



# Technical Data Sheet January 2016

## 3M™ Scotchlite™ Reflective Material Series 9500 Fire Coat Trim

### Description

3M™ Scotchlite™ Reflective Material – Series 9500 Fire Coat trim is designed to enhance the visibility of the wearer in low-light conditions, especially at nighttime, when illuminated by a light source such as automobile headlights. The reflective surface is composed of wide angle, exposed retroreflective lenses integrally centered on a fluorescent background color and bonded with a special polymer to a flame resistant, durable Aramid backing. Scotchlite reflective material – series 9500 fire coat trim has “3M” imaged on its silver surface.

### 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 E809-02 and E810-03 ( $R_A$ )

CIE 54.2: 2001 ( $R'$ )

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

3M™ Scotchlite™ Reflective Material		
Entrance Angle	Observation Angle	Initial Average $R_A$
+5.0°	0.2°	500

### Color

3M™ Scotchlite™ Reflective Material – Series 9500 Fire Coat Trim		
Product Number	Daytime Color	Reflected Color
9586	Fluorescent red-orange with silver stripe	White
9587	Fluorescent lime-yellow with silver stripe	White

### Performance

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. Users should test reflective material to satisfy conformance to their own requirements.

## Physical Performance

3M™ Scotchlite™ Reflective Material – Series 9500 Fire Coat Trim is certified and will meet or exceed the following performance specifications of the current edition of the listed standards<sup>1</sup>:

3M™ Scotchlite™ Reflective Material	
Physical Performance	Test Method, Certification
Retroreflectivity: (Initial) $R_A \geq 100$	NFPA 1971, 2013 Edition; NFPA 1977, 2011 Edition; NFPA 1951, 2013 Edition
Fluorescence: Cap $Y \geq 70$	NFPA 1971, 2013 Edition; NFPA 1977, 2011 Edition; NFPA 1951, 2013 Edition
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)
Dry-clean: $R_A \geq 100$	ISO 3175-2 Method 9.1 30 cycles
Wet Reflectivity: $R_A \geq 100$	NFPA 1971, 2013 Edition; NFPA 1977, 2011 Edition; NFPA 1951, 2013 Edition
Flame Resistance:	ASTM D 6413, 4" char length, 2 seconds after flame NFPA 1971, 2013 Edition; NFPA 1977, 2011 Edition; NFPA 1951, 2013 Edition
Heat Resistance:	ISO 17493, 5 minutes @ 260° C (500° F) NFPA 1971, 2013 Edition; NFPA 1977, 2011 Edition; NFPA 1951, 2013 Edition
Convective Heat $R_A \geq 100$	10 minutes @ 140° C (285° F) NFPA 1971, 2013 Edition; NFPA 1977, 2011 Edition; NFPA 1951, 2013 Edition

1. While some standards do not specify or establish requirements for the use of high visibility materials, the authority having jurisdiction should conduct a risk assessment and determine the level of visibility required in an ensemble for technical rescue incidents based on the anticipated use of such garments.

## Application Instructions

**Note:** Whenever two or more pieces of Scotchlite reflective material – series 9500 fire coat trim 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. Medium to heavy weight fabrics are recommended for application. Stretchable materials are not recommended for application.

**Cutting:** Scotchlite reflective material – series 9500 fire coat trim can be die-cut, 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 trim. Use appropriate thread for flame resistant applications.

**Handling Precautions:** Scotchlite reflective material – series 9500 fire coat trim 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 26.7° C (80° F) and greater than 70% relative humidity, for a period of weeks. These blemishes do not affect performance of the product.

## Care and Maintenance Instructions

**Important:** It is critical to follow appropriate cleaning procedures when the trim is applied to firefighting turnout clothing. Failure to follow care instructions will shorten the useful life of the trim. Refer to NFPA 1851 Standard on Selection, Care and maintenance of Structural Fire Fighting Protective Ensembles.

### Care label recommendations:

**Do not presoak.**



**Wash:** Machine wash hot, 60° C (140° F), pH between 6 and 10.5



**Bleach:** Do not bleach



**Dry:** Tumble dry low. On fire garments, air dry away from direct sunlight.



**Iron:** Use cool iron, 110° C (230° F)



**Dry-clean:** Dry-clean, perchloroethylene

**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 trim 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. See technical bulletin “Care guidelines to reduce the possibility of silver stripe fading on 3M™ Scotchlite™ Reflective Material – Series 9500 Fire Coat Trim” for additional information.

## Product Availability

Scotchlite reflective material – series 9500 fire coat trim is available in rolls with the following standard widths and roll lengths:

3M™ Scotchlite™ Reflective Material			
Trim Width	Reflective Strip Width	Centering Tolerance	Standard Roll Length
50.8 mm + 0.8 mm (2.0 + 0.03 in.)	19 mm (0.75 in.)	± 1.6 mm (± 0.0625 in.)	100 m (109.4 yd.)
76.2 mm ± 0.8 mm (3.0 ± 0.03 in.)	25.4 mm (1.0 in.)	± 1.6 mm (± 0.0625 in.)	100 m (109.4 yd.)

## Order and Product Information

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

## 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.

## Important Notice to User:

**LIMITED WARRANTY:** In the event any 3M™ Scotchlite™ Reflective Material is found to be defective in material, workmanship, or not in conformance with any express warranty, 3M's only obligation and your exclusive remedy shall be to replace or refund the purchase price, at 3M's option, of such product upon timely notification thereof and substantiation that the product has been stored, maintained and used in accordance with 3M's written instructions.

**EXCLUSIONS TO WARRANTY: THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OR CONDITION OF QUALITY, EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.**

**LIMITATION OF LIABILITY:** Except as provided above, 3M shall not be liable in contract or tort for any loss or damage, whether direct, indirect, incidental, special or consequential, (including, without limitation, lost profits, goodwill and business opportunity) arising out of the sale, use or misuse of the product, or the user's inability to use the product. **THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.**

Because of the unlimited variety of potential applications for the Products, BEFORE production use, the user (which may be a product designer, product specifier, 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 may change the product, specifications and availability of the product as improvements are made; therefore, the user should contact 3M or visit [Scotchlite.com](http://Scotchlite.com) for latest information before specifying the product.



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