes	Yes	Yes	Yes
Dripping	Visual	No	No	No	No
Shrinkage	Calculated	No	No	No	No

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RESULTS

ELECTRIC ARC TEST

Reference

ArWoWear 260 Moda Pro- 5277

COMPUTER OBTAINED DATA

Class 1				
Property	Specimen 1	Specimen 2	Specimen 3	Specimen 4
Transmitted incident energy E_{it}	48,24 kJ/m ²	48,32 kJ/m ²	39,24 kJ/m ²	43,47 kJ/m ²
Time to delta peak temperature t_{max}	29,75 s	29,62 s	29,87 s	29,58 s
Delta peak temperature ΔT_p	8,74 °C	8,75 °C	7,11 °C	7,87 °C
Differences ΔE_i of the transmitted energy values to the Stoll limit value at t_{max}	-86,10 kJ/m ²	-85,85 kJ/m ²	-95,25 kJ/m ²	-90,64 kJ/m ²
Maximum difference between the transmitted energy E_{it} to the Stoll energy E_{iSTOLL} in $t_i^{(1)}$	-39,07 kJ/m ²	-39,73 kJ/m ²	-41,99 kJ/m ²	-41,97 kJ/m ²
Excess of the Stoll curve by the heat curve of the transmitted incident energy $E_{it}(t)$	No	No	No	No

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RESULTS

ELECTRIC ARC TEST

Remark

t_i is the time where the difference between the transmitted incident energy E_{it} and the Stoll Energy E_{iSTOLL} is maximum.

⁽¹⁾ Interpretation: In negative value, a higher difference implies a better behavior. In positive value, a less difference implies a better behavior, considering that the material fails the test.

**IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA ACCORDING TO
EN 61482-1-2:2014, FOR CLASS 1**

PASS

CATEGORY OF ARC THERMAL PROTECTION ACCORDING TO IEC 61482-2:2018 ⁽²⁾APC 1

Remark

⁽²⁾Arc Protection Class

The arc protection class is characterized by the test energy level of arc exposure (arc energy and incident energy)

Requirement for the standard compliance EN 61482-1-2:2014

- | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a) Burning time ≤ 5 s. |
| b) No melting through to the inner side. |
| c) No hole bigger than max. 5 mm. in any direction in the innermost layer. |
| d) All four pairs of values ($E_{it} - t_{max}$) are below corresponding Stoll values, and all four heat curves $E_{it}(t)$ of transmitted energy are at any moment of time "t" of the exposure period below Stoll curve. |

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RESULTS

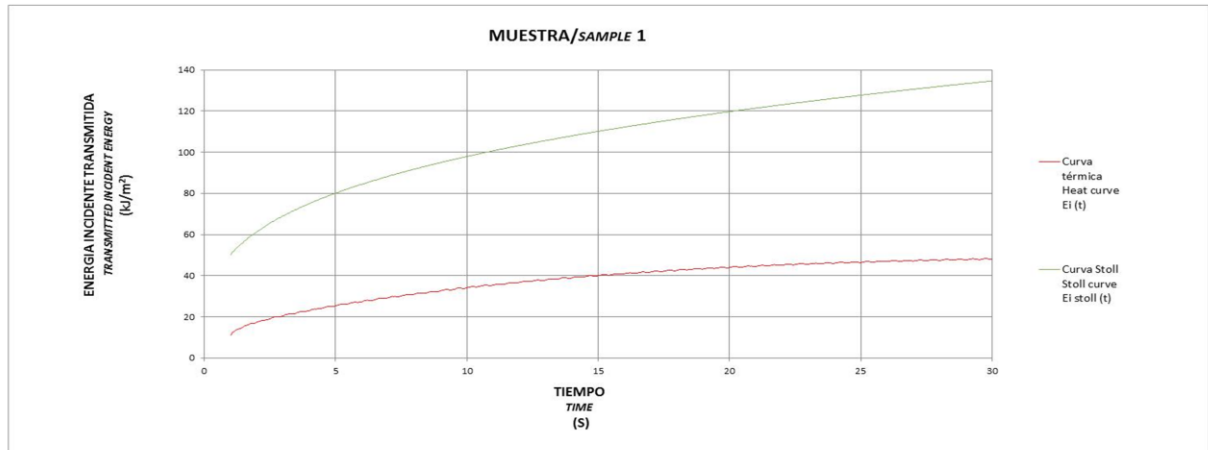
ELECTRIC ARC TEST

STOLL CURVES

Specimen 1

Reference

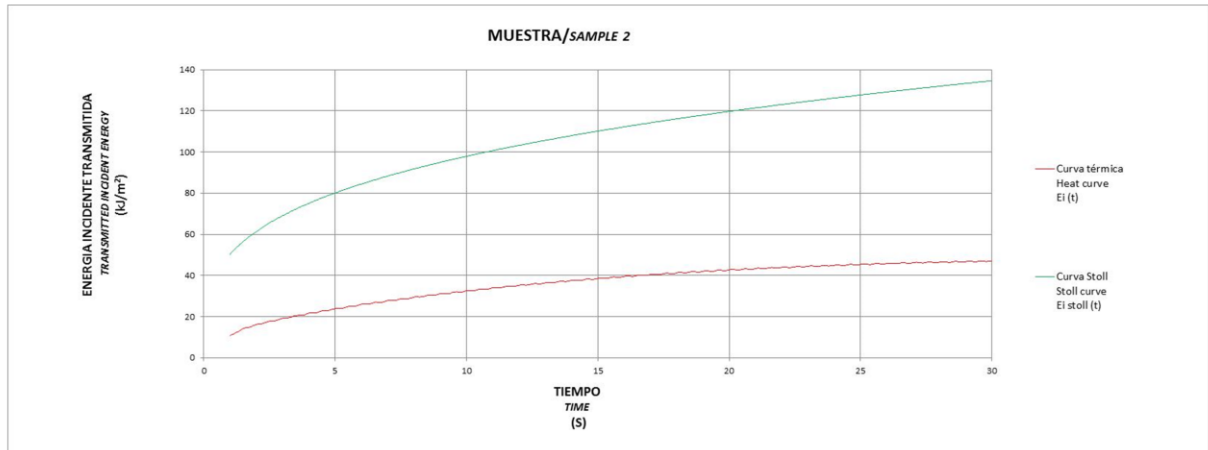
1- ArWoWear 260 Moda Pro- 5277



Specimen 2

Reference

2- ArWoWear 260 Moda Pro- 5277



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RESULTS

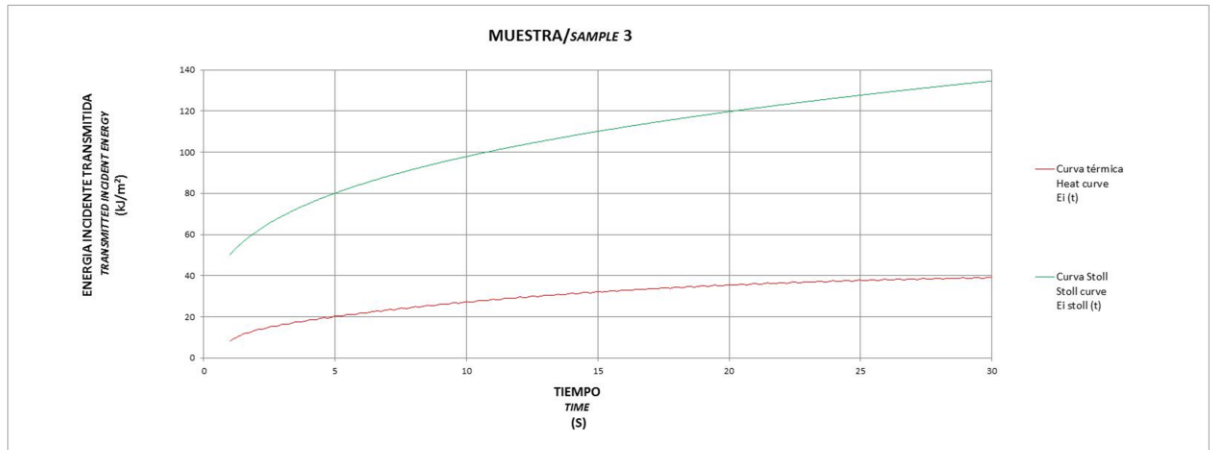
ELECTRIC ARC TEST

STOLL CURVES

Specimen 3

Reference

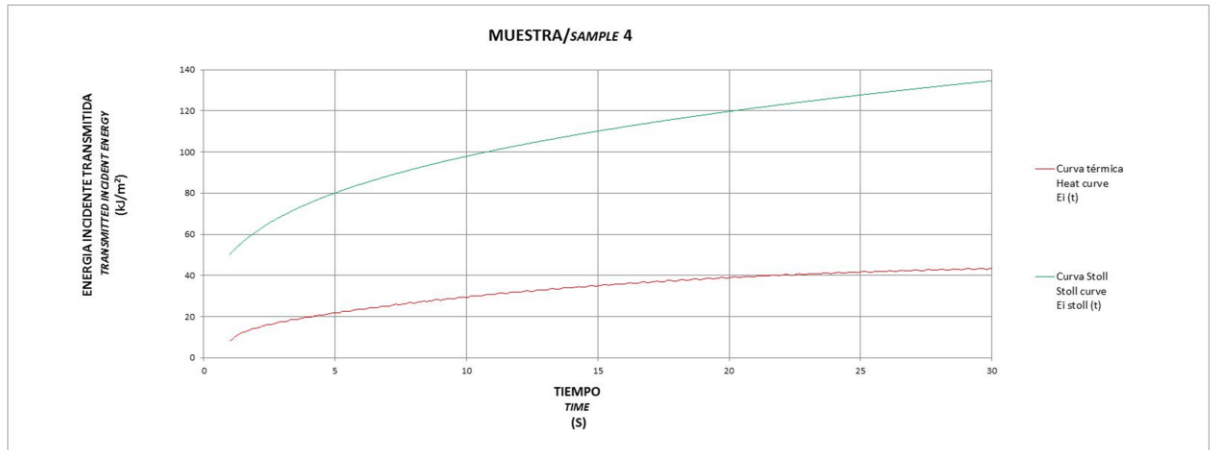
3- ArWoWear 260 Moda Pro- 5277



Specimen 4

Reference

4- ArWoWear 260 Moda Pro- 5277



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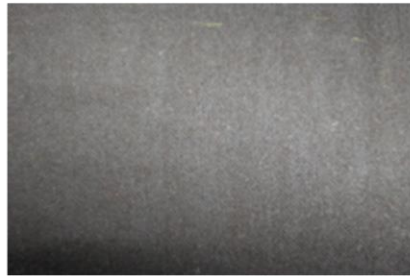
RESULTS

ELECTRIC ARC TEST

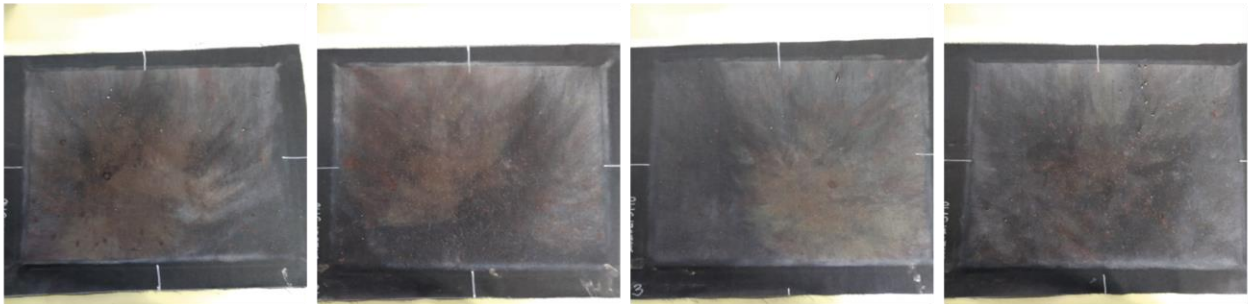
Reference

ArWoWear 260 Moda Pro- 5277

Original material



Tested material



Remark

The electric arc test is performed in: Cr. Villaviciosa de Odón a Móstoles (M-856) Km. 1,5 Móstoles 28935.

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Lucia Martinez
Head of PPE and Ballistics department

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