



3M™ Scotchlite™ Reflective Material Fire Coat Trims

Description

3M™ Scotchlite™ Reflective Material – Fire Coat Trims are designed to be used on fire fighter and other flame-resistant garments. They are composed of a silver stripe of wide angle, exposed retroreflective lenses integrally centered on a fluorescent background, bonded to either a fabric or a heat transfer adhesive. When properly used they are designed to enhance the visibility of the wearer in nighttime or low-light conditions, when illuminated by a light source such as automobile headlights, and returning the light to the driver’s eye.

3M™ Scotchlite™ Reflective Material					
Product/Daytime Color ¹	Backing	Initial Average R _A ²	Reflected Color	Wash Cycles	
5686 Fluorescent Red-orange Fire Coat Comfort Trim	Heat Transfer Adhesive	>400	White	50 ³	
5687 Fluorescent Lime-yellow Fire Coat Comfort Trim				50 ⁴	
5696 Fluorescent Red-orange Fire Coat Comfort Trim				50 ³	
5697 Fluorescent Lime-yellow Fire Coat Comfort Trim					
9586 Fluorescent Red-orange Fire Coat Trim ⁵	Aramid Fabric	500		White	50 ³
9587 Fluorescent Lime-yellow Fire Coat Trim ⁵					
5616 Fluorescent Red-orange Fire Coat Lettering Transfer Film	Heat Transfer Adhesive	>400	White		n/a
5617 Fluorescent Lime-yellow Fire Coat Lettering Transfer Film					

- Scotchlite reflective material – Series 5680 and 5690 fire coat trims can meet the NFPA and CGSB color spaces when applied to tan, black or navy outer shells. Contact 3M Technical Service to verify the color space is met on other fabrics.
- R_A measured by 3M on new product at +5.0° entrance and 0.2° observation angles.
- Per ISO 6330, Method 2A
- Per ISO 6330, Method 6N
- 3M™ Scotchlite™ Reflective Material – Series 9500 Fire Coat Trim has “3M” imaged on its silver surface.

Certifications: NFPA and CGSB

The following Scotchlite reflective material – fire coat trims, as listed in the table below, meet the requirements of the listed standards. Current Certificates of Compliance are available at Scotchlite.com.

- NFPA 1951-2013 Standard on Protective Ensembles for Technical Rescue Incidents
- NFPA 1971-2013 Standard on Protective Clothing and Equipment for Structural Fire Fighting and Proximity Fire Fighting
- NFPA 1977-2011 Standard on Protective Clothing and Equipment for Wildland Fire Fighting
- NFPA 2112-2016 Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire
- CAN/CGSB 155.20-2017 Workwear for Protection Against Hydrocarbon Flash Fire
- CAN/CGSB 155.22-2014 Fireline Workwear for Wildland Firefighters

Note: Series 5680 meets the requirements of the Transmitted and Stored Thermal Energy Test in Section 8.71 of NFPA 1971.

Product Series	NFPA				CGSB	
	1951	1971	1977	2112	155.20	155.22
5680	X	X	X	X	X	
5690						X
9500	X	X	X	X		
5610 ⁶	X	X	X	X		

6. **IMPORTANT NOTE:** Series 5610 is not certified to meet the trim requirements on fire-fighting or other garments. It is certified as an accessory only and is designed to be die-cut into letters for decorative use on flame-resistant garments.

Physical Performance

3M™ Scotchlite™ Reflective Material – Fire Coat Trims will meet or exceed the following performance specifications as noted. It is important to note that use, wear, and environmental conditions will affect performance.

Minimum Physical Performance ⁷	Test Method
Fluorescence: Cap Y ≥ 40 for red-orange and ≥ 70 for lime-yellow	ASTM E1164-12
Abrasion: R _A ≥ 100	EN 530 Method 2, 5000 cycles
Flexing: R _A ≥ 100	ISO 7854 Method A, 7500 cycles
Cold Fold: R _A ≥ 100	ISO 4675, -20 °C (-4 °F)
Temperature Cycle: R _A ≥ 100	12 hours @ 50 °C (122 °F) 20 hours @ -30 °C (-22 °F)
Wash: R _A ≥ 100	ISO 6330, 60°C (140°F), methods and cycles noted above
Wet Reflectivity: R _A ≥ 100	NFPA 1971, Section 8.45.4.3: 4.3 in/hr (110 mm/hr)
Flame Resistance: <4" char length, <2 second after flame	ASTM D6413-15, CAN/CGSB-4.2 No. 27-10
Heat Resistance: R _A ≥ 350	ISO 17493, 5 minutes @ 260°C (500° F)
Convective Heat: R _A ≥ 350	After 10 minutes @ 140°C (285° F)

7. R_A was measured by 3M on new product or after the listed test method at a +5.0° entrance and 0.2° observation angles and is reported in cd/lux/m². It was measured by methods based on either of the following retroreflective intensity testing procedures:
ASTM E809-08(2013), ASTM E810-03(2013) (R_A); CIE 54.2:2001 (R)

Application Instructions

i IMPORTANT NOTE

Whenever two or more pieces of 3M Scotchlite reflective material – fire coat trims are used together on a single surface or as a set, they should be matched to ensure uniform daytime color and nighttime reflectivity.

Cutting

These products can be die-cut, hand-cut or guillotined.

Application of Fabric Backed Materials

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 trim. Use appropriate thread for flame resistant applications.

Application of Heat Transfer Adhesive Backed Materials Using a Heat Press

- Set the equipment to the following temperature, time and pressure:

Temperature	Dwell Time (seconds)	Line Pressure
163° C (325° F)	20	Firm (30-40 psi)

- Place trim fabric substrate with the adhesive side down in the desired position. Avoid applying over or close to seams and stitches, as poor adhesion may result.
- Apply heat and pressure for the proper time.
- Allow applied material to cool to room temperature while lying flat, and then remove the liner (if present) by pulling from one corner in a smooth continuous manner.

To ensure you have good adhesion, wait 24 hours and wash the applied material multiple times under normal conditions. Check for lifting or delamination and if present, you must re-evaluate your application process until the desired performance is achieved. The lamination temperature, time and pressure listed should be used as a guideline. Each substrate should be tested to determine the optimal conditions that will meet customer requirements.

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. Contact your local Technical Service for assistance with all application methods.

3M™ Scotchlite™ Reflective Material

Handling Precautions

3M™ Scotchlite™ Reflective Material – Fire Coat Trims contain 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 26.7° C (80° F) and greater than 70% relative humidity, for a period of weeks. These blemishes do not affect performance. Please see the [3M Technical Bulletin Fire Coat Trim Care Guidelines to Help Reduce Silver Stripe Fading](#) for more information.

Additional Guidelines to Reduce the Possibility of Silver Stripe Fading






After fighting fires with dry chemicals or fires that involve burning chlorine or PVC, it is important to thoroughly clean and dry the turnout gear to prevent the effects of corrosion on the trim. If not cleaned thoroughly, residues from dry chemicals and burning PVC may cause fading over time. The cumulative effects of long term exposure to corrosive contaminants may not show up until after the garment is laundered or is exposed to high humidity environments. For more information, please see [3M Technical Bulletin Fire Coat Trim Care Guidelines to Help Reduce Silver Stripe Fading](#).

Care and Maintenance Instructions

IMPORTANT NOTE

Test each application according to appropriate care instructions required for the finished product. Actual life of Scotchlite reflective material depends on cleaning methods, wear conditions, and maintenance.

Care Label Recommendations

Wash		Dry		Iron	
	Do not presoak Machine wash warm, 40° C (104° F), pH between 6 and 10.5		Tumble dry low. On fire garments, air dry away from direct sunlight		Use cool iron, 110° C (230° F)
	Do not bleach				
	Do not dry-clean				

Product Availability

3M™ Scotchlite™ Reflective Material – Fire Coat Trims are available in rolls with the following standard widths and roll lengths:

Product Series	Approx. Trim Width	Approx. Reflective Stripe Width	Standard Roll Length
5610	56.4 mm (2.2 in)	19 mm (0.75 in)	100 m (109.4 yd)
	84.5 mm (3.3 in)	25.4 mm (1.0 in)	
5680, 5690, 9500	50.8 mm (2.0 in)	19 mm (0.75 in)	
	76.2 mm (3.0 in)	25.4 mm (1.0 in)	

General Information

While the 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. Customers should be aware that 3M presents a Scotchlite reflective material product portfolio that offers a range of product attributes, and users should test the reflective material on their finished garments to satisfy conformance to their own requirements. All high visibility safety apparel items should be constructed in accordance with the appropriate standard.

3M recommends that all customers, in accordance with good manufacturing practices, establish an ongoing quality system which includes maintaining lot/roll identification throughout the garment production process. Customers should implement continuous testing throughout their production and on their finished garments that reflects their garment needs.

Please visit our website, 3M.com/Scotchlite for the most current technical literature or contact your local 3M Personal Safety Division Technical Service.

3M™ Scotchlite™ Reflective Material

Order Information

To order 3M™ Scotchlite™ Reflective Material Products, contact Customer Service at 800-328-7098.

Storage and Shelf Life

Store in a cool (4 to 32 °C, 40 to 80 °F), dry area (less than 70% relative humidity) and use within the time stated below. Store rolls in original shipping cartons. Ensure that the lot/roll identification remains with product rolls. Return partially used rolls to the carton or suspend horizontally through the core. Cut pieces should be stored flat.

Product Series	Shelf Life
9500	2 years
5610, 5680, 5690	1 year

Important Notice to User

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

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.

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.

Personal Safety Division

3M Center, Building 235-2F-06
St. Paul, MN 55144-1000
800-328-7098
Scotchlite.com
3M PSD products are occupational use only.

3M Canada

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

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