



# CHINASTARS

REFLECTIVE MATERIAL

## TECHNICAL DATA SHEET

*BE SEEN, BE SAFER*

### CSR-1303-FR20 Flame Resistant Fabric

#### DESCRIPTION

The reflective part of Chinastars CSR-1303-FR20 flame retardant fabric red-silver-red is composed of micro-glass beads bonded to a 100% FR treated cotton fabric backing. The fluorescent red contrasting part helps to make the material highly visible in daytime.

#### REFLECTIVE PERFORMANCE

The reflective coefficient (R, in cd/lux/m<sup>2</sup>) of CSR-1303-FR20 can meet the requirements in international standards like EN ISO 20471, ANSI/ISEA 107, CSA-Z96-15, AS/NZS 1906.

Observation Angle	Entrance Angle	Minimum Reflectivity	Typical Reflectivity
5°	12'	330	>420

#### WASH PERFORMANCE

Product No.	Home Wash Cycles <sup>1</sup>	Dry Cleaning Cycles <sup>2</sup>
CSR-1303-FR20	>50	>50

<sup>1</sup>ISO 6330 Method 2A at 60 °C (140 °F) and R<sub>A</sub> ≥ 100 cd/lux/m<sup>2</sup> (home wash)

<sup>2</sup>ISO 3175 Method 8.1 and R<sub>A</sub> ≥ 100 cd/lux/m<sup>2</sup>

#### COLOR

Product No.	Daytime Color
CSR-1303-FR20	Red-Silver-Red

#### RHYSICAL PERFORMANCE

After the following each exposure testing, CS-1303-FR20 R<sub>A</sub> values are above 100 cd/lux/m<sup>2</sup> at +5.0° entrance angle and 0.2° observation angle.

Physical Performance	Test Method
Abrasion	EN 530 Method 2, 5000 cycles
Flexing	ISO 7854 Method A, 7500 cycles
Cold Fold	ISO 4675, -20°C (-4°F)
Temperature Cycle	12 hours @ 50°C (122°F); 20 hours @ -30°C (-22°F)
Wash	ISO 6330 Method 2A @ 60°C (140°F) number of cycles listed
Dry-Clean	ISO 3175 Method 9.1 number of cycles listed
Wet Reflectivity	ANSI 107-2015 Appendix A; EN 20471:2013 Annex C
Flame Resistance	ASTM D6413 char length ≤ 4 inches; after flame <2 seconds

## CERTIFICATION

CSR-1303-FR20 flame resistant reflective fabric meet the requirements in below listed standards for high visibility garments.

Product No.	EN ISO 20471 ANSI/ISEA 107 CSA-Z96-15 AS/NZS 1906	EN469 EN ISO 14116 EN ISO 11612 NFPA 701 ASTM 1506
CSR 1303-FR20	✓	✓

## APPLICATION INSTRUCTIONS

**Cutting:** Die-cutting is recommended, although it can also be hand-cut or guillotined.

**Sewing:** Sew in place using a lockstitch with no more than 12 stitches per inch (2.54 cm), and not less than 5/64" (2 mm) from the edge of the reflective fabric. For best results, apply to light and medium weight fabrics.

**Printing:** Inks can be printed on the surface of Chinastars reflective fabrics. Before printing, all inks shall be tested to ensure acceptable adhesion. Wipe the surface lightly with a soft cloth dampened with isopropyl alcohol may help ink adhesion.

## CARE AND MAINTENANCE INSTRUCTIONS

Actual life of CSR-1303-FR2O fabric trim depends on cleaning method and wear conditions.



Do not presoak  
Machine wash warm,  
60°C (150°F)



Tumble  
dry low



Cool iron, Do  
not exceed  
150°C (300°F)



Do not bleach

Some suggestions for extending the life of reflective fabric on safety clothing:

1. When do machine wash, you may use a mild detergent, but No Bleach or Fabric Softener!
2. Try to avoid wash the reflective products with your work jeans or any clothing with rough fabric or edges. The microscopic glass beads on the reflective fabric can be worn off by rough texture.
3. Try to line dry your reflective products. If you choose to machine dry, try to remove the product immediately. The added heat can damage the reflective fabric.

## HANDLING PRECAUTIONS

Most of our reflective fabric contains aluminum layer, and sweat /oil/ water stains may occur if the surface of the product has direct contact with hands during application and is then exposed to hot and humid conditions. Even though these blemishes won't affect performance of the product, we strongly recommend handling the reflective fabric with gloves and keeping them in the environment of below 26.7 °C (80 °F) and lowering than 70% relative humidity.



### HANGZHOU CHINASTARS REFLECTIVE MATERIAL CO., LTD

Office: No.98 Shimin Street, Jianggan District,  
Hangzhou, China, 310016  
Tel: +86-571-88155512  
Fax: +86-571-88156171  
Website: [www.chinareflective.com](http://www.chinareflective.com)  
Email: [info@chinastars.com.cn](mailto:info@chinastars.com.cn)

**Hangzhou Factory:**  
Jingshan Town,  
Yuhang district,  
Hangzhou, China

**Huzhou Factory:**  
Southern Industrial  
Park, Changxing  
county, Huzhou, China

*BE SEEN , BE SAFER*