

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 conformation 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 OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY 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 these 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, user should contact 3M for latest information before specifying the product.



**Personal Safety Products
3M Occupational Health and Environmental Safety Division
3M Canada**

P. O. Box 5757
London, Ontario, Canada N6A 4T1

1-800-364-3577

Printed in Canada
© 3M 2005

All rights reserved.
0510CP23556E

Technical Data Sheet

August 2005

Industrial Wash

Industrial laundering means regularly washing large amounts of clothing in a relatively short amount of time, with large machines (> 25 kg loads), aggressive detergent chemistry (pH 10.5 – 12) and high wash temperatures (up to 85°C). Garment finishing (tumble dry or tunnel finish) can limit garment life and should be considered as part of the cleaning process.

Description

3M™ Scotchlite™ Reflective Material – 9720 Silver Industrial Wash Transfer Film is composed of wide angle, exposed retroreflective lenses bonded with a special polymer layer to a heat activated polyester adhesive. The product comes without any liner and can be laminated directly to compatible substrates. Refer to the Industrial Wash Guideline for recommended wash conditions. Using harsher cleaning conditions may significantly reduce product performance.

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 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
9720	Silver	White



Physical Performance

3M™ Scotchlite™ Reflective Material – 9720 Silver Industrial Wash Transfer Film is certified to meet ANSI/ISEA 107-2004 Level 2 retroreflective performance, and will meet or exceed the following specifications:

Initial Retroreflectivity:	ANSI/ISEA 107-2004 Level 2 (Table 5)
Abrasion: ($R_A \geq 100$) ²	EN 530 Method 2 5000 cycles
Flexing: ($R_A \geq 100$) ²	ISO 7854 Method A 7500 cycles
Cold Fold: ($R_A \geq 100$) ²	ISO 4675 -20°C (-2°F)
Temperature Cycle: ($R_A \geq 100$) ²	12 hours @ 50±2°C (122±2°F) 20 hours @ -30±2°C (-20±2°F)
Wash: ($R_A \geq 100$) ²	ISO 6330 Method 2A 50 cycles @ 60°C (140°F)
Dry-clean: ($R_A \geq 100$) ²	ISO 3175 Method 9.1 50 cycles
Wet Reflectivity: ($R_A \geq 100$) ²	ANSI/ISEA 107-2004 Annex A

¹ ANSI/ISEA 107-2004 minimum coefficient of retroreflection for Level 2 retroreflective material

² Measured at 0.2° observation angle and 5.0° entrance angle

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 Scotchlite reflective material – 9720 silver industrial wash transfer film are used together on a single surface or as a set, they should be matched to ensure uniform daytime color and nighttime reflectivity.

Cutting: Die-cutting is recommended, although it can also be hand-cut, guillotined, or plotter-cut (with use of premasking tape).

Heat Lamination: Work on a flat surface where uniform heat and pressure can be applied. Avoid applying film over seams and stitches. Place Scotchlite reflective material – 9720 silver industrial wash transfer film on fabric (substrate) adhesive side down and apply heat and pressure as described below. Place a non-stick slip sheet between the platen and laminating surface to prevent any excess adhesive transfer contamination.

The following recommendation is a general guideline for **heat press lamination**. Other lamination methods such as roll-to-roll, heat fusing, and High Frequency (HF) welding can also be used. **Important note:** The proper temperature/pressure/time conditions must be tested for each fabric to assure adequate adhesion and physical performance. Many fabrics can be used as lamination substrates, however, nylons and fabrics treated with a durable water repellent (DWR) finish are difficult to adhere to and are not recommended. For specific application assistance, contact 3M Technical Service.

Temperature	Dwell Time	Pressure
325-350°F (165-177°C)	10-20 seconds	Firm (30-40 psi line pressure)

Care and Maintenance Instructions

Important: Test each application according to appropriate care instructions required for the finished product. Actual life of Scotchlite reflective material – 9720 silver industrial wash transfer film depends on cleaning method and wear conditions. Care label recommendations:

Home Wash Guideline



Wash:
Machine wash hot,
60°C (140°F)



Dry:
Tumble dry low



Dry-clean:
Dry-clean, normal cycle



Bleach:
Only non-chlorine bleach
when needed



Iron:
Use cool iron,
110°C (230°F)

Industrial Wash Guideline - Medium to Heavy Soil

Stain treatment wash processing may reduce life of 3M™ Scotchlite™ Reflective Material - 9720 Silver Industrial Wash Transfer Film.

Wash chemistry: Lower pH and active alkalinity will increase the lifetime performance of the retroreflective material. Actual lifetime will be dependent upon the detergent system and dosage level.

Do not use solvenated surfactants.

Do not use chlorine or perborate bleach.

Maximum Wash

Temperature 75°C (167°F)

Detergents Low to medium alkaline, high-surfactant detergents are preferred

Break/suds cycles Less than 20 minutes total

Drying:

Tunnel dry Maximum inlet temperature of 160°C (320°F)
Drying time not to exceed 7 minutes
Fabric temperature not to exceed 135°C (275°F)

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

Pressing Do not exceed 150°C (300°F)

Product Availability

Scotchlite reflective material – 9720 silver industrial wash transfer film is available in rolls with the following standard widths and roll lengths:

Units	Width	Width Tolerance	Standard Roll Length
mm	< 150 mm	± 1 mm (std) ± .5 mm (special)	100 m
mm	150 mm ≤ w 0 < 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 Customer Service at 800-328-7098 Ext. 2.

Storage and Shelf Life

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 sheets should be stored flat.