

# 3M™ Scotchlite™ Reflective Material 5807 Custom Cuttable Transfer Film European Product Bulletin

## 1. Product Description

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film is designed as an electronic/plotter cuttable transfer film for use on high visibility garments, consumer garments and accessories. It can be used to create reflective graphic transfers that are easy to cut, weed, and can be laminated in one step. When properly used, 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film helps enhance the visibility of the wearer in darkness or low-light conditions when illuminated by a light source such as vehicle headlights.

When converting/storing the reflective material, certain circumstances (see e.g. 6.2) may change the uniform appearance of the reflective material; the reflective properties – and hence the defined functionality – will not be affected by this.

## 2. Product Features

### 2.1 Product Design

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film is composed of wide angle, exposed retroreflective lenses bonded to a heat-activated adhesive with a clear polyester liner to protect the retroreflective side during handling. The clear polyester liner allows for ease of registration of transfers when laminating.

### 2.2 Performance according to ISO 20471

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film:

- Exceeds the highest brightness requirements (ISO 20471 Level 2) for retroreflective material.
- Is non-orientation sensitive.
- Offers 60°C domestic wash durability per ISO 20471, 50 cycles per ISO 6330 6N.
- Offers good dry cleaning durability, 30 cycles per ISO 20471, depending on substrate.
- Offers good drapability and fabric compatibility.

It is important to note that use, wear, laundering, and environmental conditions will affect performance.

### 2.3 Special Features

To ensure consistency of performance, 3M™ Scotchlite™ Reflective Materials are manufactured within an ISO 9001 controlled manufacturing environment.

## 3. General Safety Information

Read 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film Product Bulletin carefully.

The wearer is ultimately responsible for his/her own safety.

- 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.
- Field test the finished garment to verify suitability for intended use and for the selection of appropriate care conditions.
- Various factors (e.g. environmental) can influence visibility. For further details, see chapter 9 – “Specific Safety Information”.

## 4. Product Application

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film is recommended for garments not suffering from harsh wear impact and being subjected to domestic wash care procedures.

Whenever two or more pieces of reflective transfer film are used together on a single surface or as a set, they should be matched to ensure uniform daytime colour and night-time retroreflectivity. Production dependent colour deviations of new retroreflective material do not affect the suitability of 3M™ Scotchlite™ reflective material for applications according to the performance requirements laid down in ISO 20471 for retroreflective material. All high visibility safety garments should be constructed in accordance with the appropriate standard(s).

## 5. Product Converting

### 5.1 Cutting

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film can be electronic/plotter cut, die-cut, hand-cut, or guillotined. Please also refer to “Plotter Cutting Guideline for 3M™ Scotchlite™ Reflective Materials” available separately. For specific application assistance, contact 3M Technical Service.

### 5.2 Lamination Onto Substrate

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film can be applied in the form of trims, emblems and logos directly to many different types of substrates.

- In general 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film is not recommended for polyamide fabrics. The adhesion on polyamides such as Nylon is often not satisfactory.
- 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film may not be compatible with some PVC/vinyl films, especially those containing phosphate plasticisers. It is possible that some plasticisers might be able to migrate into the reflective material, making the reflective surface soft and sticky. We recommend that substrates always be tested prior to production to ensure that they meet your specific needs.
- Prior to production, it is essential to test the actual 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film on the actual substrate being used.

#### 5.3.1 Lamination Process

- Work on a flat surface where uniform heat and pressure can be applied. Avoid applying film over seams and stitches.
- Place 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film on fabric (substrate) with adhesive side down and apply heat and pressure as described in the table below. Place a non-stick slip sheet between the platen and laminating surface to prevent any excess adhesive transfer contamination.
- Remove the polyester liner before the application is completely cooled down to room temperature. Place application on a flat surface and remove the polyester liner by lifting one corner and pulling (about 45° angle) in a continuous, smooth manner.

#### 5.3.2 Additional Precautions for Heat Lamination

- Do not exceed lamination temperatures listed below because the polyester liner may become difficult to remove. If higher temperatures are required for bond durability, follow lamination steps 1-3 using recommended temperature, remove polyester liner, and then laminate again at the higher temperature (using a non-stick slip sheet to protect reflective surface.)
- The lamination temperature, time, and pressure listed below should be used as a guide. Each substrate and reflective film combination should be tested prior to production to determine the best set of conditions that will meet customer requirements.
- Other lamination methods, such as roll to roll, heat fusing, and high-frequency (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.
- Substrate finishes such as silicone, parafin, fluorocarbon resin or flame retardant coating might strongly influence the level of adhesion to the substrate.

Adhesive Side Liner	Reflective Side Liner	Temperature	Dwell Time (seconds)	Pressure
None	Clear Polyester	165 – 177°C	10 – 20	1.5 – 2.8 bar

## 6. Handling and Storage

### 6.1 Product Storage

Store in a cool, dry area and use within 1 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 stripes should be stored flat.

### 6.2 Handling and Storage Precautions

- Aggressive chemicals, e.g. sulphur or chlorine containing compounds, perspiration, strong acids or bases may affect the aesthetic appearance of 3M™ Scotchlite™ Silver Reflective Material.
- When exposed to excessive heat and more than 70% relative humidity conditions, these products have the potential to become stained. These stains do not affect the retroreflective performance of the material and do not indicate that the input product was defective.
- Care must be taken by the user when using 3M™ Scotchlite™ Silver Reflective Material in hot and humid environments. During application, storage and shipping ambient conditions should be kept. Measures like cooling and dehumidifying the manufacturing area and specific handling precautions should be taken. Appropriate specific storekeeping is essential.
- Knowing the individual situation, the user may contact 3M for further advice if needed.

## 7. Product Cleaning



### 7.1 Caution

Washing/cleaning conditions harsher than those recommended below could diminish the brilliance of the product and shorten its lifetime significantly. The following instructions therefore must be strictly followed.

- No presoaking.
- No application of high alkaline products (e.g. heavy duty products or stain removal products).
- No application of solvenated detergents or micro-emulsions.
- No additional bleaches.
- Do not overdry. Reflective film temperature should not exceed 70°C at any time during drying.

Before use, the suitability of the intended care process for 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film must be determined. Test duration should mirror the anticipated maximum number of care cycles in use.



### 7.2 Homewash

#### 7.2.1 Washing Conditions

A colored clothing wash program without pre-wash should be used.

#### Recommendation:

Wash temperature range:	30°C to 60°C
Max. wash time at highest wash temperature:	12 minutes
Max. program time:	50 minutes

**Detergent:** A recognised brand, powdered household detergent should be used. Recommended are detergents for delicate or coloured laundry. Refer to the detergent manufacturer's recommendations for dosage in areas of high water hardness and for various degrees of garment soiling.

**Wash temperatures higher than 60°C and industrial laundering processes are not recommended.**

The use of bleach or detergents containing organic solvent will result in a reduction in retroreflective performance.

**Use of temperatures lower than 40°C will increase the lifetime of the reflective fabric. Actual lifetime will be dependent upon the detergent system and its dosage level.**



#### 7.2.2 Do not use additional bleach.

- No chlorine bleach.
  - No bleaches on oxygen basis (e.g. sodium perborate).
- Do not pre-soak laundry even in a low concentration of bleach.**



#### 7.2.3 Drying Conditions

##### Tumble Dryer:

Tumble drying should be performed in a commercially available household dryer using the medium dry setting.

Exhaust temperature should not exceed 70°C.

Do **not** overdry. Damp dry only.

**Air Drying:** Line drying is recommended where possible.



#### 7.3 Dry Cleaning Conditions

- Cleaning process should be based on a pre- and main-bath only.
- For **P** it is recommended that only pure perchloroethylene is used.
- Adjust load and solvent level to give a moderate mechanical action.

Max. solvent temperature:	30°C
Recommended drying temperature:	48°C
Max. inlet temperature:	80°C
Max. exhaust temperature:	60°C
Max. drying time:	15 minutes
Max. program time:	60 minutes

**If stain removing substances (e.g. surfactant-based cleaning booster) need to be used, their compatibility with the reflective material should be determined prior to the application.**

**Note:** High number of dry cleaning cycles may stiffen the product and thus lead to increased abrasion.



#### 7.4 Ironing Conditions

- Use medium setting, use press cloth.
- Do not apply steam.

## 8. Product Maintenance

Reflective fabrics and films naturally age. Ageing depends upon material type, conditions of use, environment and maintenance procedures.

The retroreflective performance of all reflective materials is affected by soiling. Any kind of dirt, liquid chemicals, grease and alike will reduce brightness in the area of contamination.

### 8.1 Product Cleaning

Frequent care and maintenance will ensure the continued effectiveness of the reflective material.

The cleaning frequency of the clothing depends on the degree of soiling expected in the working environment condition. Before usage, the user shall determine the suitability of the intended care process for 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film. A test application of the finished garment should be conducted to determine the maximum number of care cycles expected for each application.

To ensure adequate adhesion to substrate, it is strongly recommended to test the application in the intended care procedure for the finished product.

For cleaning, see **3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film Care Guideline**.

For consultation on care, contact your local 3M representative.

For manual cleaning, damp wipe with a soft sponge or cloth using mild wash lye.

For stain removal of fat or mineral oil etc. use a soft, clean cloth dipped into white spirit. Wipe clean with water afterwards.

#### Caution:

The use of other stain removers such as aromatic solvents or oxidizing/corrosive substances is not recommended. Washing/cleaning conditions harsher than those recommended shorten the product's lifetime significantly.

### 8.2 Special Cleaning Instructions

- For application on rainwear, a regular fluorocarbon treatment of the garment is recommended.
- Chemical splashes should be removed with a soft, dry cloth. Cleaning the garment the same day is recommended.
- Splashes of strong acids or bases should immediately be neutralised with plenty of water.
- Contamination with toxic or poisonous substances or biocontamination will require the application of a specific decontamination process.
- Application of high alkaline products, solvated detergents and bleaches is not recommended.
- Do not overdry. The temperature of the material should not exceed 70°C at any time during drying.

### 8.3 Maintenance Misuse

3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film is an optical system. Coating of the product with material of high refractive index, such as oil, will greatly diminish reflective performance.

- No harsh mechanical treatment, e.g. abrasion with wire brushes or sand paper.
- No uniform coating or spraying of oils, protective waxes, inks or paint.
- No application of products such as leather spray or shoe shine.

### 8.4 Inspection

High-visibility warning clothing should be maintained in good condition and inspected regularly for signs of damage or deterioration.

Where frequent care cycles are performed, inspection should be pursued after every cleaning cycle. Records of test results should be kept for reference.

### 8.5 Product Disposal

Product can be recycled attached to the garment. The product can be incinerated in a commercial or industrial facility or disposed in a sanitary landfill. Before recycling, the compatibility shall be determined with the intended recycling process.

## 9. Specific Safety Information

Visibility Limits see chapter 3

### “General Safety Information”

Various environmental factors, like line of sight, rain, fog, smoke, dust and visual noise can influence visibility.

Recognition of the wearer can also be significantly reduced, if the reflective material is covered, e.g. by simultaneously wearing other personal protective equipment or by obstacles in traffic situations.

**In such instances the wearer should be aware of these limitations.**

The brightness of 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film can also be diminished in extreme weather conditions.

- Test results show, that 3M™ Scotchlite™ Reflective Material – 5807 Custom Cuttable Transfer Film exceeds the retroreflective performance requirements in rainfall conditions as defined in ISO 20471. Initial brightness levels return as the material dries.
- Fog, mist, smoke and dust can scatter the light from headlights, the wearer must be aware that detection distance will be severely reduced.
- Visual noise (contrast variations in the visual field) decreases the contrast of the reflective material with the background and affects the visibility in low-light conditions.

#### Important Notice to Purchaser / Converter / Wearer:

All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed. We shall not be liable and no warranty shall apply for products not applied according to our published information folder.

Before using/converting, the user/converter must determine the suitability of the product for its intended use/converting, and the user/converter assumes all risk and liability whatsoever in connection therewith. All questions of warranty and liability relating to this product are governed by the terms of the sale subject where applicable to the prevailing law. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of us.



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