



TECHNICAL DATA SHEET

BE SEEN, BE SAFER

Chinastars reflective fabrics

DESCRIPTION

Chinastars reflective fabrics are composed of micro-glass beads embedded into base fabric such as polyester, TC, FR cotton, aramid or spandex fabric ect.. It reflects light directly to the original light source and enhances the visibility of anyone who wears it.

Chinastars Reflective fabrics have excellent durability in home wash, dry cleaning and industrial wash to meet various requirements of occupational apparel.

| Product No. | Backing Fabric | Retro Reflective performance ¹ | Home Wash Cycles ² | Dry cleaning Cycles ³ | Industrial wash Cycles ⁴ |
|--|-------------------------------|---|-------------------------------|----------------------------------|-------------------------------------|
| CSR 1303-2 Grey fabric | 100% Polyester | R>330 | >25 | — | — |
| CSR 1304-4 Grey fabric | 65% Polyester and 35% Cotton | R>330 | >25 | — | — |
| CSR 1303-5 Silver fabric | 100% Polyester | R>420 | >25 | — | — |
| CSR 1303-6 Silver fabric | 65% Polyester and 35% Cotton | R>420 | >50 | — | — |
| CSR 1325 Silver fabric | 65% Polyester and 35% Cotton | R>420 | >100 | — | — |
| CSR 1360-6 Silver fabric | 65% Polyester and 35% Cotton | R>420 | >100 | >50 | >50 |
| CSR 1303-8 Silver stretchable fabric | 86% Polyester and 14% Spandex | R>420 | >25 | — | — |
| CSR 1303-9 Silver stretchable fabric | 86% Polyester and 14% Spandex | R>420 | >25 | — | — |
| CSR 1303-FR Silver flame resistant fabric | 100% FR treated Cotton | R>420 | >50 | >50 | — |
| CSR 1303-FR2Y Yellow-silver flame resistant fabric | 100% FR treated Cotton | R>420 | >50 | >50 | — |
| CSR 1303-FR2O Orange-silver flame resistant fabric | 100% FR treated Cotton | R>420 | >50 | >50 | — |
| CSR 1303-NM Silver flame resistant fabric | 100% Aramid | R>420 | >50 | >50 | — |
| CSR 1303-NM2Y Yellow-silver flame resistant fabric | 100% Aramid | R>420 | >50 | >50 | — |
| CSR 1303-NM2O Orange-silver flame resistant fabric | 100% Aramid | R>420 | >50 | >50 | — |

¹Measured on new product at +5.0° entrance and 0.2° observation angles

²ISO 6330 Method 2A at 60 ° C (140 ° F) and $R_A \geq 100$ cd/lux/m² (home wash)

³ISO 3175 Method 8.1 and $R_A \geq 100$ cd/lux/m²

⁴ISO 15797:2002 at 75 ° (165 ° F) and $R_A \geq 100$ cd/lux/m²

PRODUCT CERTIFICATION

The following Chinastars reflective fabrics meet the requirements for reflective material in below listed standards for high visibility garments.

| Product No. | OKEO-TEX 100 | EN ISO 20471 ANSI/ISEA 107 CSA-Z96-15 AS/NZS 1906 | EN 469 EN ISO 14116 EN ISO 11612 NFPA 701 ASTM 1506 |
|--|--------------|--|---|
| CSR 1303-2 Grey fabric | ✓ | ✓ | N/A |
| CSR 1303-4 Grey fabric | ✓ | ✓ | N/A |
| CSR 1303-5 Silver fabric | ✓ | ✓ | N/A |
| CSR 1303-6 Silver fabric | ✓ | ✓ | N/A |
| CSR 1325 Silver fabric | ✓ | ✓ | N/A |
| CSR 1360-6 Silver fabric | ✓ | ✓ | N/A |
| CSR 1303-8 silver stretchable fabric | ✓ | ✓ | N/A |
| CSR 1303-9 silver stretchable fabric | ✓ | ✓ | N/A |
| CSR 1303-FR Silver flame resistant fabric | — | ✓ | ✓ |
| CSR 1303-FR2Y Yellow-silver flame resistant fabric | — | ✓ | ✓ |
| CSR 1303-FR2O Orange-silver flame resistant fabric | — | ✓ | ✓ |
| CSR 1303-NM Silver flame resistant fabric | — | ✓ | ✓ |
| CSR 1303-NM2Y Yellow-silver flame resistant fabric | — | ✓ | ✓ |
| CSR 1303-NM2O Orange-silver flame resistant fabric | — | ✓ | ✓ |

PHYSICAL PERFORMANCE

After the following each exposure testing, Chinastars reflective fabrics R_a values are above 100 cd/lux/m² 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 |

APPLICATION

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.

| Product | Wash | Dry | Iron |
|--------------------------------------|--|--|--|
| CSR 1303-2 grey fabric |  Do not presoak Machine wash warm, 40°C (105°F)  Do not bleach  Do not dry-clean |  Tumble dry low |  Cool iron, do not exceed 120°C (248°F) |
| CSR 1303-4 grey fabric | | | |
| CSR 1303-5 silver fabric | | | |
| CSR 1303-6 silver fabric | | | |
| CSR 1325 silver fabric | | | |
| CSR 1303-8 stretchable fabric | | | |
| CSR 1303-9 stretchable fabric | | | |
| CSR 1360 industrial wash fabric |  Do not presoak Machine wash warm, 60°C(140°F)  Do not bleach |  Tumble dry low |  Cool iron, do not exceed 150°C (300°F) |
| CSR 1303-FR flame resistant fabric | | | |
| CSR 1303-FR2Y flame resistant fabric | | | |
| CSR 1303-FR2O flame resistant fabric | | | |
| CSR 1303-NM flame resistant fabric | | | |
| CSR 1303-NM2Y flame resistant fabric | | | |
| CSR 1303-NM2O flame resistant fabric | | | |

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 heat transfer film 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
Email: 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