

**High-visibility clothing - Test methods and requirements (EN ISO 20471:2013+A1:2016)**

Conclusion	A	Remark
Clause 5.1 Colour Performance Requirements of New Material	PASS	
Clause 5.1 Colour Performance Requirements of Material after Domestic Washing	PASS	
Clause 5.2 Colour Performance Requirements of Materials after Xenon Test	PASS	
Clause 5.3.1 Colour Fastness To Rubbing	PASS	
Clause 5.3.2 Colour Fastness To Perspiration	PASS	
Clause 5.3.3 Colour Fastness To Washing	PASS	
Clause 5.3.3 Colour Fastness to Hot Pressing	PASS	
Clause 5.4 Dimensional Change after Domestic Washing	PASS	
Clause 5.5.1 Tensile Strength	PASS	

Remark(s) : PASS=Meet General Requirement



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

Test Result

**High-visibility clothing - Test methods and requirements**

EN ISO 20471:2013+A1:2016

**Clause 5.1 Colour Performance Requirements of New Material**

(EN ISO 20471:2013+A1:2016, Clause 7.2)

-	Unit	A
Chromaticity coordinates, x value	-	0.590
Chromaticity coordinates, y value	-	0.360
Luminance Factor, $\beta$	-	0.51

Conclusion: Pass

Remark:

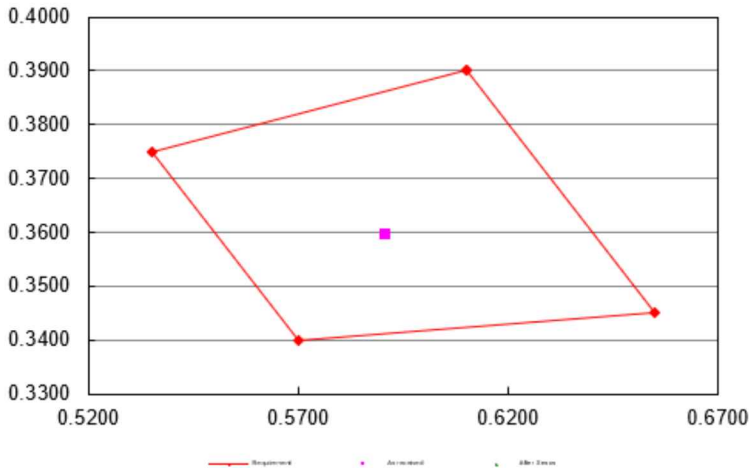
The chromaticity coordinates and the luminance factor shall comply with the requirement as below. The chromaticity shall be within one of the areas and the luminance factor shall comply with the corresponding minimum value.

Fluorescent orange-red:

Chromaticity coordinates x/y: 0.610/0.390, 0.535/0.375, 0.570/0.340, 0.655/0.345.

Minimum luminance factor  $\beta_{min}$  : 0.40

Graphs:



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC Shanghai Technical Services Co., Ltd.  
 Soffline Laboratory

3<sup>rd</sup> Building, No. 889, Yishan Road, Xuhui District Shanghai, China 200233  
 中国·上海·徐汇区宜山路889号3号楼 邮编: 200233

t (86-21) 61402666  
 t (86-21) 61402666

f (86-21) 64958763  
 f (86-21) 64958763

www.sgsgroup.com.cn  
 sgs.china@sgs.com

**Clause 5.1 Colour Performance Requirements of Material after Domestic Washing**

(EN ISO 20471:2013+A1:2016, Clause 7.2)

After 5 Washes

	Unit	A
Chromaticity coordinates, x value	-	0.592
Chromaticity coordinates, y value	-	0.360
Luminance Factor, $\beta$	-	0.51

Conclusion: Pass

Remark:

1. Pre-treatment(wash): ISO 6330:2021:Using horizontal axis, front-loading type machine; Procedure No.3N, Machine Wash At 30°C; with 2kg total dry mass (Type III (100% Polyester) Ballast+Specimen) and 20±1 g ECE reference detergent 98 without optical brightener, Line Dry, Cool Iron

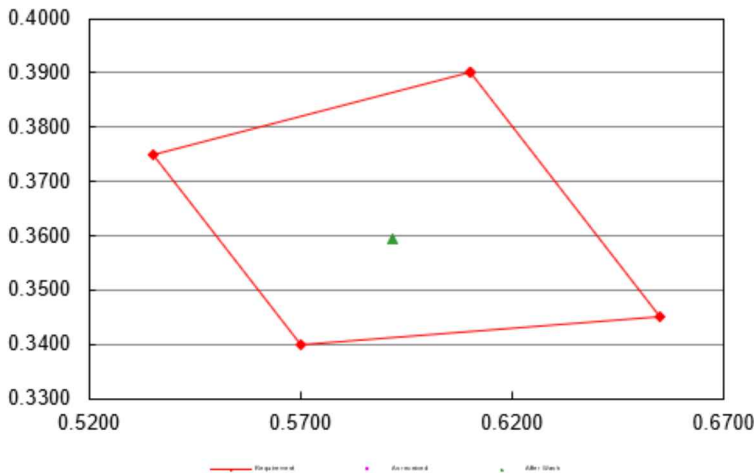
2. The chromaticity coordinates and the luminance factor shall comply with the requirement as below. The chromaticity shall be within one of the areas and the luminance factor shall comply with the corresponding minimum value.

Fluorescent orange-red:

Chromaticity coordinates x/y: 0.610/0.390, 0.535/0.375, 0.570/0.340, 0.655/0.345.

Minimum luminance factor  $\beta_{min}$  : 0.40

Graphs:



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

3<sup>rd</sup> Building, No.889, Yishan Road, Xuhui District Shanghai, China 200233 t (86-21) 61402666 f (86-21) 64958763 www.sgsgroup.com.cn  
 中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 t (86-21) 61402666 f (86-21) 64958763 sgs.china@sgs.com

**Clause 5.2 Colour Performance Requirements of Materials after Xenon Test**

(EN ISO 20471:2013+A1:2016, Clause 7.2)

	Unit	A
Chromaticity coordinates, x value	-	0.560
Chromaticity coordinates, y value	-	0.362
Luminance Factor, β	-	0.54

Conclusion: Pass

Remark:

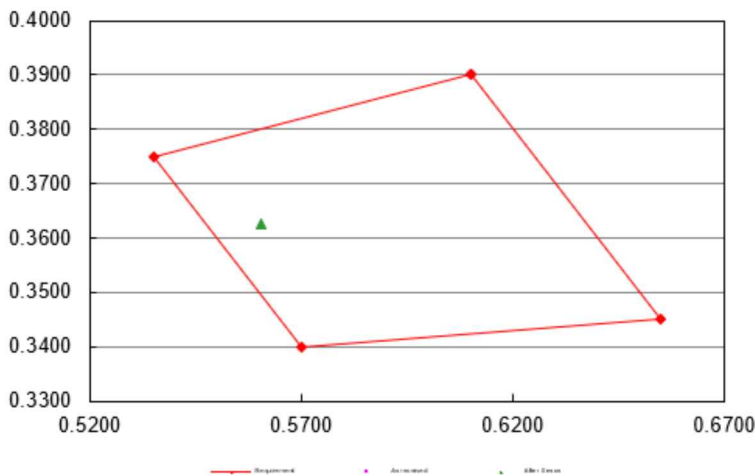
1. The chromaticity coordinates and the luminance factor shall comply with the requirement as below. The chromaticity shall be within one of the areas and the luminance factor shall comply with the corresponding minimum value.

Fluorescent orange-red:

Chromaticity coordinates x/y: 0.610/0.390, 0.535/0.375, 0.570/0.340, 0.655/0.345.

Minimum luminance factor β<sub>min</sub> : 0.40

Graphs:



**Clause 5.3.1 Colour Fastness To Rubbing**

(ISO 105-X12:2016; Size of rubbing finger: 16mm dia.)

As Received

	Unit	A	Requirement
Dry Staining	Grade	4-5	Min.4

Remark: Grey Scale Rating is based on the 5-step scale of 1 to 5, where 1 is worst and 5 is best.



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

3<sup>rd</sup> Building, No. 889, Yishan Road, Xuhui District Shanghai, China 200233 t (86-21) 61402666 f (86-21) 64958763 www.sgs.com.cn  
 中国·上海·徐汇区宜山路889号3号楼 邮编: 200233 t (86-21) 61402666 f (86-21) 64958763 sgs.china@sgs.com

**Clause 5.3.2 Colour Fastness To Perspiration**

(ISO 105-E04:2013; Test specimen in vertical position)

Acid

-	Unit	A	Requirement
Change in Shade	Grade	4-5	Min.4
Staining On Multi-fibre Stripe			Min.4
Acetate	Grade	4-5	
Cotton	Grade	4-5	
Polyamide	Grade	4-5	
Polyester	Grade	4-5*	
Acrylic	Grade	4-5	
Wool	Grade	4-5	

Alkaline

-	Unit	A	Requirement
Change in Shade	Grade	4-5	Min.4
Staining On Multi-fibre Stripe			Min.4
Acetate	Grade	4-5	
Cotton	Grade	4-5	
Polyamide	Grade	4-5	
Polyester	Grade	4-5*	
Acrylic	Grade	4-5	
Wool	Grade	4-5	

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

\*Select only the fibre corresponding to the fibres of the background and non-fluorescent material.

**Clause 5.3.3 Colour Fastness To Washing**

(ISO 105-C06:2010; Test No.: A2S, Machine wash at 40°C with 4g/L ECE (B) and 1g/L Sodium Perborate with 10 Steel Balls,)

-	Unit	A	Requirement
Change in Shade	Grade	4-5	Min.4-5
Staining On Multi-fibre Stripe			Min.4
Acetate	Grade	4-5	
Cotton	Grade	4-5	
Polyamide	Grade	4-5	
Polyester	Grade	4-5*	
Acrylic	Grade	4-5	
Wool	Grade	4-5	



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CSTC (Shanghai) Technical Services (Shanghai) Co., Ltd.  
Softline Laboratory

3<sup>rd</sup> Building, No. 889, Yishan Road, Xuhui District Shanghai, China 200233  
中国·上海·徐汇区宜山路889号3号楼 邮编: 200233

t (86-21) 61402666 f (86-21) 64958763  
t (86-21) 61402666 f (86-21) 64958763

www.sgs.com.cn  
sgs.china@sgs.com

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

\*Select only the fibre corresponding to the fibres of the background and non-fluorescent material.

**Clause 5.3.3 Colour Fastness to Hot Pressing**

(ISO 105-X11:1994; Press with Scorch Tester at 110°C for 15 seconds)

A	Unit	Immediately observation	Observation after Conditioning	Requirement
Dry pressing				-
Change in Shade	Grade	4-5	4-5	Min.4-5
Staining On Cotton	Grade	4-5	4-5	Min.4

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

**Clause 5.4 Dimensional Change after Domestic Washing**

(ISO 3759:2011/ISO 5077:2007/ISO 6330:2021; Using horizontal axis, front-loading type machine; Procedure No.3N, Machine Wash At 30°C; with 2.0±0.2kg total dry mass (Type III (100% Polyester) Ballast+ Specimen) and 20±1 g ECE reference detergent 98 without optical brightener, Line Dry, Cool Iron)

After 5 Washes

	Unit	A	Requirement
-			
Lengthwise	%	-0.9	+/-3%
Widthwise	%	-0.3	+/-3%

Remark: (+)Means Growth; (-)Means Shrinkage

**Clause 5.5.1 Tensile Strength**

(ISO 13934-1:2013; Strip method)

As Received

	Unit	A	Requirement
-			
Warp/Length	N	1300	Min.100N
Weft/Width	N	1100	Min.100N



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

### Sample Photo



The statement of conformity in this test report is only based on measured values by the laboratory and does not take their uncertainties into consideration.

\*\*\*End of Report\*\*\*

Scan to see the report



SL52325357329001TX

Verification:  
check.sgsonline.com.cn

