



Test Report

No. SHSL1103034538TX

Date: Apr 7, 2011

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TENACIOUS HOLDINGS INC.
1021 BANDANA BOULEVARD EAST SUITE 220 SAINT PAUL, MN55108

The following sample(s) was/were submitted and identified on behalf of the client as:

No.	Sample Description	Composition	Color	End Uses
	Woven fabric with PU coating	100% polyester	Hi vis lime	Tent/ wrap

Buyer Tenacious Holdings Inc.
 Style No. 300D Hi Vis Lime poly with PU coating
 Manufacturer CHENGLANG TEXTILE
 Country of Destination USA

Test Performed Selected test(s) as requested by applicant

* * * * *

Sample Receiving Date MAR. 31, 2011

Testing Period MAR. 31, 2011 –APR. 07, 2011

Test Result(s) For further details, please refer to the following page(s).

Signed for and on behalf of
SGS-CSTC Ltd.

Tina Xi
Account Executive

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Test Result

Transmittance or Blocking of Erythemally Weighted Ultraviolet Radiation through Fabrics
(AATCC 183-2004, 2010)(As Received)

	<u>Dry Evaluation</u>
Mean Ultraviolet Protection Factor (UPF) :	>300
Standard Deviation :	>300
Rated UPF :	50+
Protection Category	Excellent
Percent Transmittance, T (UV-A) :	0.04
Percent Transmittance, T (UV-B) :	0.02
The Percent Blocking, UV-A :	99.96
The Percent Blocking, UV-B :	99.98

Test was conducted in wavelength range : 280 – 400 nm
Instrument : UV – Vis Spectrophotometer model
No. of Scans : 6

Remarks :

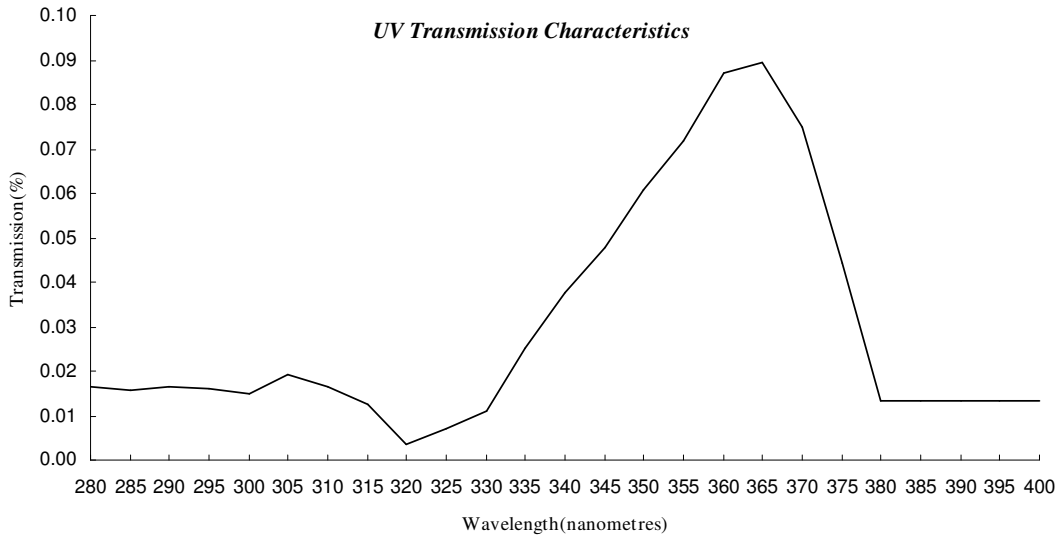
- (1) Ultraviolet Protection Factor (UPF) is the ratio of the average effective ultraviolet radiation (UV-R) irradiance transmitted and calculated through air to the average effective UV-R irradiance transmitted and calculated through fabric.
- (2) The limits of the spectral range of ultraviolet radiation are not well defined and may vary according to the user. Committee E-2.12 of the International Commission on Illumination (CIE) distinguishes in the spectral range between 400 and 100 nm :
 UV-A : 315 – 400 nm
 UV-B : 280 – 315 nm
 UV-R : 280 – 400 nm
- (3) This method can also be used to determine the UPF of wet and/or stretched fabrics. However, the techniques for wetting and/or stretching the specimens are not part of this method and are addressed in a separate test procedure. It must be noted that wetting and/or stretching the specimens could change the UPF properties.
- (4) Refer to ASTM D6603, the UV protection category is determined by the UPF values,
 UPF 40 or greater Excellent UV Protection
 UPF in between 25 to 39 Very Good UV Protection
 UPF in between 15 to 25 Good UV Protection
 UPF in between 15 Unclassification
- (5) The listed protection category is for reference only; the market claims for labeling UV-Protection product shall follow “Standard Guide For Labeling UV-Protection Textiles” as stated in ASTM D6603-00

Note : Graph Appendix is attached

Do not test wet state, due to the test sample have not hygroscopic property

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Dry Evaluation



Color Fastness to Light (AATCC 16-2004; Options 3; use water cooled Xenon arc lamp)

After 40 AFU
Class

3.0

Remarks: Grey Scale Rating is based on the 5-step scale of 1 to 5, where 1 is bad and 5 is good.

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Flammability Test for Wall & Top Materials for Camping Tentage Products

(CPAI-84:1995; Section 6)

<u>As Received</u>	<u>Damaged Length (mm)</u>		<u>After-flame time (second)</u>		<u>Flaming debris or flaming broken (Yes or No)</u>	
	<u>Lengthwise</u>	<u>Widthwise</u>	<u>Lengthwise</u>	<u>Widthwise</u>	<u>Lengthwise</u>	<u>Widthwise</u>
<u>Specimen</u>						
(1)	139	111	0	0	No	No
(2)	104	109	0	0	No	No
(3)	127	124	0	0	No	No
(4)	117	108	0	0	No	No
Average	117		0		/	

<u>After Leaching</u>	<u>Damaged Length (mm)</u>		<u>After-flame time (second)</u>		<u>Flaming debris or flaming broken (Yes or No)</u>	
	<u>Lengthwise</u>	<u>Widthwise</u>	<u>Lengthwise</u>	<u>Widthwise</u>	<u>Lengthwise</u>	<u>Widthwise</u>
<u>Specimen</u>						
(1)	129	120	0	0	No	No
(2)	118	132	0	0	No	No
(3)	117	128	0	0	No	No
(4)	126	117	0	0	No	No
Average	123		0		/	

<u>After Accelerated Weathering</u>	<u>Damaged Length (mm)</u>		<u>After-flame time (second)</u>		<u>Flaming debris or flaming broken (Yes or No)</u>	
	<u>Lengthwise</u>	<u>Widthwise</u>	<u>Lengthwise</u>	<u>Widthwise</u>	<u>Lengthwise</u>	<u>Widthwise</u>
<u>Specimen</u>						
(1)	128	127	0	0	No	No
(2)	117	126	0	0	No	No
(3)	119	119	0	0	No	No
(4)	127	133	0	0	No	No
Average	124		0		/	

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Requirements

1. Damaged Length

Fabric weight (g/sq.m.)	Average maximum (mm)	Specimen maximum (mm)
More than <u>50</u> but Not more than <u>135</u>	215	255

2. No specimen shall have an after-flame time of more than 4 seconds.
3. Average after-flame of all specimens shall not exceed 2 seconds.
4. Portions or residues that break or drip from the test specimens shall not continue to flame after they reach the floor of the test cabinet.
5. Lightweight Fabric Mass Loss Criteria : Any **wall or top** material with a mass of less than 100 g/sq.m will be considered acceptable if the mass loss during the test is no greater than 5 percent of the original test specimen mass, regardless of the damaged length measurement.
6. This requirement includes :
 - specimens that were unleached and unweathered
 - specimens that were leached but unweathered
 - specimens that were weathered but unleached.

Comment

The submitted sample meets the requirement perscribed in CPAI-84:1995 Section 3: clause 3.2 in "Before And After Leaching And Accelerated Weathering" states.

Remarks

1. Leaching procedure : Section 4.1.2 – Submerging in water for 72 hours
2. Weathering procedure : Section 4.2.2.3 – Accerlerated Weathering Procedure : Fluorescent UV and Condensation Method, for 54 hours (test cycle : 8 hours of UV at 60 degree C, followed by 4 hours of condensation at 50 degree C), using UVA-340 lamps.
3. The fabric weight of sample 123 g/sq.m.

End of Report

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