



## Product Bulletin 3480

Release C, Effective November, 1998

# 3M Scotchcal™ Series 3480 Film

### Product Description

These are tough cadmium-free vinyl fluorescent films which are highly conspicuous under all daylight conditions and provide the high attention value desired under conditions of poor visibility, particularly at dawn or dusk. These films are intended for applications to flat surfaces without rivets. These films are not recommended for use in areas of petroleum spillage. They can however be used in non-spill areas (i.e. cab doors etc.). Unprinted film is removable from most surfaces throughout its specified life with little or no adhesive residue without the aid of accessories or chemical strippers.

The warranty for and durability of "Scotchcal" Film for commercial vehicles contained herein does not extend to automotive or personal vehicle applications which have to conform to OEM automotive specifications.

### Adhesive

- Removable Pressure Sensitive

### Liner

- White Kraft Liner 130g/m<sup>2</sup>

### Colours

Series 3480

Yellow Orange 3483

Red Orange 3484

Saturn Yellow 3485

### Minimum Application Temperature

Minimum application temperature 4°C

### Effective Performance Life

When printed and applied in accordance with 3M recommended procedures and exposed vertically, the following performance may be expected. Substrate selection and preparation, maintenance of the marking and exposure conditions will determine actual performance

### Warranted Durability

Unprinted films	Northern/Central Europe	Mediterranean Europe	Middle East/North Africa
Yellow Orange 3483	3 years	2 years	2 years
Red Orange 3484	3 years	2 years	2 years
Saturn Yellow 3485	3 years	2 years	2 years
<b>Printed with "Scotchcal" Inks series 1900/3900</b>			
All films	3 years	3 years	2 years

Exceptions to the above are:

The warranty applies to films that are exposed at a vertical angle (defined as 90°+/-10°). A significant decrease in durability may be experienced if films are exposed other than vertical. Such non-vertical

applications must be on a test and approval basis to determine acceptability. 3M does not warrant non-vertical exposures.

## Fabrication

Screen Printing Inks Series 1900/3900

### Hot Stamping

Film may be hot stamped using material available from several suppliers. Assurance of performance must be obtained from the foil manufacturer.

### Overprint Clear

For stated durability, screen printing inks must be clear coated as follows:

"Scotchcal" Overprint Clear Gloss 1920DR/3920

### Premasking / Prespacing

Conditions	3M Application Tapes
General Premasking	SCPM-19
General Prespacing	SCPS-100

## Chemical and Physical Properties

Values given are typical and are not for use in specifications. If a custom specification is desired, a request should be submitted through your sales representative. The data given below is for unprinted film

### Physical Properties

Property	Metric Units
Thickness (ISO 4593)	0.25mm max.
Tensile Strength (ISO 1184-1983)	45 N/25mm at 23°C
Elongation (ISO 1184-1983)	100% at 23°C
Dimensional Stability (FTM 14)	0.8mm

Temperature Range	-34°C to +93°C
Impact Resistance at 23°C	No cracking
at -30°C	Slight cracking

### Adhesion (FTM1)

Substrate	Metric Units (N/25mm)
Etched Aluminium	11
Anodised Aluminium	11
Chrome	9
ABS	9
Fruehauf Prepainted Panels	9

**Note:** ISO refers to standards of the International Standards Organisation. FTM (Finat Test Methods) refers to test methods listed by Finat, the Association of European Tape Manufacturers.

### Chemical Resistance

- Resists mild acids, alkalis, and salts
- Excellent water resistance

### Shelf Life

The shelf life of the film is 2 years and should be applied within 2 years of the receipt of film if unprocessed. Processed film should be applied within 1 year of processing and within 2 years of receipt of the film.

### Storage

Film sheeting and markings must be stored in a clean area, free from excessive moisture and direct sunlight, with ambient temperatures of 38°C or less.

**Related 3M Literature**

Listed below is related 3M Technical Literature which may be of interest:

<b>Subject</b>	<b>Product Bulletin</b>	<b>Instruction Bulletin</b>
Design of Markings		2.1
Scoring and Cutting		4.2
Premasking and Prespacing		4.3
Surface Preparation		5.1, 5.2
Application		5.6
Storage, Maintenance and Removal		6.5
Warranty of Products		6.5

**Technical Assistance**

For help on specific questions relating to 3M Commercial Graphics Group Products, contact Technical Service:

3M Laboratories (Europe) GmbH  
Hansastraße 9  
41453 Neuss

GERMANY

Tel: +49 2131 143289

Fax: +49 2131 142377