

TEST REPORT

2022CN6425

DATE OF RECEPTION

Date Format: dd/MM/yyyy 04/11/2022

DATE OF TESTS

Starting : 09/11/2022

Ending: 25/11/2022

APPLICANT

KUNSHAN SUNSHINETEX NEW MATERIAL Co. Ltd.

No. 417 Sanxiang Road

CN-215300 Kunshan

JIANGSU

China

REFERENCE OF SAMPLES

Reference by AITEX	Reference by customer	AITEX sample description
2022CN6421-S01	TFA099 HV-yellow	Laminated fabric
2022CN6421-S02	TFA099 HV-Orange	Laminated fabric
2022CN6421-S03	TFA099 HV-Red	Laminated fabric

TESTS CARRIED OUT

- DETERMINATION OF BREAKING STRENGTH AND ELONGATION
- DETERMINATION OF TEAR RESISTANCE
- DETERMINATION OF DIMENSIONAL CHANGE IN WASHING AND DRYING
- WATER VAPOUR RESISTANCE
- PRE-TREATMENT FOR DOMESTIC WASHING AND DRYING PROCEDURES FOR TEXTILE TESTING
- DETERMINATION OF RESISTANCE TO WATER PENETRATION
- RESISTANCE TO FLEXING PRETREATMENT

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





DESCRIPTION OF SAMPLES



Reference by AITEX: 2022CN6421-S01

Reference by customer:

TFA099 HV-yellow

AITEX sample description:

According to information supplied by the customer:

TFA099

Composition and percentage: 100% Polyester high elastic oxford (Recycled)

HV-yellow/HV-orange/HV-red/Navy/Green/orange/Black

Reference by AITEX: 2022CN6421-S02

Reference by customer:

TFA099 HV-Orange

AITEX sample description:

According to information supplied by the customer:

TFA099

Composition and percentage: 100% Polyester high elastic oxford (Recycled)

HV-yellow/HV-orange/HV-red/Navy/Green/orange/Black



Reference by AITEX: 2022CN6421-S03

Reference by customer:

TFA099 HV-Red

AITEX sample description:

According to information supplied by the customer:

TFA099

Composition and percentage: 100% Polyester high elastic oxford (Recycled)

HV-yellow/HV-orange/HV-red/Navy/Green/orange/Black

AITEX Subsamples		Subsample Description
2022CN6421-S01.1		TFA099 HV-yellow AFTER WASH 5 CYCLES
2022CN6421-S01.3		TFA099 HV-yellow AFTER ABRASION
2022CN6421-S01.4		TFA099 HV-yellow AFTER FLEXION
2022CN6421-S01.5		TFA099 HV-yellow AFTER OILS



EXECUTIVE SUMMARY

EN 343:2019	Reference	Test/Standard	Result
	2022CN6421-S01	DETERMINATION OF BREAKING STRENGTH AND ELONGATION EN ISO 1421:2016	PASS
		DETERMINATION OF TEAR RESISTANCE EN ISO 4674-1:2016 Met.A	PASS
		WATER VAPOUR RESISTANCE EN ISO 11092:2014	CLASS 4
		DETERMINATION OF RESISTANCE TO WATER PENETRATION EN 20811:1992	CLASS 1
	2022CN6421-S01.1	DETERMINATION OF DIMENSIONAL CHANGE IN WASHING AND DRYING EN ISO 5077:2008	PASS
		DETERMINATION OF RESISTANCE TO WATER PENETRATION EN 20811:1992	CLASS 4
	2022CN6421-S01.3	DETERMINATION OF RESISTANCE TO WATER PENETRATION EN 20811:1992	CLASS 4
	2022CN6421-S01.4	DETERMINATION OF RESISTANCE TO WATER PENETRATION EN 20811:1992	CLASS 4
	2022CN6421-S01.5	DETERMINATION OF RESISTANCE TO WATER PENETRATION EN 20811:1992	CLASS 4



REQUIREMENT SUMMARY

DETERMINATION OF BREAKING STRENGTH AND ELONGATION

REQUIREMENT ACCORDING EN 343:2019

The external material must resist a breaking load in both directions ≥ 450 N. For materials with an elongation of more than 50% this requirement is not applicable

DETERMINATION OF TEAR RESISTANCE

REQUIREMENT ACCORDING EN 343:2019

The external material must resist a determination of tear resistance in both directions ≥ 20 N.

DETERMINATION OF DIMENSIONAL CHANGE IN WASHING AND DRYING

REQUIREMENT ACCORDING EN 343:2019

The dimensional change shall not exceed $\pm 3\%$, both in width warp and in length weft.

The dimensional change of knitted fabrics shall not exceed $\pm 5\%$, both in width Crosswise and in length Lengthwise.

WATER VAPOUR RESISTANCE

REQUIREMENT ACCORDING EN 343:2019

Class 1	Class 2	Class 3	Class 4
$R_{et} > 40$	$25 < R_{et} \leq 40$	$15 < R_{et} \leq 25$	$R_{et} \leq 15$

DETERMINATION OF RESISTANCE TO WATER PENETRATION

REQUIREMENT ACCORDING EN 343:2019

	CLASS 1	CLASS 2	CLASS 3	CLASS 4
Material before pre-treatment	≥ 8000 Pa	---	---	---
Material after pre-treatment	---	≥ 8000 Pa	≥ 13000 Pa	≥ 20000 Pa
Seams before pre-treatment	---	≥ 8000 Pa	≥ 13000 Pa	---
Seams after pre-treatment	---	---	---	≥ 20000 Pa



RESULTS

DETERMINATION OF BREAKING STRENGTH AND ELONGATION

Standard

EN ISO 1421:2016

Equipment

INSTRON Dynamometer

Conditioned date

Start date	10/11/2022	End date	11/11/2022
-------------------	------------	-----------------	------------

Test date

Start date	10/11/2022	End date	11/11/2022
-------------------	------------	-----------------	------------

Gauge length
Pretension
Gauge speed
Warp: 200 mm

Warp: 0.5 N

Warp: 100 mm/min

Weft: 200 mm

Weft: 0.5 N

Weft : 100 mm/min

Atmosphere for conditioning

Temperature	(20 ± 2) °C	Relative Humidity	(65 ± 4) %
--------------------	-------------	--------------------------	------------

Number of test specimens per material to be tested

Tested	5	Rejected	0
---------------	---	-----------------	---

State of the specimens

Conditioned

Reference

2022CN6421-S01

Direction	Maximum force (N)	Medium strength	C.V.	Elongation to the maximum load(%)	Average elongation	C.V.
Warp	1540	1505	4.1	34	32	6.8
	1452			30.5		
	1426			29		
	1565			33.5		
	1542			34		
Weft	1280	1286	1.8	55.5	53	4.4
	1275			52		
	1294			51		
	1322			55.5		
	1262			50.5		

Uncertainty

± 5% assay value of the measured

Note

The test procedure described in the two versions of the Standard (EN ISO 1421:1998 and EN ISO 1421:2016) is the same.



RESULTS

DETERMINATION OF TEAR RESISTANCE

Standard

EN ISO 4674-1:2016 Met.A

Equipment

INSTRON Dynamometer

Test date

Start date 11/11/2022 **End date** 11/11/2022

Conditioned date

Start date 10/11/2022 **End date** 11/11/2022

Atmosphere for conditioning

Temperature $(20 \pm 2) ^\circ\text{C}$ **Relative Humidity** $(65 \pm 5) \%$

State of the specimens

Conditioned

Number of test specimens per material to be tested

Tested 5 each way **Rejected** 0

Procedure

Method A

Specimen size

(200x150) mm

Reference

2022CN6421-S01

Tear	Specimen (N)	Average load	C.V.
Lengthwise	110	110	0
	110		
	110		
	110		
	110		
Cross-cutting	120	114	4.98
	120		
	110		
	110		
	110		

Note

$\pm 7\%$ assay value of the measured



RESULTS

DETERMINATION OF DIMENSIONAL CHANGE IN WASHING AND DRYING

Standard

EN ISO 5077:2008

Preparation, marking and measuring of fabric specimens according to EN ISO 3759:2011

Start date 10/11/2022 **End date** 16/11/2022

Washing powder

98 ECE reference detergent without optical brightener.

Washing cycles

5

Uncertainty

± 0.4 %

Reference

2022CN6421-S01.1

Specimen	Direction	Dimensional change (%)
1	WARP	-2.0
	WEFT	-2.0

Note

Positive dimensional change indicates lengthening. Negative dimensional change indicates shrinkage



RESULTS

WATER VAPOUR RESISTANCE

Standard

EN ISO 11092:2014

Test date**Start date** 23/11/2022 **End date** 23/11/2022**Atmosphere for conditioning****Temperature** $(35 \pm 0.5) ^\circ\text{C}$ **Relative Humidity** $(40 \pm 3) \%$ **Conditioning time**24 h. ambient conditions at $(35 \pm 0.5) ^\circ\text{C}$ and $(40 \pm 3) \%$ RH**Uncertainty** $\pm 7\%$ of the result**Number of test specimens per material to be tested****Tested** 3**Disposition test specimens**

The inner face is in contact to the measurement surface.

Reference	Specimen	Water vapour resistance Ret ($\text{m}^2 \cdot \text{Pa/W}$)
2022CN6421-S01	1	9.38
	2	9.70
	3	9.10
	Average	9.39



RESULTS

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

Standard

EN ISO 6330:2012

Test date**Start date**

10/11/2022

End date

10/11/2022

Washing procedure

4N

Washing temperature

40°C

Washing cycles

5

Dryer type

JAMES HEAL 13473E05

Driying procedure

F (type A1 drum dryer)

Driying temperature

70°C

Washing powder

Reference detergent 3

Reference

2022CN6421-S01

Units	Dry mass of the samples(Kg)	Counterweight mass Kg <i>Kg</i>	Counterweight type	Equipment
1	0.12	1.9	Type III / <i>Type III</i>	WASCATOR 13371E12



RESULTS

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

Standard

EN ISO 6330:2012

Test date**Start date** 10/11/2022 **End date** 11/11/2022**Washing procedure**

4N

Washing temperature

40°C

Washing cycles

5

Dryer type

ACCUDRY 13372E12

Driying procedure

F (type A1 drum dryer)

Driying temperature

70°C

Washing powder

Reference detergent 3

Reference

2022CN6421-S02

Units	Dry mass of the samples(Kg)	Counterweight mass Kg <i>Kg</i>	Counterweight type	Equipment
1	0.014	2	Type III / <i>Type III</i>	WASCATOR 13370E12



RESULTS

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

Standard

EN ISO 6330:2012

Test date**Start date**

10/11/2022

End date

10/11/2022

Washing procedure

4N

Washing temperature

40°C

Washing cycles

5

Dryer type

JAMES HEAL 13516E05

Driying procedure

F (type A1 drum dryer)

Driying temperature

70°C

Washing powder

Reference detergent 3

Reference

2022CN6421-S03

Units	Dry mass of the samples(Kg)	Counterweight mass Kg <i>Kg</i>	Counterweight type	Equipment
1	0.008	2	Type III / <i>Type III</i>	WASCATOR 13370E12



RESULTS

DETERMINATION OF RESISTANCE TO WATER PENETRATION

Standard

EN 20811:1992

Equipment

Hydrostatic Head Tester

Atmosphere for conditioning
Temperature $(20 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65 \pm 4) \%$
Water temperature
 20°C
Rate of increase of water pressure
 $(10 \pm 0.5) \text{ cm H}_2\text{O}/\text{min}$ $((980 \pm 50) \text{ Pa}/\text{min})$
Surface exposed

External face

Manometer precision
 $\pm 0,5 \text{ cm H}_2\text{O}$
Reference

2022CN6421-S01

Test date
Start date

09/11/2022

End date

10/11/2022

Reference
Atmosphere for testing
Temperature $(20.0 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65.0 \pm 4) \%$

Specimen	Pressure (cm/H ₂ O)	Pressure (Pa)	Less pressure (Pa)
1	>200	>20000	>20000
2	>200	>20000	
3	>200	>20000	
4	>200	>20000	



RESULTS

DETERMINATION OF RESISTANCE TO WATER PENETRATION

Standard

EN 20811:1992

Equipment

Hydrostatic Head Tester

Atmosphere for conditioning
Temperature $(20 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65 \pm 4) \%$
Water temperature
 20°C
Rate of increase of water pressure
 $(10 \pm 0.5) \text{ cm H}_2\text{O}/\text{min}$ $((980 \pm 50) \text{ Pa}/\text{min})$
Surface exposed

External face

Manometer precision
 $\pm 0,5 \text{ cm H}_2\text{O}$
Reference

2022CN6421-S01.1

Test date
Start date

11/11/2022

End date

23/11/2022

Reference
Atmosphere for testing
Temperature $(20.0 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65.0 \pm 4) \%$

Specimen	Pressure (cm/H ₂ O)	Pressure (Pa)	Less pressure (Pa)
1	>200	>20000	>20000
2	>200	>20000	
3	>200	>20000	
4	>200	>20000	



RESULTS

DETERMINATION OF RESISTANCE TO WATER PENETRATION

Standard

EN 20811:1992

Equipment

Hydrostatic Head Tester

Atmosphere for conditioning
Temperature $(20 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65 \pm 4) \%$
Water temperature

20°C

Rate of increase of water pressure
 $(10 \pm 0.5) \text{ cm H}_2\text{O}/\text{min}$ $((980 \pm 50) \text{ Pa}/\text{min})$
Surface exposed

External face

Manometer precision
 $\pm 0,5 \text{ cm H}_2\text{O}$
Reference

2022CN6421-S01.3

Test date
Start date

09/11/2022

End date

15/11/2022

Reference
Atmosphere for testing
Temperature $(20.0 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65.0 \pm 4) \%$

Specimen	Pressure (cm/H ₂ O)	Pressure (Pa)	Less pressure (Pa)
1	>200	>20000	>20000
2	>200	>20000	
3	>200	>20000	
4	>200	>20000	



RESULTS

RESISTANCE TO FLEXING PRETREATMENT

Standard

EN ISO 7854:1997 Mét.C

Reference

2022CN6421-S01

Test date**Start date**

10/11/2022

End date

10/11/2022

Specimens	Direction	Flex cycles
4	Lengthwise and Crosswise	9000

Visual inspection after flex cycles

1. Material damage	Doesn't exist damages
2. Description of the damage	---
3. Fissures	Doesn't exist fissures
a. Deepness fissures	---
b. Number of fissures	---
c. Longitude of fissures	---
4. Deslaminated	Doesn't exist deslaminated



RESULTS

DETERMINATION OF RESISTANCE TO WATER PENETRATION

Standard

EN 20811:1992

Equipment

Hydrostatic Head Tester

Atmosphere for conditioning
Temperature $(20 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65 \pm 4) \%$
Water temperature
 20°C
Rate of increase of water pressure
 $(10 \pm 0.5) \text{ cm H}_2\text{O}/\text{min}$ $((980 \pm 50) \text{ Pa}/\text{min})$
Surface exposed

External face

Manometer precision
 $\pm 0,5 \text{ cm H}_2\text{O}$
Reference

2022CN6421-S01.4

Test date
Start date

11/11/2022

End date

22/11/2022

Reference
Atmosphere for testing
Temperature $(20.0 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65.0 \pm 4) \%$

Specimen	Pressure (cm/H ₂ O)	Pressure (Pa)	Less pressure (Pa)
1	>200	>20000	>20000
2	>200	>20000	
3	>200	>20000	
4	>200	>20000	



RESULTS

DETERMINATION OF RESISTANCE TO WATER PENETRATION

Standard

EN 20811:1992

Equipment

Hydrostatic Head Tester

Atmosphere for conditioning
Temperature $(20 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65 \pm 4) \%$
Water temperature
 20°C
Rate of increase of water pressure
 $(10 \pm 0.5) \text{ cm H}_2\text{O}/\text{min}$ $((980 \pm 50) \text{ Pa}/\text{min})$
Surface exposed

External face

Manometer precision
 $\pm 0,5 \text{ cm H}_2\text{O}$
Reference

2022CN6421-S01.5

Test date
Start date

24/11/2022

End date

25/11/2022

Reference
Atmosphere for testing
Temperature $(20.0 \pm 2) ^\circ\text{C}$
Relative Humidity
 $(65.0 \pm 4) \%$

Specimen	Pressure (cm/H ₂ O)	Pressure (Pa)	Less pressure (Pa)
1	>200	>20000	>20000
2	>200	>20000	
3	>200	>20000	
4	>200	>20000	



Lucia Martinez
Head of PPE and Ballistics department



Date: 29/11/2022 9:31:05

Digitally Signed by: ISABEL LLOPIS LUMBRERAS -

NIF: 21678551Q

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 Offer and / or Order to which the applicant gives approval through signature and seal, constitutes the Legally Executable Agreement in which AITEX is responsible for safeguarding and guaranteeing the absolute confidentiality of the management of all the information obtained or created during the performance of the contracted activities.
- 4- 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.
- 5- AITEX is not responsible for the information provided by customers, which is reflected in the Report, and may affect the validity of the results.
- 6- AITEX may include in its reports, analyses, results, etc., any other evaluation which it considers necessary, even when it has not been specifically requested.
- 7- The uncertainties of the tests, which are made explicit in the Results Report, have been estimated for a $k = 2$ (probability of coverage of 95%). If not informed, they are available to the client in AITEX.
- 8- 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.
- 9- This report may only be sent or delivered by hand to the applicant or to a person duly authorised by the same.
- 10- 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.
- 11- The client must attend at all times, to the dates of the realization of the tests.
- 12- According to Resolution EA (33) 31, the test reports must include the unique identification of the sample, and any brand or label of the manufacturer may be added. It is not allowed to re-issue test reports of untested sample names (references), they can only be re-issued for error correction or inclusion of omitted data that were already available at the time of the test. The laboratory can not assume responsibility for declaring that the product with the new trade name / trademark is strictly identical to the one originally tested; This responsibility belongs to the client.
- 13- AITEX is not responsible for an inadequate state of the sample received that could compromise the validity of the results, expressing such circumstance, in the test reports.
- 14- When a Declaration of Conformity is requested, if not indicated otherwise, the decision rule according to ILAC-G8: 2009 will be applied with a security zone of 1U and a Probability of False Acceptance <2.5%.
- 15- This report may not be partially reproduced without the written approval of the issuing laboratory.
- 16- AITEX laboratories do not carry out sampling, so that the results of the test reports are applicable to the sample as it was received.