

TEST REPORT

N° **2017CO2861**

DATE OF RECEPTION	15/09/2017	APPLICANT DICKSON PTL ZI des Chartinieres DAGNEUX FRANCE Att. ALICE BLANC
DATE TEST	Starting: 18/09/2017 Ending: 22/09/2017	

DESCRIPTION AND IDENTIFICATION OF SAMPLES	SAMPLES REFERENCED: -"FABRIC 4585".
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TESTS CARRIED OUT	<ul style="list-style-type: none"> - HEAT RESISTANCE - LIMITED FLAME SPREAD - FABRIC TENSILE STRENGTH AND RUPTURE ELONGATION - DETERMINING OF HEAT TRANSMISSION ON EXPOSURE TO FLAME - DETERMINATION OF FLEX ALUMINIUM - RADIANT HEAT - ASSESSMENT OF RESISTANCE OF MATERIALS TO MOLTEN METAL SPLASHES - ASSESSMENT OF RESISTANCE OF MATERIALS TO MOLTEN METAL SPLASH - CONTACT HEAT - LIMITED FLAME SPREAD <p>ENAC is a signatory to the Multilateral Agreement (MLA), (MRA Mutual Recognition Agreement) of the European Cooperation for Accreditation (EA) and the International Laboratory Accreditation Cooperation (ILAC), in testing.</p>
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RESULTS

HEAT RESISTANCE

Standard

ISO 17493:2000

Apparatus

Air stove

Temperature

(180 ± 5) °C

Length of the test

5 min (+0,15/-0) min

Deviation from the Standard

Test uncertainty

± 0,6 %

Pre-treatment

Original

Tested material

Aluminized fabric joined to green woven fabric.

Reference

FABRIC 4585

Flame	Melting	Shrink (-)	Elongation (+)
No	No	Warp Weft	-1,4 % +0,2 %
No	No	Warp Weft	-1,7 % 0,0 %
No	No	Warp Weft	-1,9 % -0,2 %

PERFORMANCE LEVEL ACCORDING TO EN ISO 11612:2015	PASS
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Requisites to meet according to EN ISO 11612:2015

a) No layer can ignite.
b) No layer can melt.
c) No layer shrinks more than 5%



RESULTS

LIMITED FLAME SPREAD

Standard

EN ISO 15025:2002 (Method A)

Apparatus

Equipment for determination of limited flame spread 13008IE12

Original test date

20/09/2017

Conditioned

24h in indoor ambient conditions at 20 ± 2 °C and 65 ± 5 % HR

Original ambient conditions test

23,5°C and 43,9% HR

Gas used

Propane gas

Deviation from the standard

Face exposed to the flame

Outer surface

Tested material

Aluminized fabric joined to a green woven fabric.

Test uncertainty

$\pm 0,29$ s

Reference

FABRIC 4585

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RESULTS

Pre-Treatment As received

Specimen	1	2	3	4	5	6
Direction	Warp			Weft		
Flaming to top or either side edge	No	No	No	No	No	No
After flame time (s)	0	0	0	0	0	0
Afterglow time (s)	0	0	0	0	0	0
Loose waste	No	No	No	No	No	No
Inflammation of the filter paper detached from waste	No	No	No	No	No	No
Hole formation	No	No	No	No	No	No

PERFORMANCE LEVEL ACCORDING EN ISO 11612:2015 A1

Requisites to be met according to EN ISO 11612:2015

a) No specimen shall give flaming to top or either side edge
b) No specimen shall give hole formation in any layer of 5 mm or greater in any direction.
c) No specimen shall give flaming or molten debris
d) The afterflame time is ≤ 2 s
e) The afterglow time is ≤ 2 s

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RESULTS

FABRIC TENSILE STRENGTH AND RUPTURE ELONGATION

Standard

EN ISO 13934-1:2013

Apparatus

INSTRON Dynamometer

Gauge length Warp 20 mm **Gauge length Weft** 200 mm

Rate of extensión

100 mm/min

Pretension of

Warp 10 N **Weft** 10 N

Atmosphere for conditioning and testing

Temperature (20±2) °C **Relative humidity** (65±4) %

N° of specimens

Tested 5 for each direction **Rejected** 0

Reference	FABRIC 4585			
Direction	Maximum average load (N)	C.V. (%)	Average elongation (%)	C.V. (%)
Warp	2900	1.0	6.4	1.2
	2900		6.6	
	2900 2900		6.6 6.4	
	2900		6.4	
	2900		6.4	
Weft	2700	2.0	22.5	1.4
	2800		22.5	
	2700 2700		22.0 22.5	
	2600		22.0	
	2700		22.5	

Remark

The relative expanded uncertainty of Tensile strength resistance is ±2% assay value of the measured, for a probability of coverage of 95%.

REQUISITE ACCORDING TO EN ISO 11612:2015

The material must resist a breaking load in both directions ≥ 300 N.

PASS



RESULTS

DETERMINATION OF TEAR RESISTANCE

Standard

EN ISO 13937-2:2000

Apparatus

INSTRON Dynamometer

Atmosphere for conditioning and testing

Temperature	(20±2) °C	Relative humidity	(65±4) %
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N° of specimens

Tested	5 for each direction	Rejected	0
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The calculation of averages has been made:

For electronic device

Reference	Tear	Resistance (N)	C.V. (%)
FABRIC 4585	Warp	120	5.0
		130	
		130 130	
		130	
		140	
	Weft	98	6.3
		120	
		110 110	
		100	
		110	

Remark

The relative expanded uncertainty of Tear resistance is ±3.9% assay value of the measured, for a probability of coverage of 95%.

REQUISITE ACCORDING TO EN ISO 11612:2015

The external material must resist a determination of tear resistance in both directions ≥ 10 N.

PASS

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RESULTS

REQUISITE ACCORDING TO IEC 61482-2:2009

The woven outer material shall have a tear resistance of at least 15 N (for weight higher than 220 g/m²) or at least 10 N (for weight within 150 g/m² and 220 g/m²).

PASS



RESULTS

DETERMINING OF HEAT TRANSMISSION ON EXPOSURE TO FLAME

Standard

ISO 9151:1995

Apparatus

Convective heat

Heat flux density80,84 kW/m²**Pre-Treatment**

Original

Conditioned

24h in indoor ambient conditions at 20 ± 2 °C and 65 ± 5 % HR

Ambient conditions test

23,7°C and 42,4% HR

Deviation from the Standard

Test date

20/09/2017

Tested material

Aluminized fabric joined to a green woven fabric.

Test uncertainty

± 0,14 s

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RESULTS

Reference	Specimen	Range of HTI ^a 12 values (s)	Range of HTI ^a 24 values (s)
FABRIC 4585	1	3,0	5,4
	2	3,2	6,1
	3	3,4	6,3
	Classification value	3,0	5,4
	Average	3,2	5,9

PERFORMANCE LEVEL ACCORDING EN ISO 11612:2015 B1

Results in according with standard EN ISO 11612:2015

Performance level	Range of HTI ^a 24 values (s)	
	Minimum	Maximum
B1	4,00	< 10,0
B2	10,0	< 20,0
B3	20,0	

^a: Heat transfer index, as defined in ISO 9151

These results have been obtained according by a test method intended solely to rank the material and are not necessarily applicable to actual fire conditions.

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RESULTS

DETERMINATION OF FLEX ALUMINIUM

Standard

EN ISO 11612:2015 Anexo A

Test initial and finish date

19/09/2017 - 20/09/2017

Used apparatus

Equipo envejecimiento mecánico para materiales aluminizados 13028N01

Reference

Sample 1 FABRIC 4585

Nº of cycles	2.500
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Observations

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RESULTS

RADIANT HEAT

Standard

EN ISO 6942:2002, method B

Apparatus

Equipment for the determination of radiant heat

Heat flux density

19,61 kW/m²

Pre-Treatment

Original

Conditioned

24h in indoor ambient conditions at 20 ± 2 °C and 65 ± 5 % HR

Ambient conditions test

25,1 °C and 50,0 % HR

Deviation from the Standard

Test date

22/09/2017

Tested material

Aluminized fabric joined to a green woven fabric.

Test uncertainty

± 0,34 s

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RESULTS

Reference	FABRIC 4585		
Specimen	RHTI 12 (s)	RHTI 24 (s)	TF (%)
1	29,8	58,5	12,0
2	32,2	61,1	12,0
3	29,8	57,6	12,0
Classification value	29,8	57,6	12,0
Average	30,6	59,1	12,0

PERFORMANCE LEVEL ACCORDANCE WITH STANDARD EN ISO 11612:2015 C3

Results in accordance with Standard EN ISO 11612:2015

Performance level	Range of RHTI ^a 24 values	
	Minimum	Maximum
C1	7,0	< 20,0
C2	20,0	< 50,0
C3	50,0	< 95,0
C4	95,0	

^a: Heat transfer index, as defined in ISO 6942

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RESULTS

ASSESSMENT OF RESISTANCE OF MATERIALS TO MOLTEN METAL SPLASHES

Standard

EN ISO 9185:2007

Apparatus

Equipment for molten metal splashes test

Metal

Aluminium

Pouring temperature
 $(780 \pm 20) ^\circ\text{C}$
Pouring angle
 $(60 \pm 1) ^\circ$
Pouring height
 $(225 \pm 5) \text{ mm}$
Pre-treatment

Deviation from the Standard

As received

Tested material

Aluminized fabric joined to a green knitted fabric

Reference		FABRIC 4585			
Mass of metal used (g)	Mass of metal pouring (g)	Ignition	Puncture	Metal adhered to fabric	Assessment of PVC film
360	352	No	No	Yes	Not damaged
361	352	No	No	Yes	Not damaged
359	351	No	No	Yes	Not damaged
359	351	No	No	No	Not damaged

PERFORMANCE LEVEL ACCORDING TO STANDARD EN ISO 11612:2015 D3

Results interpretation according to standard EN ISO 11612:2015

Performance levels	Molten aluminium (g)	
	Min.	Max.
D1	100	< 200
D2	200	< 350
D3	350	



RESULTS

ASSESSMENT OF RESISTANCE OF MATERIALS TO MOLTEN METAL SPLASH

Standard

EN ISO 9185:2007

Apparatus

Equipment for molten metal splashes test

Metal

Iron

Pouring temperature

(1400 ± 20) °C

Pouring angle

(75 ± 1) °

Pouring height

(225 ± 5) mm

Pre-treatment

Original

Deviation from the Standard

Tested material

Aluminized fabric joined to a green knitted fabric

Reference		FABRIC 4585			
Mass of metal used (g)	Mass of metal pouring (g)	Ignition	Puncture	Metal adhered to fabric	Assessment of PVC film
209	209	No	No	No	Not damaged
210	210	No	No	No	Not damaged
209	209	No	No	No	Not damaged
209	209	No	No	No	Not damaged

PERFORMANCE LEVEL ACCORDING WITH STANDARD EN ISO 11612:2015 E3

Results interpretation according to EN ISO 11612:2015

Performance levels	Molten iron (g)	
	Min.	Max.
E1	60	< 120
E2	120	< 200
E3	200	

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RESULTS

CONTACT HEAT

Standard

ISO 12127-1:2007

Apparatus

ÖTI CONTACT HEAT PROTECTION TESTER

Conditioned

24h in indoor ambient conditions at 20 ± 2 °C and 65 ± 5 % HR

Ambient conditions test

23,9 °C and 47,8 % HR

Pre-Treatment

Original

Deviation from the Standard

Test date

20/09/2017

Tested material

Aluminized fabric joined to a green woven fabric.

Test uncertainty

$\pm 0,13$ s

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RESULTS

Reference	FABRIC 4585	
Specimen	Contact temperature Tc (°C)	Threshold time T (s)
1	250	8,50
2	250	8,51
3	250	8,44
Classification value	250	8,44
Average	250	8,5

PERFORMANCE LEVEL ACCORDING TO STANDARD EN ISO 11612:2015 F1

Requisites according to standard EN ISO 11612:2015

Performance levels	Threshold time (s)	
	Minimum	Max.
F1	5,0	< 10,0
F2	10,0	< 15,0
F3	15,0	



RESULTS

LIMITED FLAME SPREAD

Standard

EN ISO 15025:2002 (Method A)

Apparatus

Equipment for determination of limited flame spread 13008IE12

Original test date

20/09/2017

Conditioned

24h in indoor ambient conditions at 20 ± 2 °C and 65 ± 5 % HR

Original ambient conditions test

23,5°C and 43,9% HR

Gas used

Propane gas

Deviation from the standard

Face exposed to the flame

Inner surface

Tested material

Aluminized fabric joined to a green woven fabric.

Test uncertainty

$\pm 0,29$ s

Reference

FABRIC 4585

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RESULTS

Pre-Treatment As received

Specimen	1	2	3	4	5	6
Direction	Warp			Weft		
Flaming to top or either side edge	No	No	No	No	No	No
After flame time (s)	0	0	0	0	0	0
Afterglow time (s)	0	0	0	0	0	0
Loose waste	No	No	No	No	No	No
Inflammation of the filter paper detached from waste	No	No	No	No	No	No
Hole formation	No	No	No	No	No	No

PERFORMANCE LEVEL ACCORDING EN ISO 11612:2015 A1

Requisites to be met according to EN ISO 11612:2015

a) No specimen shall give flaming to top or either side edge
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Begoña Pico
Head of Public Tenders Dept.

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