

XM TEXTILES
ROOM 2403, ZHONGYI INTERNATIONAL BUSINESS BUILDING NO.1833, NORTH ZHONGSHAN ROAD,
PUTUO DISTRICT, SHANGHAI

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

Sample Description : Reflective tape: polyester/cotton 5X2cm in yellow-silver(XM-6033 Trim, R450, XNB-007)

Proposed Care Instruction : -

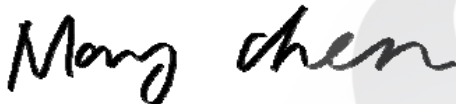
Test Performed : Selected test(s) as requested by applicant

Sample Receiving Date : Apr 24, 2015

Testing Period : Apr 24, 2015 TO Jun 02, 2015

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

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



May Chen (Account Executive)



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Test Result

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

Clauses 6.1 and 7.3 Retroreflection for New Separate Performance Retroreflective Material

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	453	No	330	Pass
	20'	315	No	250	Pass
	1°	35	No	25	Pass
	1°30'	18	No	10	Pass
20°	12'	420	No	290	Pass
	20'	295	No	200	Pass
	1°	40	No	15	Pass
	1°30'	19	No	7	Pass
30°	12'	400	No	180	Pass
	20'	274	No	170	Pass
	1°	51	No	12	Pass
	1°30'	20	No	5	Pass
40°	12'	326	No	65	Pass
	20'	238	No	60	Pass
	1°	49 (ε = 0°)	Yes [#]	10 (ε = 0°)	Pass
		41 (ε = 90°)		7.5 (ε = 90°)	
	1°30'	20	No	4	Pass

(#) Remark:

- When measured at two rotation angles ε = 0° and ε = 90°, 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 of EN ISO 20471– Minimum coefficient of retroreflection in cd/(lx m²) for separate performance retroreflective material

Observation angle	Entrance angle β ₁ (β 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



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Clauses 6.2, 7.3 and 7.5.2 Retroreflection after Washing

After 25 washes

Washing procedure: 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, tumble dry low less than 60 degree C

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	394	No	100	Pass

After 50 washes

Washing procedure: 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, tumble dry low less than 60 degree C

<u>Entrance Angle</u>	<u>Observation Angle</u>	<u>Measured value (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	306	No	100	Pass

*The test was carried out by SGS Hong Kong textile laboratory.

Sample Photo



*** End of Report ***



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