aitex
textile research institute

ilac-MRA ENAC ENSAYOS
Nº12/LE025
Nº12/LE427
Tests marked with * are not included within the scope of the accreditation

TEST REPORT

Nº 2014US0230

DATE OF RECEPTION: 31/10/2014

DATE TEST: Starting: 19/11/2014
Ending: 10/12/2014

APPLICANT

NEWTEX INDUSTRIES, INC
8050 Victor Mendon Rd,
NY-14564 Victor
New York

Att. LAURA PRITCHARD

DESCRIPTION AND IDENTIFICATION OF SAMPLES

SAMPLES REFERENCED:

-"FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON".

ALUMINIZED FABRIC (1ST LAYER), BLACK PADDING (2ND LAYER), ALUMINIZED FABRIC (3RD LAYER), PADDING (4TH LAYER), ALUMINIZED FABRIC (5TH LAYER), PADDING (6TH LAYER) AND WOVEN BEIGE FABRIC (7TH LAYER).

TESTS CARRIED OUT

- HEAT RESISTANCE
- LIMITED FLAME SPREAD
- DETERMINATION OF BREAKING STRENGTH AND ELONGATION
- DETERMINATION OF TEAR RESISTANCE
- METHOD OF DETERMINING HEAT TRANSMISSION ON EXPOSURE TO FLAME
- RADIANT HEAT
- ASSESSMENT OF RESISTANCE OF MATERIALS TO MOLTEN METAL SPLASH
- CONTACT HEAT

ATTACHED --- SAMPLE(S) SEALED

Central: Plaza Emilio Sala, 1
E-03801 ALCOY (Alicante) SPAIN
Tel.:+34 96 554 22 00
Fax: +34 96 554 34 94

Technical Units: Paterna: Tel. 96 131 81 93 Fax: 96 131 81 83
Alcoy: Calle Sant Jordi,13 Tel.:+34 96 554 22 00

www.aitex.es
www.observatoriotextil.com
info@aitex.es

RESULTS

HEAT RESISTANCE

Standard
ISO 17493:2000

Apparatus
Air stove

Temperature
(180 ± 5) ºC

Deviation from the Standard

Test uncertainty
± 0,6 %

Pre-treatment

Tested material
Assembly: Aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and beige woven fabric.

Measured surface
Outer surface

Reference		FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON	
Flame	**Melting**	**Shrink**	
No	No	Warp Weft	0,0 % -0,2 %
No	No	Warp Weft	-0,1 % -0,1 %
No	No	Warp Weft	-0,3 % 0,0 %

PERFORMANCE LEVEL ACCORDING TO UNE-EN ISO 11612:2010	PASS

Requisites to meet according to UNE-EN ISO 11612:2010

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

RESULTS

HEAT RESISTANCE

Standard
ISO 17493:2000

Apparatus
Air stove

Temperature
(180 ± 5) ºC

Deviation from the Standard

Test uncertainty
± 0,6 %

Pre-treatment

Tested material
Assembly: Aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and beige woven fabric.

Measured surface
Inner surface

Reference		FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON	
Flame	**Melting**	**Shrink**	
No	No	Warp Weft	0,0 % -0,8 %
No	No	Warp Weft	-0,4 % -0,1 %
No	No	Warp Weft	-0,7 % -0,1 %

PERFORMANCE LEVEL ACCORDING TO UNE-EN ISO 11612:2010	PASS

Requisites to meet according to UNE-EN ISO 11612:2010

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

RESULTS

LIMITED FLAME SPREAD

Standard

UNE-EN ISO 15025:2003 (Method A)

Apparatus

Equipment for determination of limited flame spread 13008IE12

Original test date

28/11/2014

Conditioned

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

Original ambient conditions test

22,0ºC and 45,0% HR

Gas used

Propane

Deviation from the standard

Face exposed to the flame

Outer surface

Tested material

Assembly: aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and woven beige fabric.

Test uncertainty

± 0,29 s

>>>

RESULTS

Reference FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON

Pre-Treatment Original fabric

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)	0,00	0,00	0,00	0,00	0,00	0,00
Afterglow time (s)	0,00	0,00	0,00	0,00	0,00	0,00
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 UNE-EN ISO 11612:2010 A1

Requisites to be met according to UNE-EN ISO 11612:2010

a) No specimen shall give flaming to top or either side edge
b) No specimen shall give hole formation in any layer
c) No specimen shall give flaming or molten debris
d) The mean value of after flame time shall be ≤ 2 s
e) The mean value of afterglow time shall be ≤ 2 s

///

RESULTS

LIMITED FLAME SPREAD

Standard

UNE-EN ISO 15025:2003 (Method A)

Apparatus

Equipment for determination of limited flame spread 13008IE12

Original test date

28/11/2014

Conditioned

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

Original ambient conditions test

22,0ºC and 45,0% HR

Gas used

Propane

Deviation from the standard

Face exposed to the flame

Inner surface

Tested material

Assembly: aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and woven beige fabric.

Test uncertainty

± 0,29 s

>>>

RESULTS

Reference FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON

Pre-Treatment Original fabric

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)	0,00	0,00	0,00	0,00	0,00	0,00
Afterglow time (s)	0,00	0,00	0,00	0,00	0,00	0,00
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 UNE-EN ISO 11612:2010 A1

Requisites to be met according to UNE-EN ISO 11612:2010

a) No specimen shall give flaming to top or either side edge
b) No specimen shall give hole formation in any layer
c) No specimen shall give flaming or molten debris
d) The mean value of after flame time shall be ≤ 2 s
e) The mean value of afterglow time shall be ≤ 2 s

///

RESULTS

DETERMINATION OF BREAKING STRENGTH AND ELONGATION

Standard

UNE-EN ISO 13934-1:2013

Apparatus

INSTRON Dynamometer

Gauge length

200 m

Rate of extension of Warp

100 mm/min

Rate of extension of Weft

20 mm/min

Pretension

Warp 10 N **Weft** 10 N

Atmosphere for conditioning and testing

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

Nº of specimens

Tested 5 for each direction **Rejected** 0

Reference	FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON			
Direction	**Average load (N)**	**CV (%)**	**Elongation to the maximum load (%)**	**CV (%)**
Warp	3400	6,0	9,0	2,4
Weft	3200	6,0	6,0	3,2

REQUISITE ACCORDING TO STANDARD UNE-EN ISO 11612:2010
The material must resist a breaking load in both directions ≥ 300 N.

PASS

RESULTS

DETERMINATION OF TEAR RESISTANCE

Standard
UNE-EN ISO 13937-2:2001

Apparatus
INSTRON Dynamometer

Atmosphere for conditioning and testing
Temperature (20±2) ºC **Relative humidity** (65±4) %

Nº of specimens
Tested 5 for each direction **Rejected** 0

The calculation of averages has been made
For electronic device

Reference	Tear	Average load (N)	CV (%)
FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON	Warp	150	1.7
	Weft	180	4.2

Remarks
The test was conducted with specimens of great width (200x200mm).

REQUISITE ACCORDING TO STANDARD UNE-EN ISO 11612:2010
The external material must resist a determination of tear resistance in both directions ≥ 15 N.

PASS

>>>

RESULTS

METHOD OF DETERMINING HEAT TRANSMISSION ON EXPOSURE TO FLAME

Standard
ISO 9151:1995

Apparatus
Convective heat

Heat flux density
79,21 kW/m^2

Pre-Treatment

Conditioned
24h in indoor ambient conditions at 20 ± 2 ºC and 65 ± 5 % HR

Ambient conditions test
22,7 ºC and 49,0 % HR

Deviation from the Standard

Test date
01/12/2014

Tested material
Aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and woven beige fabric

Test uncertainty
± 0,36 s

RESULTS

Reference	Specimen	Range of HTI[a] 12 values (s)	Range of HTI[a] 24 values (s)
FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON	1	> 60,0(*)	> 60,0(*)
	2	> 60,0(*)	> 60,0(*)
	3	> 60,0(*)	> 60,0(*)
	Result	**> 60,0(*)**	**> 60,0(*)**

Remark

(*)The equipment was unable to measure a temperature increase of 12 and 24 degrees in less than 60 seconds

PERFORMANCE LEVEL ACCORDING TO STANDARD UNE-EN ISO 11612:2010	**B3**

Results in according with standard UNE-EN ISO 11612:2010

Performance level	Range of HTI[a] 24 values (s)	
	Minimum	**Maximum**
B1	4,0	< 10,0
B2	10,0	< 20,0
B3	20,0	
	Heat transfer index, as defined in ISO 9151:1995	

Results have been obtained according a test method with pretenders only the classification of the materials, and are not necessary the application of the conditions

RESULTS

RADIANT HEAT

Standard
UNE-EN ISO 6942:2002

Apparatus
Equipment for the determination of radiant heat

Heat flux density
20,03 kW/m^2

Pre-Treatment
Flexed

Conditioned
24h in indoor ambient conditions at 20 ± 2 ºC and 65 ± 2 % HR

Ambient conditions test
19,5 ºC and 28,0 % HR

Deviation from the Standard

Test date
10/12/2014

Tested material
Aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and beige woven fabric

Test uncertainty
± 0,34 s

Reference	**FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON**	
Specimen	**RHTI[a] 12 (s)**	**RHTI[a] 24 (s)**
1	> 600(*)	> 600(*)
2	> 600(*)	> 600(*)
3	> 600(*)	> 600(*)
Result	**> 600(*)**	**> 600(*)**

Remark
(*)The equipment was unable to measure a temperature increase of 12 and 24 degrees in less than 600 seconds

RESULTS

PERFORMANCE LEVEL ACCORDANCE WITH STANDARD UNE-EN ISO 11612:2010	C4

Results in accordance with Standard UNE-EN ISO 11612:2010

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	

Heat transfer index, as defined in EN ISO 6942:2002

Results have been obtained according a test method with pretenders only the classification of the materials, and are not necessary the application of the conditions

_____///

RESULTS

ASSESSMENT OF RESISTANCE OF MATERIALS TO MOLTEN METAL SPLASH

Standard

UNE-EN ISO 9185:2008

Apparatus

Equipment for molten metal splashes test

Metal

Aluminium

Pouring temperature

780 ºC ± 20 ºC

Pouring angle

60 º ± 1º

Pouring height

225 mm ± 5 mm

Pre-treatment

Deviation from the Standard

Reference	FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON		
Mass of metal used (g)	**Mass of metal pouring (g)**	**Metal adhered to fabric**	**Assessment of PVC film**
360	352	Yes	Not damaged
362	353	Yes	Not damaged
364	351	Yes	Not damaged
366	351	Yes	Not damaged

PERFORMANCE LEVEL ACCORDING WITH UNE-EN ISO 11612:2010 D3

Results interpretation according to UNE-EN ISO 11612:2010

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

UNE-EN ISO 9185:2008

Apparatus

Equipment for molten metal splashes test

Metal

Iron

Pouring temperature

1400 ºC ± 20 ºC

Pouring angle

75 º ± 1º

Pouring height

225 mm ± 5 mm

Pre-treatment

Deviation from the Standard

Reference	FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON			
Metal pouring mass (g)	Ignition	Puncture	Metal adhered to fabric	Assessment of PVC film
213	No	No	No	Not damaged
215	No	No	No	Not damaged
215	No	No	No	Not damaged
215	No	No	No	Not damaged

PERFORMANCE LEVEL ACCORDING WITH UNE-EN ISO 11612:2010 E3

Results interpretation according to UNE-EN ISO 11612:2010

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

Remark

Test covered by accreditation number No. 056-TEST, emitted by BELAC.

>>>

RESULTS

CONTACT HEAT

Standard
ISO 12127-1:2007

Apparatus
ÖTI CONTACT HEAT PROTECTION TESTER

Conditioned
24h in indoor ambient conditions at 20 ± 2 ºC and 65 ± 5 % HR

Ambient conditions test
23,4 ºC and 42,5 % HR

Pre-treatment

Deviation from the Standard

Test date
28/11/2014

Tested material
Aluminized fabric, black padding, aluminized fabric, padding, aluminized fabric, padding and woven beige fabric

Test uncertainty
± 0,13 s

Reference	FABRIC LAY-UPS: X-60: Z-FLEX A-601/0.25" PYRON/F-628 FOIL/1" INSUL./F-628 FOIL/1" INSUL./FR COTTON	
Specimen	**Contact temperature Tc (ºC)**	**Threshold time T (s)**
1	250	230,82
2	250	177,87
3	250	210,52
Result	**250**	**177,9**

RESULTS

PERFORMANCE LEVEL ACCORDING TO STANDARD UNE-EN ISO 11612:2010	F3

Requisites according to standard UNE-EN ISO 11612:2010

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

Lucia Martinez
Head of PPE´s department

Digitally signed by LUCIA MARTINEZ MOLTO - NIF:21651425F
Date: 2014.12.10 17:20:09 +01:00
Reason: Responsable
Location: Alcoy

LIABILITY CLAUSES

1.- AITEX is liable only for the results of the methods of analysis used, as expressed in the report and referring exclusively to the materials or samples indicated in the same which are in its possession, the professional and legal liability of the Centre being limited to these. Unless otherwise stated, the samples were freely chosen and sent by the applicant.
2.- AITEX shall not be liable in any case of misuse of the test materials nor for undue interpretation or use of this document
3.- The original test report is kept in AITEX. An electronic copy of it is delivered to the costumer which keeps the value from the original one as far as the security properties of the document are not violated. A hard copy of this report with the AITEX logotype sealed in all the pages, keeps the original value.
4.- The results are considered to be the property of the applicant, and AITEX will not communicate them to third parties without prior permission. After one month, AITEX may use the results for statistical or scientific purposes.
5.- None of the indications made in this report may be considered as being a guarantee for the trade marks mentioned herein.
6.- In the eventuality of discrepancies between reports, a check to settle the same will be carried out in the head offices of AITEX. Also, the applicants undertake to notify AITEX of any complaint received by them as a result of the report, exempting this Centre from all liability if such is not done, the periods of conservation of the samples being taken into account.
7.- AITEX may include in its reports, analyses, results, etc., any other evaluation which it considers necessary, even when it has not been specifically requested.
8.- The estimated uncertainties in the tests accredited by ENAC are at the client' s disposal in AITEX.
9. - The original materials and rests of samples, not subject to test, will be retained in AITEX during the twelve months following
the issuance of the report, so that any check or claim which, in his case, wanted to make the applicant, should be exercised
within the period indicated.
10.- This report may only be sent or delivered by hand to the applicant or to a person duly authorised by the same.
11.- The results of the tests and the statement of compliance with the specification in this report refer only to the test sample as it has been analyzed / tested and not the sample / item which has taken the test sample.
12.- AITEX laboratories are placed in Alcoy.