



Scotchlite™

Reflective Material

8935 Silver Industrial Wash Flame Resistant Fabric

Technical Data Sheet

April 2001

Description

3M™ Scotchlite™ Reflective Material - 8935 Silver Industrial Wash Flame Resistant Fabric is composed of wide angle, exposed retroreflective lenses bonded with a special polymer layer to a flame resistant, durable 100% cotton cloth backing.

Retroreflective Performance

The coefficient of retroreflection (R_A , in $cd/lux/m^2$) is measured by methods traceable to either of the following retroreflective intensity testing procedures:

- ASTM E809 and E810 (R_A)
- CIE 54: 1982 (R')

The R_A values were measured at the listed specific entrance and observation angles.

Entrance Angle	Observation Angle	Typical R_A	Minimum R_A
-4.0°	0.2°	500	330
+5.0°	0.33°	330	250

Color

Product Number	Daytime Color	Reflected Color
8935	Silver	White

Physical Performance

Scotchlite reflective material - 8935 silver industrial wash flame resistant fabric is certified to meet ANSI/ISEA 107-1999 Level 2 retroreflective performance and EN 471 Class 2 retroreflective performance, and will meet or exceed the following specifications:

- Retroreflectivity:ANSI/ISEA 107-1999 Level 2 (Table 5)
EN 471 Class 2 (Table 5)
NFPA 1971, 2000 Edition, Sections 6-46 and 5-1.22.
- Abrasion:EN 530 Method 2
 $R_A \geq 100$ 5000 cycles
- Flexing:ISO 7854 Method A
 $(R_A \geq 100)$ 7500 cycles
- Cold Fold:ISO 4675 (-20°C)
 $(R_A \geq 100)$
- Temperature Cycle: . . .12 hours @ (50±2)°C
 $(R_A \geq 100)$ 20 hours @ (-30±2)°C
- Wash:ISO 6330 Method 2A
 $(R_A \geq 100)$ 50 cycles @ 60°C (140°F)
- Dry-clean:ISO 3175 Method 9.1
 $(R_A \geq 100)$ 30 cycles
- Wet Reflectivity:ANSI/ISEA 107-1999 Annex A
 $(R_A \geq 100)$ EN 471 Annex A
- Flame Resistance:NFPA 1971, 2000 Edition, Sections 5-1.4 and 6-2.
(Federal Test Method Standard 191A, Method 5903.1: 4" char length, 2 seconds after flame)
- Heat Resistance:NFPA 1971, 2000 Edition, Sections 5-1.6 and 6-6.
- Convective Heat:NFPA 1971, 2000 Edition, Sections 6-1.5, 6-6 and 6-46.

Performance

While use of 3M™ Scotchlite™ Reflective Material enhances visibility, no reflective material can guarantee absolute visibility, particularly in adverse weather conditions. Performance will vary depending upon actual use, exposure conditions and maintenance. Users should test reflective material to satisfy conformance to their own requirements.

Application Instructions

Whenever two or more pieces of 3M™ Scotchlite™ Reflective Material - 8935 Silver Flame Resistant Industrial Wash Fabric are used together on a single surface or as a set, they should be matched to ensure uniform daytime color and nighttime or low-light reflectivity.

Cutting: Die-cutting is recommended, although fabric 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 medium and heavy weight fabrics. Use appropriate thread for flame resistant applications.

Care and Maintenance Instructions

Important: Test each application according to appropriate care instructions required for the finished product. Actual life of Scotchlite reflective material - 8935 silver industrial wash flame resistant fabric depends on cleaning method and wear conditions. Care label recommendation for home laundering:

Home Wash Guideline

Wash: Machine wash warm, 60°C (140°F)



Bleach: Only non-chlorine bleach when needed



Dry: Tumble dry low



Iron: Use medium iron, 150°C (300°F)



Dry-clean: Dry-clean, normal cycle



Industrial Wash Guideline

Use low- to medium-alkaline, high-surfactant detergents. **Do not** use detergents that contain free sodium hydroxide or potassium hydroxide.

Do not use solvenated surfactants.

Stain treatment wash processing will greatly reduce the life of Scotchlite reflective material - 8935 silver industrial wash flame resistant fabric.

Do not use chlorine or perborate bleach.

Maximum wash temperature: 75°C (165°F)

Break/suds cycles: Less than 15 minutes total

Tunnel dry: Tunnel input temperature must not exceed 120°C (250°F)

Tumble dry: Maximum exhaust stack temperature 90°C (195°F)

Pressing: Do not exceed 150°C (300°F)

Product Availability

3M™ Scotchlite™ Reflective Material - 8935 Silver Flame Resistant Industrial Wash Fabric is available in rolls with the following standard widths and roll lengths:

Units	Width	Width Tolerance	Standard Roll Length
inches	< 6"	±1/32"	100 yd.
inches	6" ≤ w < 36" ≥ 36"	0" to +1/8" +1/8" to +1/4"	100 yd. (> 12" = 50 yd.)
mm	< 150 mm	±1 mm (std) ±.5 mm (special)	100 m
mm	150 mm ≤ w < 900 mm ≥ 900 mm	0 mm to +4 mm +3 mm to +7 mm	100 m (> 300 mm = 50 m)

Order and Product Information

To order 3M™ Scotchlite™ Reflective Material Products contact 3M Personal Safety Products Department Customer Service at 800-328-7098 Ext. 2.

Storage and Shelf Life

Store in a cool, dry area and use within two years after date of receipt. Store rolls in original shipping cartons. Return partially used rolls to the carton or suspend horizontally through the core. Cut sheets should be stored flat.

Handling Precautions for Hot and Humid Environments

Scotchlite reflective material - 8935 silver flame resistant industrial wash fabric contains an aluminum layer as part of its construction. Blemishing of this aluminum layer can occur if the front surface of the product has direct contact from hands during application and is then exposed to hot and humid conditions, greater than 80°F and greater than 70% relative humidity, for a period of weeks. These blemishes do not affect the performance of the product.

Important Notice to Purchaser:

Except where prohibited by law, 3M makes the following limited warranty in place of any others, express or implied, including any implied warranties or conditions of MERCHANTABILITY or fitness for a particular purpose or any implied warranty or condition commonly found in the industry: 3M shall replace or, at its option, refund the price paid to 3M for any 3M™ Scotchlite™ Reflective Material or other 3M reflective products (“Products”) which at the time of shipment to 3M’s purchaser do not meet 3M’s published Product specifications.

Because of the unlimited variety of potential applications for Products, BEFORE production use, the User (which may be a converter or end product manufacturer or others) must determine that the Products are suitable for the intended use and are compatible with other component materials. User is solely responsible for determining the proper amount and placement of Products. While reflective Products enhance visibility, no reflective product can ensure visibility or safety under all possible conditions. **3M shall not be liable in contract or in tort, for any indirect, incidental, special, or consequential damages (including, without limitation, lost profits, goodwill and business opportunity) relating to the use or inability to use the Products.**



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