



3M™ Scotchlite™ Reflective Material - Fire Coat Trims

Description

3M™ Scotchlite™ Reflective Material - Fire Coat Trims are designed to be used on firefighter 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 durable fabric backing or a heat-activated adhesive. When properly used, these materials help 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.

Summary of Product Details			
3M™ Scotchlite™ Reflective Material	Initial Typical Brightness (R _A ^b)	Home Wash Cycles	Backing
5686 Fluorescent Red-orange Fire Coat Comfort Trim ^a	400 ^e	50 ^c	Heat-activated Adhesive
5687 Fluorescent Lime-yellow Fire Coat Comfort Trim ^a			
9586 Fluorescent Red-orange Fire Coat Trim ^d	500 ^e	50 ^c	100% Aramid Fabric
9587 Fluorescent Lime-yellow Fire Coat Trim ^d			

- a) 3M™ Scotchlite™ Reflective Material – Series 5680 fire coat trims can meet the NFPA 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.
- b) R_A measured by 3M on new product at +5.0° entrance and 0.2° observation angles.
- c) Per ISO 6330, Method 2A.
- d) 3M™ Scotchlite™ Reflective Material – Series 9500 Fire Coat Trim has “3M” imaged on its silver surface.
- e) Minimum brightness of 330 R_A.

Product Certifications

The following 3M™ Scotchlite™ Reflective Material products, meet the requirements of the standards listed in the following table. Current certificates are available at [3M.Com/Scotchlite](https://www.3M.com/Scotchlite) or by request.

Certifications				
Product Number	NFPA			
	1970 (1971)	1950 (1951)	1950 (1977)	2112
Edition Year	2025	2025	2025	2023
5686	x	x	x	x
5687	x	x	x	x
9586	x	x	x	x
9587	x	x	x	x

Official name of standards listed above:

- NFPA 1970-2025 Standard on Protective Ensembles for Structural and Proximity Firefighting, Work Apparel, Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, and Personal Alert Safety Systems (PASS)
- NFPA 1950-2025 Standard on Personal Protective Equipment for Technical Rescue Incidents, Emergency Medical Operations, and Wildland and Urban Interface Firefighting
- NFPA 2112-2023 Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire

3M™ Scotchlite™ Reflective Material products are used globally. Please contact your local 3M representative for more information on certification to other high-visibility apparel and flame resistance standards.

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

Physical Performance

3M™ Scotchlite™ Reflective Material products will meet or exceed the following performance specifications as noted. It is important to note that use, wear, and environmental conditions will affect performance. See product certificates on 3M.com/Scotchlite for testing laboratory and test date information.

Minimum Physical Performance	Test Method
Fluorescence: Cap Y $\geq$ 40 for red-orange and $\geq$ 70 for lime-yellow	NFPA1970 Section 9.8.1.4.2
Retroreflectivity (initial): $R_A \geq$ requirements in NFPA standards. See table above	ASTM E809
Abrasion: $R_A \geq$ 100	ISO 12947-2 , 5000 cycles
Flexing: $R_A \geq$ 100	ISO 7854, 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, 60°C (140°F), 50 cycles
Wet Reflectivity: $R_A \geq$ 100	NFPA1970 Section 9.8.1.4.3: 4.3 in/hr (110 mm/hr)
Flame Resistance: <100mm (4") char length, <2 seconds after flame	ASTM D6413
Heat Resistance: $R_A \geq$ 100	NFPA1970 Section 9.2.4, after 5 minutes @ 260°C (500°F)
Convective Heat: $R_A \geq$ 330	NFPA 1970 Section 9.1.5, after 10 minutes @ 140°C (285°F)

Application Instructions

Whenever two or more pieces of 3M™ Scotchlite™ Reflective Material products are used together on a single surface or as a set, they should be matched to ensure uniform daytime color and nighttime reflectivity.

Cutting

The material can be cut in various ways including die-cut, hand-cut or guillotined.

Application of Fabric Backed Materials

For best results, sew in place using a lockstitch with no more than 12 stitches per inch (2.54 cm) and no less than 5/64" (2 mm) from the edge of the reflective trim. Use appropriate thread for flame resistant applications.

Application of Heat-Activated Adhesive Backed Materials Using a Heat Press

- Work on a flat surface where uniform heat and pressure can be applied. Avoid applying film over seams and stitches. Do not remove retroreflective side liner until after heat lamination process.
- Place 3M™ Scotchlite™ Reflective Material on substrate with the adhesive side down and apply heat and pressure as described in the table below. Optional: To prevent any excess adhesive transfer contamination, a non-stick slip sheet can be placed between the platen and laminating surface.
- Allow application to cool to room temperature. It is recommended to leave the pieces to cool for 5 minutes as single layers before removing the liner covering the retroreflective side. Place application on a flat surface and initiate the liner removal by lifting one corner and pulling at about 45° angle in the direction of the segments in a continuous, smooth manner. Once you reach the width of the trim, pull in a continuous and smooth motion in the direction of the trim.

Additional Precautions for Heat Lamination

- The lamination temperature, time, and pressure listed below should be used as a guide. Each substrate and retroreflective film combination should be tested on customer's equipment to determine the best set of conditions that will meet customer requirements.
- Other lamination methods, such as roll to roll, heat fusing, and HF welding can also be used. Each substrate and retroreflective film combination should be tested on customer's equipment to determine the best set of conditions that will meet customer requirements.
- Laminating 3M™ Scotchlite™ Reflective Material to the surface of other 3M™ Scotchlite™ Reflective Material can be difficult and therefore not recommended.
- It is recommended that initial and continuous testing be done on all heat lamination methods, retroreflective materials and fabrics to ensure that acceptable adhesion and physical performance is maintained, as input materials may vary. For specific application assistance, contact your local 3M Application Engineer.

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

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. Every substrate should be tested to determine the optimal conditions that will meet customer requirements.

Essential Information

While the use of 3M™ Scotchlite™ Reflective Material enhances visibility, no retroreflective 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 3M™ Scotchlite™ Reflective Material product portfolio that offers a range of product attributes, and users should test the retroreflective 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(s).

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.

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 be apparent 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](#).

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. For laminated FIRE COAT TRIM products, to periodically check their equipment to ensure that the temperature set point matches the platen or roll temperature and that the temperature and pressure are uniform across the lamination area. Customers should implement continuous testing throughout their production and on their finished garments that reflects their garment needs.

These 3M™ Scotchlite™ Reflective Material products are not certified for marine safety applications requiring IMO type approval.

Care Instructions

IMPORTANT NOTE
Test each application according to appropriate care instructions required for the finished product. Actual life of 3M™ Scotchlite™ Reflective Material depends on cleaning methods, wear conditions, maintenance and environmental conditions may affect performance.

Home Wash Guidelines

Home laundering means using a top- or front-loading consumer-type home washing machine with a consumer detergent at moderate water temperatures (up to 60°C, 140°F). Drying methods, such as tumble drying at high temperatures, can limit garment life and should be considered as part of the cleaning process. Follow the garment manufacturer’s instructions for best practices.

Garment care label guidelines need to consider the garment fabric as well as the recommendations for garment components such as retroreflective trim.

Care label recommendations for 3M™ Scotchlite™ Reflective Material are below:

Care Label Recommendations					
Wash		Dry		Iron	
	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

These 3M™ Scotchlite™ Reflective Material products are available in rolls with the following standard widths and lengths:

Product Series	Approx. Trim Width	Approx. Reflective Stripe Width	Standard Roll Length
5686 5687 9586 9587	50.8 mm (2.0 in) 76.2 mm (3.0 in)	19 mm (0.75 in) 25.4 (1.0 in)	100 m (109.4 yd)

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. Time starts from date of receipt from 3M. 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. Ensure that the lot/roll identification remains with product rolls and cut pieces.

Product Series	Shelf Life
9586, 9587	2 years
5686, 5687	1 year

Contact Us

For current technical literature and technical support, go to [3M.com/Scotchlite](https://www.3M.com/Scotchlite), or call Customer Service at 1-800-328-1667. To purchase, go to [3M.com/Scotchlite](https://www.3M.com/Scotchlite) and click on Support for a list of our distributors.

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Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of reflective material in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.), as well as determining the proper amount and placement of reflective material. While reflective material can enhance visibility, no reflective product can ensure visibility or safety under all possible conditions. Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property. 3M may change the product, specification, and availability; therefore, customer should contact 3M for latest information before specifying the product.

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