



Test Report

No. SL517052176609TX

Date: Apr 27, 2017

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ETONG TEXTILE TECHNOLOGY CO.,LTD
NO.789 KENING ROAD, JIANGNING DISTRICT, NANJING

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

Sample Description : Reflective fabric: 100% polyester in silver
Style No. : UT-1002N

Proposed Care Instruction : -

Test Performed : Selected test(s) as requested by applicant

Sample Receiving Date : Apr 13, 2017

Testing Period : Apr 13, 2017 - Apr 27, 2017

Test Result(s) : Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. For further details, please refer to the following page(s).

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co. Ltd

Hattie Chen

Hattie Chen
Account Executive



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Test Result

High-visibility clothing – Test methods and requirements (EN ISO 20471:2013)

Sections 6.1 and 7.3 Retroreflection for New Separate Performance Retroreflective Material

Entrance Angle	Observation Angle	Measured value (cd/(lx.m ²))	Orientation Sensitive	Minimum Requirement (cd/(lx.m ²))	Result (Pass/Fail)
5°	12'	425	No	330	Pass
	20'	276	No	250	Pass
	1°	46.6	No	25	Pass
	1°30'	16.2	No	10	Pass
20°	12'	425	No	290	Pass
	20'	275	No	200	Pass
	1°	46.3	No	15	Pass
	1°30'	15.2	No	7	Pass
30°	12'	416	No	180	Pass
	20'	274	No	170	Pass
	1°	46.5	No	12	Pass
	1°30'	15.3	No	5	Pass
40°	12'	395	No	65	Pass
	20'	262	No	60	Pass
	1°	43.4	No	10	Pass
	1°30'	14.5	No	4	Pass

(#)Remark:

- When measured at two rotation angles $\varepsilon = 0^\circ$ and $\varepsilon = 90^\circ$, materials having coefficients of retroreflection that differ by more than 15% are defined as orientation sensitive.
- Orientation-sensitive material shall comply with the minimum requirements for the coefficient of retroreflection stated in Table 4 of EN ISO 20471 at one of the two rotation angles. The coefficient of retroreflection shall be not less than 75% of the values stated in Table 4 (Minimum coefficient of retroreflection for separate performance retroreflective material) at the other rotation angle.

Table 4 – Minimum coefficient of retroreflection in cd/(lx.m²) for separate performance retroreflective material

Observation angle	Entrance angle β_1 ($\beta_2 = 0$)			
	5°	20°	30°	40°
12'	330	290	180	65
20'	250	200	170	60
1°	25	15	12	10
1°30'	10	7	5	4



Retroreflection of Separate Performance Retroreflective Materials
Sections 6.2, 7.3 and 7.4.1 Retroreflection after Abrasion

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	354	No	100	Pass

Sections 6.2, 7.3 and 7.4.2 Retroreflection after Flexing

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	430	No	100	Pass

Sections 6.2, 7.3 and 7.4.3 Retroreflection after Folding at cold temperatures

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	426	No	100	Pass

Sections 6.2, 7.3 and 7.4.4 Retroreflection after Temperature Variation

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	424	No	100	Pass

Sections 6.2, 7.3 and 7.4.5 Retroreflection under the influence of rainfall

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	280	No	100	Pass



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Sections 6.2, 7.3 and 7.5.2 Retroreflection after Washing
After 5 washes

Washing procedure in accordance with ISO 6330:2012 Procedure No. 6N; Using horizontal axis, front-loading type machine: Machine wash at 60 degree C with 2 kg total dry mass (type III (100 % polyester) ballast + specimen) and 'ECE' detergent + sodium perborate + TAED, line dry

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	385	No	100	Pass

After 10 washes

Washing procedure in accordance with ISO 6330:2012 Procedure No. 6N; Using horizontal axis, front-loading type machine: Machine wash at 60 degree C with 2 kg total dry mass (type III (100 % polyester) ballast + specimen) and 'ECE' detergent + sodium perborate + TAED, line dry

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	340	No	100	Pass

After 25 washes

Washing procedure in accordance with ISO 6330:2012 Procedure No. 6N; Using horizontal axis, front-loading type machine: Machine wash at 60 degree C with 2 kg total dry mass (type III (100 % polyester) ballast + specimen) and 'ECE' detergent + sodium perborate + TAED, line dry

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value</u> (cd/(lx.m ²))	<u>Orientation-Sensitive</u>	<u>Minimum Requirement</u> (cd/(lx.m ²))	<u>Result</u>
5°	12'	312	No	100	Pass



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After 30 washes

Washing procedure in accordance with ISO 6330:2012 Procedure No. 6N; Using horizontal axis, front-loading type machine: Machine wash at 60 degree C with 2 kg total dry mass (type III (100 % polyester) ballast + specimen) and 'ECE' detergent + sodium perborate + TAED, line dry

Entrance Angle	Observation Angle	Measured value (cd/(lx.m ²))	Orientation-Sensitive	Minimum Requirement (cd/(lx.m ²))	Result
5°	12'	304	No	100	Pass

After 40 washes

Washing procedure in accordance with ISO 6330:2012 Procedure No. 6N; Using horizontal axis, front-loading type machine: Machine wash at 60 degree C with 2 kg total dry mass (type III (100 % polyester) ballast + specimen) and 'ECE' detergent + sodium perborate + TAED, line dry

Entrance Angle	Observation Angle	Measured value (cd/(lx.m ²))	Orientation-Sensitive	Minimum Requirement (cd/(lx.m ²))	Result
5°	12'	250	No	100	Pass

After 50 washes

Washing procedure in accordance with ISO 6330:2012 Procedure No. 6N; Using horizontal axis, front-loading type machine: Machine wash at 60 degree C with 2 kg total dry mass (type III (100 % polyester) ballast + specimen) and 'ECE' detergent + sodium perborate + TAED, line dry

Entrance Angle	Observation Angle	Measured value (cd/(lx.m ²))	Orientation-Sensitive	Minimum Requirement (cd/(lx.m ²))	Result
5°	12'	234	No	100	Pass

*** End of Report ***



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