

TEST REPORT

2020CN0218

DATE OF RECEPTION

30/04/2020

DATE TESTS

Starting: 06/05/2020

Ending: 02/06/2020

APPLICANT

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

IDENTIFICATION AND DESCRIPTION OF SAMPLES

REFERENCES

FABRIC POBFD3XY

According to information supplied by the customer:

Fabric reference: POBFD3XY

Composition and percentage: 56% Modacrylic, 43% Polyester and 1% Antistatic

Color: Fluo yellow, Fluo orange, Navy

Others: FR softshell

TESTS CARRIED OUT

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

Tests marked with * are not included within the scope of the ENAC accreditation



RESULTS

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

Standard

ISO 6330:2012

Standard deviation

Reference

Sample1 Fabric POBFD3XY

Units	1	2
Equipment	Wascator 13337E12	Wascator 13369E12
Dryer machine	ELECTROLUX 13427E12	ELECTROLUX 13429E12

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	2.00 Kg	---	Wascator 13337E12
2	2.10 Kg	---	Wascator 13369E12

Start and finish date

07/05/2020 - 08/05/2020

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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 POBFD3XY

Units

1

Equipment Wascator 13370E12**Dryer machine** ELECTROLUX
13426E12**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	0,014 Kg	1,900 Kg of Polyester	Wascator 13370E12

Start and finish date

06/05/2020 - 07/05/2020

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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 POBFD3XY

Units

1

Equipment

Wascator 13470E05

Dryer machineJAMES 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	0,093 Kg	1,900 Kg of Polyester	Wascator 13470E05

Start and finish date

27/05/2020 - 28/05/2020

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RESULTS

DETERMINATION OF BREAKING STRENGTH AND ELONGATION

Standard

EN ISO 13934-1:2013

Apparatus

INSTRON Dynamometer

Conditioning date	13/05/2020	Test date	20/05/2020
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	5 N	Crosswise	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 POBFD3XY

Direction	Maximum average load (N)	C.V. (%)	Average elongation (%)	C.V. (%)
Lengthwise	920	3.0	31.5	2.8
	940		32.5	
	900 920		30.5 31.5	
	960		32.5	
	890		31.0	
Crosswise	720	2.0	42.5	3.2
	730		43.5	
	750 740		44.0 44.0	
	740		45.0	
	760		46.0	

Remark

The relative expanded uncertainty of Tensile strength resistance is ±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.

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RESULTS

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

NIVEL ALCANZADO 5

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RESULTS

DETERMINATION OF TEAR RESISTANCE

Standard

EN ISO 9073-4:1997

Apparatus

INSTRON Dynamometer

Conditioning date

12/05/2020

Test date

14/05/2020

Atmosphere for conditioning testing

Temperature (20±2) °C

Relative humidity

(65±2) %

N° of specimens

Tested

5 for each direction

Rejected

0

The calculation of averages has been made

For electronic device

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 POBFD3XY

Tear	Average load (N)	C.V. (%)
Lengthwise	111.81	1.67
	111.16	
	109.20 110.12	
	111.08	
	107.34	
Crosswise	91.09	7.53
	79.80	
	84.71 86.78	
	82.51	
	95.79	

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

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
>10N	> 20N	> 40N	> 60N	> 100N	> 150N

NIVEL ALCANZADO 4

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RESULTS

PUNCTURE RESISTANCE

Standard

EN 863:1995

Apparatus

INSTRON Dynamometer

Conditioning date

11/05/2020

Test date

22/05/2020

Atmosphere for conditioning testing
Temperature (20±2) °C

Relative humidity

(65±5) %

Type of fabric

Coated 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 POBFD3XY	56,24	48,27
	47,68	
	45,67	
	48,75	
	43,03	

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

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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

345 g/m² according to the customer

Pre-treatment

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

Reference

Fabric POBFD3XY

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 colour sewn to polar fabric, grey colour

Test date

12/05/2020

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RESULTS

1. Test liquid	Sulphuric Acid 30%
Trade name	SCHARLAU (Ref: AC20791000)
Boiling point	336.85 °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	99.7	99.5	0.3	0.5
	3	0.0		99.7		0.3	
Weft	1	0.0		99.6		0.4	
	2	0.0	0.0	99.7	99.6	0.3	0.4
	3	0.0		99.6		0.4	

CLASSIFICATION ACCORDING TO EN 14325:2004

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

2. Test liquid	Sodium Hydroxide 10 %
Trade name	MERCK (Ref: 1055881000)
Boiling point	1390 °C
Evaporative losses prevision	None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		99.0		1.0	
	2	0.0	0.0	99.2	99.0	0.8	1.0
	3	0.0		99.1		0.9	
Weft	1	0.0		98.7		1.3	
	2	0.0	0.0	99.1	98.7	0.9	1.3
	3	0.0		99.3		0.7	

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: XI00252500)
Boiling point 139 °C
Evaporative losses prevision None

Direction	Specimen	Penetration index (%)		Repellency index (%)		Absorption index (%)	
Warp	1	0.0		71.8		28.2	
	2	0.0	0.0	72.3	71.8	27.7	28.2
	3	0.0		72.7		27.3	
Weft	1	0.0		73.9		26.1	
	2	0.0	0.0	73.7	73.7	26.3	26.3
	3	0.0		74.2		25.8	

CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: -
 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		75.5		24.5	
	2	0.0	0.0	74.2	74.2	25.8	25.8
	3	0.0		75.3		24.7	
Weft	1	0.0		75.5		24.5	
	2	0.0	0.0	74.9	74.3	25.1	25.7
	3	0.0		74.3		25.7	

CLASSIFICATION ACCORDING TO EN 14325:2004

Class according to repellency index: -
 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.

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RESULTS

DETERMINATION OF THE ABRASION RESISTANCE OF FABRICS

Standard

EN 530:2010 Method 2

Apparatus

Martindale Abrasion Tester

Conditioning date

11/05/2020

Test date

14/05/2020

Atmosphere for conditioning testing

Temperature

(20±2) °C

Relative humidity

(65±4) %

Testing conditions

Rubbing against abradant paper 00

Testing pressure

9kPa

End point

Two thread broken

Technical characteristics of the sample

Not indicated by the client

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 POBFD3XY

Specimens	N° of cycles (n)
1	n > 2000
2	n > 2000
3	n > 2000
4	n > 2000

Remarks

The end test is performed by visual inspection.

The number of cycles corresponding to the rupture of the specimen.

The performance level is among the most unfavorable value of the pieces tested

REQUISITE ACCORDING STANDARD EN 13034:2005+A1:2009

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
> 10 cycles	> 100 cycles	> 500 cycles	> 1000 cycles	> 1500 cycles	> 2000 cycles

PERFORMANCE LEVEL 6

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Lucia Martinez
Head of PPE and Ballistics department

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