

TRECK S.A.
SANTA ROSA # 5220, SAN JOAQUIN, SANTIAGO, CHILE

THIS REPORT CANCELS AND SUPERSEDES THE TEST REPORT NO. SL518052036457TX DATE: Mar 02, 2018 ISSUED BY SGS (SHANGHAI)

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

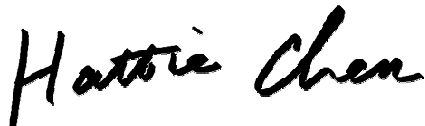
Sample Description : Men's garment: 100% polyester in fluor. yellow (Parka Activex Amarillo Fluor Vial T)
Style No. : 06-01-300
Buyer : TRECK S.A.
Order No. : M17042
Country of Destination : Chile

Proposed Care Instruction : 

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

Sample Receiving Date : Feb 26, 2018
Testing Period : Feb 27, 2018 - Mar 02, 2018
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
Account Executive



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Test Result

High-visibility clothing – Test methods and requirements

(EN ISO 20471: 2013+A1: 2016)

Claimed Classification: Class 2
 Provided Size: S

Section 4 Design
Section 4.1 Types and Classes

	Minimum required areas of visible material (m ²)			Result (m ²)	Classification
	Class 3	Class 2	Class 1		
Background material	0.80	0.50	0.14	1.09	Class 3
Retroreflective material	0.20	0.13	0.10	0.31	
Combined performance material	N/A	N/A	0.20	/	

Remarks:

- (1) For additional information on high visibility garment design, see Annex D.
- (2) The minimum visible area requirements to achieve a garment classification in Table 1 are not to be reduced or compromised due to the presence of any logos, lettering, labels etc.
- (3) Regardless of the area of materials used, a class 3 garment shall cover the torso and shall have either long sleeves (1/1arm) with retroreflective bands or full length trouser legs with retroreflective bands, if not both.

Proportion of front and backside background material in overall background material

Proportion of background material (%)		Requirement	Pass/Fail
Front	Backside		
50	50	50±10%	Pass



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Section 4.2 Specific design requirements

Sections	Requirements	Results	Pass/Fail
4.2.2	Garments covering torso and arms The background material shall encircle the torso and the sleeves and shall maintain a minimum width (height) of 50 mm. Interruptions by retroreflective stripes are not counted. Bands of retroreflective material shall be at least 50 mm wide.	95mm 50mm	Pass
	Alternatively , garments covering torso and arms shall have two or more bands of retroreflective material at least 50 mm apart and encircling the torso with a maximum inclination of $\pm 20^\circ$ to the horizontal . The bottom of the lowest torso band shall be at least 50 mm above the bottom edge.	0° 95mm 150mm	Pass
	If a sleeve blocks a clear view of a horizontal torso band, then the sleeve shall be encircled with two retroreflective bands at least 50 mm apart with the lower band at least 50 mm above the sleeve edge. Testing regarding the clear view shall be done by visual inspection while moving the arm in all positions.	90mm 165mm	Pass
	Any gap (for fastening systems and seams) in the lengthwise continuity of each band of retroreflective or combined performance material shall not be greater than 50 mm , measured parallel to the direction of the band , and the total of such gaps shall not be greater than 100 mm in any band around the torso and 50 mm around the sleeves.	0mm 0mm 0mm	Pass

Sections 5.1.1 and 7.2: Colour Performance Requirements of New Background Materials

		Measured Values of Sample	Result
Chromaticity coordinates	x value	0.384	Pass
	y value	0.547	
Luminance Factor, β		1.17	Pass

Sections 5.2 and 7.2: Colour Performance Requirements of Background Materials after Xenon Test (ISO 105-B02:1994, method 3; Xenon-arc Lamp)

		Measured Values of Sample	Result
Chromaticity coordinates	x value	0.382	Pass
	y value	0.545	
Luminance Factor, β		1.13	Pass

The chromaticity shall be within one of the areas defined by coordinates in EN ISO 20471: 2013 Table 2 and the luminance factor shall comply with the corresponding minimum value.



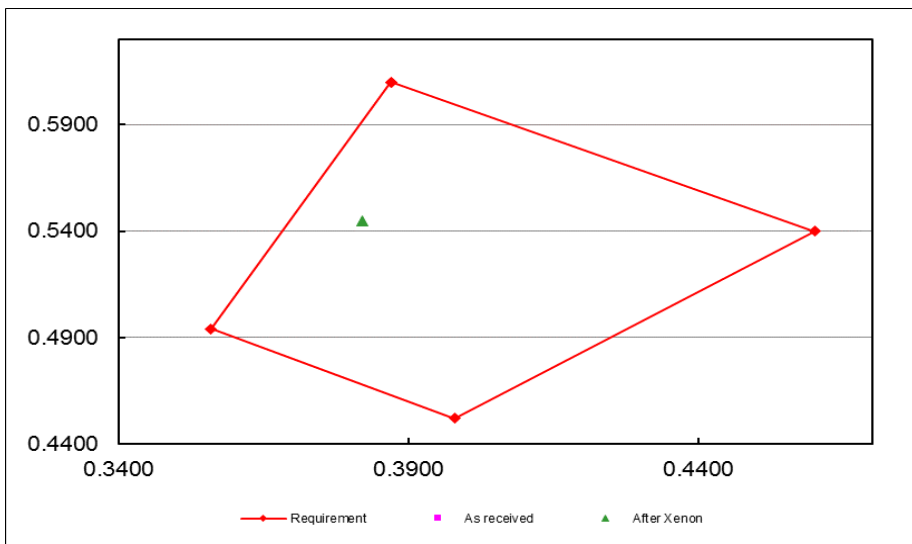
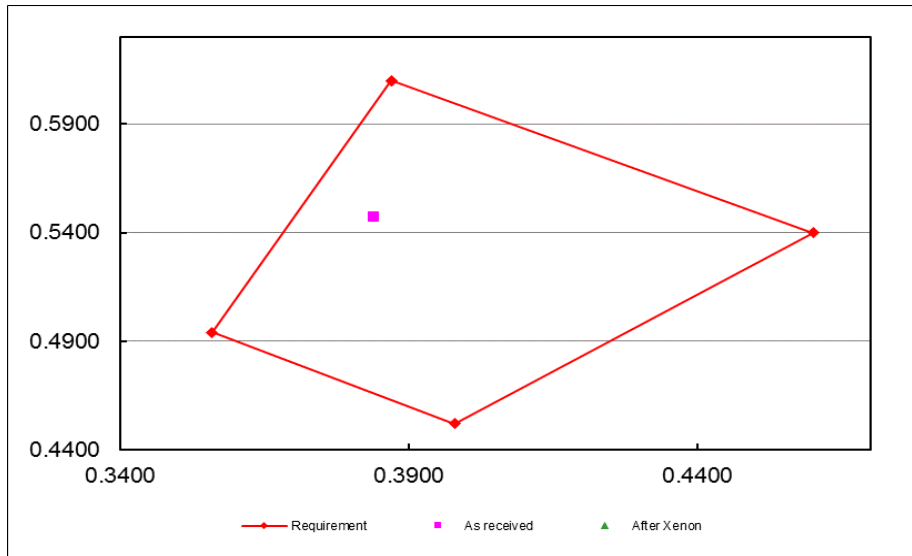
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Colour requirements for background material

Colour	Chromaticity coordinates		Minimum luminance factor β_{min}
	x	y	
Fluorescent yellow	0.387	0.610	0.70
	0.356	0.494	
	0.398	0.452	
	0.460	0.540	

Graphs:



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Sections 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 (Pass/Fail)</u>
5°	12°	335	No	330	Pass
	20°	281	No	250	Pass
	1°	32.9	No	25	Pass
	1°30'	17.3	No	10	Pass
20°	12°	316	No	290	Pass
	20°	268	No	200	Pass
	1°	34.0	No	15	Pass
	1°30'	18.1	No	7	Pass
30°	12°	325	No	180	Pass
	20°	273	No	170	Pass
	1°	35.0	No	12	Pass
	1°30'	16.7	No	5	Pass
40°	12°	305	No	65	Pass
	20°	259	No	60	Pass
	1°	38.4	No	10	Pass
	1°30'	15.7	No	4	Pass

(#)Remark:

1. When measured at two rotation angles $\epsilon = 0^\circ$ and $\epsilon = 90^\circ$, materials having coefficients of retroreflection that differ by more than 15% are defined as orientation sensitive.
2. 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



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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 (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	330	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 (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	357	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 (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	350	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 (cd/(lx.m²))</u>	<u>Orientation-Sensitive</u>	<u>Minimum Requirement (cd/(lx.m²))</u>	<u>Result</u>
5°	12'	348	No	100	Pass



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Sample Photo



*** End of Report ***



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