

Technical Data Sheet

3M™ Scotchlite™ Reflective Material 8735 Flame Resistant Transfer Film

Description

3M™ Scotchlite™ Reflective Material – 8735 Flame Resistant Transfer Film is designed for use on safety garments requiring flame resistance. When properly used, Scotchlite reflective material – 8735 flame resistant transfer film helps enhance the visibility of the wearer in nighttime or low-light conditions when illuminated by a light source such as headlights, by returning the light back toward the original source and reaching the automobile driver's eye. Scotchlite reflective material – 8735 flame resistant transfer film is composed of wide angle, exposed retroreflective lenses bonded to a heat-activated adhesive. The product comes without any liner and can be laminated directly to compatible substrates.

Retroreflective Performance

The coefficient of retroreflection (R_A , in cd/lux/m²) is measured by methods traceable to either of the following retroreflective intensity testing procedures:

ASTM E809-08 and E810-03 (R_A)

CIE 54.2:2001 (R')

Reflected color of Scotchlite reflective material – 8735 flame resistant transfer film is white.

The R_A values were measured at the listed specific entrance and observation angles. Retroreflective performance data were generated by 3M and are based on testing new product. Use, wear, laundering, and environmental conditions will affect performance. Please contact your 3M representative for proposed product specifications.

Product Certification

ANSI/ISEA 107 and CAN/CSA Z96

Scotchlite reflective material – 8735 flame resistant transfer film is certified to the current version of ANSI/ISEA 107 American National Standard for High-Visibility Safety Apparel and Headwear for Level 2 retroreflective performance and will meet the requirements for the current version of CAN/CSA Z96 High Visibility Safety Apparel.

3M™ Scotchlite™ Reflective Material				
Product Number	Daytime Color	Initial Average R_A ¹	Minimum R_A ²	Wash Cycles ³
8735 Flame Resistant Transfer Film	Silver	500	330	50

¹Measured by 3M on new product at +5.0° entrance and 0.2° observation angles

²ANSI/ISEA 107 minimum coefficient of retroreflection for Level 2 retroreflective material

³ISO 6330 Method 2A at 60 °C (140 °F) and $R_A \geq 100$ cd/lux/m²

3M™ Scotchlite™ Reflective Material – Transfer Films are not certified for marine safety applications requiring IMO type approval.

3M™ Scotchlite™ Reflective Material – SOLAS Grade Products have this type of certificate.

Performance

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

Please visit our website, Scotchlite.com for new or updated technical literature or contact your local 3M Protective Apparel and Footwear Market Center Technical Service Representative.

Physical Performance

3M™ Scotchlite™ Reflective Material – 8735 Flame Resistant Transfer Film will meet or exceed the following physical performance as noted. All R_A values are at +5° entrance angle and 0.2° observation angle. See product certificate on Scotchlite.com website for testing laboratory and test date.

3M™ Scotchlite™ Reflective Material	
Physical Performance	Test Method
Retroreflectivity: (Initial)	ANSI/ISEA 107-2010 Level 2 (Table 4)
Abrasion: $R_A \geq 100$	EN 530 Method 2, 5000 cycles
Flexing: $R_A \geq 100$	ISO 7854 Method A, 7500 cycles
Cold Fold: $R_A \geq 100$	ISO 4675, -20 °C (-4 °F)
Temperature Cycle: $R_A \geq 100$	12 hours @ 50 °C (122 °F); 20 hours @ -30 °C (-22 °F)
Wash: $R_A \geq 100$	ISO 6330 Method 2A, 50 cycles @ 60 °C (140 °F)
Wet Reflectivity: $R_A \geq 100$	ANSI/ISEA 107-2010, Appendix A; NFPA 1971; NFPA 1977; NFPA 1951
Flame Resistance ⁴ : after flame ≤ 2 seconds, char length ≤ 4 inches	ASTM D6413
Heat Resistance ⁴ : cannot melt, drip, separate or ignite after 5 minutes @ 260 °C (500 °F)	NFPA 2112; NFPA 1971; NFPA 1977; NFPA1951; CGSB 155.1; CGSB 155.20; CGSB 155.22
Convective Heat ⁴ : $R_A \geq 100$ after 10 minutes @ 140 °C (285 °F)	NFPA 1971; NFPA 1977; NFPA 1951; CGSB 155.1; CGSB 155.22
Arc Thermal Performance Value ⁴ : ATPV ≥ 5 cal/cm ²	ASTM F1959

⁴Only when applied to compliant fabrics such as certain aramids, modacrylics, and FR treated cottons

Application Instructions

Whenever two or more pieces of Scotchlite reflective material are used together on a single surface or as a set, they should be matched to ensure uniform color and reflectivity. All safety garments should be constructed in accordance with the appropriate standards.

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

Heat Lamination

1. Work on a flat surface where uniform heat and pressure can be applied. Avoid applying film over seams and stitches.
2. Place transfer film on fabric substrate with the adhesive side down and apply heat and pressure as described in table below. Use a non-stick slip sheet to protect the reflective surface.
3. The lamination temperature, time and pressure listed below should be used as a guide. Each substrate and reflective film combination should be tested to determine the best set of conditions that will meet customer requirements.
4. Other lamination methods, such as roll to roll, heat fusing and HF welding can also be used. The proper temperature, time and pressure conditions must be tested for each fabric to ensure adequate adhesion and physical performance.



3M™ Scotchlite™ Reflective Material			
Product Number	Temperature	Dwell Time	Line Pressure
8735 Flame Resistant Transfer Film	175-190 °C (350-375 °F)	20 seconds	Firm (30-40 psi)

Handling Precautions

This product contains an aluminum layer as part of the 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 27 °C (80 °F) and greater than 70% relative humidity for a period of weeks. These blemishes do not affect performance of the product. Please refer to 3M Technical Bulletin “Care Guidelines to Reduce Staining on 3M™ Scotchlite™ Reflective Material”.

Care and Maintenance Instructions

Important: Test each application according to appropriate care instructions required for the finished product. Actual life of 3M™ Scotchlite™ Reflective Material – 8735 Flame Resistant Transfer Film depends on cleaning methods and wear conditions. Care label recommendations:

- Wash:**  Machine wash hot, 60 °C (140 °F)
- Bleach:**  Non-chlorine bleach when needed
- Dry:**  Tumble dry low
- Iron:**  Use cool iron, 110 °C (230 °F)
- Dry-clean:**  Do not dry-clean

Product Availability

3M™ Scotchlite™ Reflective Material – 8735 Flame Resistant Transfer Film is available in rolls with the following standard width and length:

3M™ Scotchlite™ Reflective Material			
Product Number	Roll Width	Width Tolerance	Standard Roll Length
8735 Flame Resistant Transfer Film	< 150 mm (< 6 in.)	±1 mm (±0.04 in.)	100 m (109 yd)
	150 mm ≤ w ≤ 900 mm (6 in. ≤ w ≤ 36 in.)	0 mm to +4 mm (0 in. to +0.16 in.)	50 m (55 yd)

Order and Product Information

To order 3M™ Scotchlite™ Reflective Material Products, contact 3M Protective Apparel and Footwear Market Center Customer Service at 800-328-7098 (in Canada, 800-364-3577).

Storage and Shelf Life

In order to preserve performance, store in a cool, dry area and use within one year after date of receipt. Store rolls in original shipping cartons. Return partially used rolls to the carton or suspend horizontally through the core. Cut pieces should be stored flat.



Important Notice

WARRANTY, LIMITED REMEDY AND DISCLAIMER: 3M warrants that 3M™ Scotchlite™ Reflective Material that is stored, maintained and used in accordance with 3M's written instructions will meet the applicable 3M product specifications. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If any Scotchlite reflective material does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

LIMITATION OF LIABILITY: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract or strict liability.

PRODUCT USE: Because of the variety of factors that can affect the use and performance of Scotchlite reflective material, user is solely responsible for evaluating the product and determining whether it is fit for a particular purpose and suitable for user's method of application. User is solely responsible for determining the proper amount and placement of the product. While reflective products enhance visibility, no reflective product can ensure visibility or safety under all possible conditions. 3M may change the product, specification and availability of the product as improvements are made; therefore, user should contact 3M for latest information before specifying the product.



**Occupational Health and
Environmental Safety Division
3M Protective Apparel and
Footwear Market Center**

3M Center, Building 0235-02-F-06
St. Paul, MN 55144-1000
800-328-7098
Scotchlite.com

3M Canada

P.O. Box 5757
London, Ontario N6A 4T1
800-267-4414 Technical Service
800-364-3577 3M HELPS

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