



aitex
textile research institute

TEST REPORT

2021CN0777

DATE OF RECEPTION

23/08/2021

DATE TESTS

Starting: 24/08/2021

Ending: 04/10/2021

APPLICANT

KUNSHAN SUNSHINETEX NEW
MATERIAL CO. LTD.
No. 417 Sanxiang Road
CN-215300 Kunshan
JIANGSU

IDENTIFICATION AND DESCRIPTION OF SAMPLES

REFERENCES

FABRIC REF.- POBFC3DY

According to information supplied by the customer:

Fabric reference: POBFC3DY

Composition and porcentaje: 98% Polyester and 2% Carbon

Color: Nav y/ Fluo Yellow / Fluo Orange

TESTS CARRIED OUT

- PHOTOGRAPHY.
- PRE-TREATMENT FOR DOMESTIC WASHING AND DRYING PROCEDURES FOR TEXTILE TESTING.
- DETERMINATION OF BREAKING STRENGTH AND ELONGATION.
- PUNCTURE RESISTANCE.
- RESISTANCE OF MATERIALS TO PENETRATION BY LIQUID.





RESULTS

PHOTOGRAPHY



Reference

FABRIC Ref.- POBFC3DY



RESULTS

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

Standard

ISO 6330:2012

Standard deviation

Reference

Sample1 FABRIC Ref.- POBFC3DY

Units

1

Equipment

Wascator 13471E05

Dryer machine

JAMES HEAL

13473E05

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	0,94 Kg	1,00 Kg of Polyester	Wascator 13471E05

Start and finish date

30/08/2021 - 31/08/2021

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RESULTS

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

Standard

ISO 6330:2012

Standard deviation

Reference

Sample1 FABRIC Ref.- POBFC3DY

Units

1

Equipment

Wascator 13471E05

Dryer machine

JAMES HEAL

13473E05

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	0,41 Kg	1,59 Kg of Polyester	Wascator 13471E05

Start and finish date

30/08/2021 - 31/08/2021

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RESULTS

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

Standard

ISO 6330:2012

Standard deviation

Reference

Sample1 FABRIC Ref.- POBFC3DY

Units

1

Equipment

Wascator 13470E05

Dryer machine

JAMES HEAL

13472E05

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	0,46 Kg	1,54 Kg of Polyester	Wascator 13470E05

Start and finish date

27/08/2021 - 30/08/2021



RESULTS

PUNCTURE RESISTANCE

Standard

EN 863:1995

Apparatus

INSTRON Dynamometer

Conditioning date

02/09/2021

Test date

22/09/2021

Atmosphere for conditioning testing
Temperature

(20±2) °C

Relative humidity

(65±5) %

Type of fabric

Woven fabric

Previous treatment

5 washing cycles at 40°C, according to standard EN ISO 6330:2012, method 4N and type F drying (tumble dry)

Reference	Maximum force (N)	Average resistance (N)
FABRIC Ref.- POBFC3DY	54,39	50,20
	43,94	
	54,41	
	51,52	
	46,75	

Remark

The relative expanded uncertainty of puncture resistance is ±11% assay value of the measured, for a probability of coverage of 95%.

REQUISITE ACCORDING TO STANDARD EN 13034:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>5N	> 10N	> 50N	> 100N	> 150N	> 250N

PERFORMANCE LEVEL 2



RESULTS

RESISTANCE OF MATERIALS TO PENETRATION BY LIQUID

Standard

EN ISO 6530:2005, EN 13034:2005+A1:2009

Atmosphere for conditioning and testing

Temperature (20±2) °C

Relative Humidity (RH) (65±5) %

Flow

10 ml in 10 s

Mass per unit area approximate of the sample tested

Does not provided by the customer

Pre-treatment

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

Reference

FABRIC Ref.- POBFC3DY

Measurement uncertainty

Test liquid	Penetration index (%) ¹	Repellency index (%) ¹
Sulphuric Acid 30%	±0.3	±0.3
Sodium Hydroxide 10%	±1.1	±1.1
O-Xylene	±5.0	±7.8
1-Butanol	±5.8	±5.4

¹ On the measured value

Material tested

Laminated woven fabric, orange yellow and navy blue colour

Test date

09/09/2021

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RESULTS

1. Test liquid

Trade name

Boiling point

Evaporative losses prevision

Sulphuric Acid 30%

SCHARLAU (Ref. AC20791000)

336.85 °C

None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		99.7		0.3	
	2	0.0	0.0	99.8	99.7	0.2	0.3
	3	0.0		99.7		0.3	
Weft	1	0.0		99.4		0.6	
	2	0.0	0.0	99.4	99.4	0.6	0.6
	3	0.0		99.5		0.5	

CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**

Class according to penetration index: **3**

2. Test liquid

Trade name

Boiling point

Evaporative losses prevision

Sodium Hydroxide 10 %

MERCK (Ref. 1055881000)

1390 °C

None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		99.4		0.6	
	2	0.0	0.0	99.8	99.4	0.2	0.6
	3	0.0		99.6		0.4	
Weft	1	0.0		99.5		0.5	
	2	0.0	0.0	99.5	99.4	0.5	0.6
	3	0.0		99.4		0.6	

CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**

Class according to penetration index: **3**

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RESULTS

3. Test liquid

O-Xylene

Trade name

SCHARLAU (Ref. X100252500)

Boiling point

139 °C

Evaporative losses prevision

None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		96.9		3.1	
	2	0.0	0.0	97.5	96.9	2.5	3.1
	3	0.0		97.3		2.7	
Weft	1	0.0		96.9		3.1	
	2	0.0	0.0	96.8	96.6	3.2	3.4
	3	0.0		96.6		3.4	

CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**Class according to penetration index: **3**

4. Test liquid

1-Butanol

Trade name

SCHARLAU (Ref. AL01732500)

Boiling point

117.88 °C

Evaporative losses prevision

None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		99.5		0.5	
	2	0.0	0.0	99.5	99.4	0.5	0.6
	3	0.0		99.4		0.6	
Weft	1	0.0		99.3		0.7	
	2	0.0	0.0	99.6	99.3	0.4	0.7
	3	0.0		99.8		0.2	

CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: **3**Class according to penetration index: **3**

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RESULTS

Classification of the repellency to the liquids according to standard EN 14325:2004

Class	Repellency index
3	> 95 %
2	> 90 %
1	> 80 %

Classification to the penetration by liquids according to standard EN 14325:2004

Class	Penetration index
3	< 1 %
2	< 5 %
1	< 10 %

ACCORDING TO STANDARD EN 13034:2005+A1:2009

PASS

REQUIREMENTS ACCORDING TO STANDARD EN 13034:2005+A1:2009

According to the Standard EN 13034:2005+A1:2009, for liquid repellency a performance level 3 shall be obtained for at least one of the chemicals referred to EN 14325:2004, and for resistance to penetration by liquids a performance level of at least 2 shall be obtained for at least one of the chemicals referred to EN 14325:2004.



RESULTS

DETERMINATION OF BREAKING STRENGTH AND ELONGATION

Standard

EN ISO 13934-1:2013

Apparatus

INSTRON Dynamometer

Conditioning date		02/09/2021	Test date		04/10/2021
Atmosphere for conditioning testing					
Temperature		(20±2) °C	Relative humidity		(65±4) %
Gauge length					
Lengthwise		200 mm.	Crosswise		200 mm.
Test velocity					
Lengthwise		100 mm/min	Crosswise		100 mm/min
Pretension					
Lengthwise		0,5 N	Crosswise		0,5 N
N° of specimens					
Tested		5 for each direction	Rejected		0
State of the specimens		Conditioned			
Previous treatment					
5 washing cycles at 40°C, according to standard EN ISO 6330:2012, method 4N and type F drying (tumble dry)					
Reference					
FABRIC Ref.- POBFC3DY					

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RESULTS

Direction	Maximum average load (N)	C.V. (%)	Average elongation (%)	C.V. (%)
Lengthwise	1144	6.0	26	6.0
	1240		27	
	1235 1207		25 26	
	1128		24	
	1286		28	
Crosswise	980	5.0	28	4.0
	921		26	
	991 982		29 28	
	966		29	
	1050		28	

Remark

The relative expanded uncertainty of Tensile strength resistance is $\pm 5\%$ assay value of the measured, for a probability of coverage of 95%.

The test procedure described in the two versions of the Standard (EN ISO 13934-1:1999 and EN ISO 13934-1:2013) is the same.

REQUISITE ACCORDING TO STANDARD EN 13034:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>30N	> 60N	> 100N	> 250N	> 500N	> 1000N

PERFORMANCE LEVEL 5



Lucia Martinez
Head of PPE and Ballistics department

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