

# 3M

# Luminous Film 6900

Product Bulletin 6900

November 2010

Replaces PB 6900 dated November 2008

## Description

3M™ Luminous Film 6900 is the **high performance** luminous film for safety and emergency exit signage.

- Meets and exceeds ASTM E2072-00.
- Rechargeable “glow in the dark” signs and markings.
- Dimensionally stable, durable, multilayer film.
- Excellent chemical and stain resistance.
- Easily cleaned with 3M™ Citrus Base Cleaner.
- No heavy metals or radioactive materials used in manufacture of this product.
- May be safely disposed of in a sanitary landfill or by incineration.

## Application and Uses

Primarily intended for interior luminous signs and markings, including safety signage in buildings, ships, ferries and railroads.

## Limitations of End Uses

3M luminous film 6900 is not intended or warranted for the following:

- Application surfaces subjected to gasoline spills or vapors.
- Application to complex curved surfaces, corrugated surfaces or riveted surfaces.

## Compatible Products

The following products can be used with 6900 luminous film:

- 3M™ Diamond Grade DG3 Reflective Sheeting Series 4090
- 3M™ Scotchcal™ Film Series 180, 3630, 3650, 3690
- 3M™ Application Prespacing Tape SCPS-2 and SCPS-100
- May be imaged using 3M™ Scotchcal™ Screen Printing Inks 2900 and 9800 or thermal transfer methods.

## Product Data

### Physical Properties

| <u>Property</u>               | <u>Description</u>   |
|-------------------------------|--|
| Visual Appearance             | Glossy appearance, light yellow green color                |
| Adhesive                      | Permanent pressure sensitive                               |
| Application Surface           | Flat, simple curves  |
| Luminance (per ASTM E 2073)   | Exceeds luminance requirements specified in ASTM E 2072-00 |
| Application Temperature Range | 50°F to 100°F<br>10°C to 38°C                              |

### Typical Physical Properties

| <u>Property</u>               | <u>Values</u>                   |
|-------------------------------|---------------------------------|
| Thickness (film and adhesive) | 8-9 mils<br>0,2 - 0,22 mm       |
| Service temperature range     | -30°F to 200°F<br>-34°C to 90°C |
| Applied shrinkage             | 0.031 inch<br>0.8 mm            |

## General Performance Considerations

The durability of 3M™ Luminous Film 6900 depends on the following:

- Selection and preparation of the substrate
- Application methods
- Cleaning methods

## Cutting

The accepted cutting methods for 3M luminous film 6900 are bandsaw, guillotine, hand cut, die cut, and flatbed electronic cutter.

## Application

Apply 3M luminous film 6900 like any other 3M pressure sensitive film. The application temperature range for both the air and substrate is 50°F to 100°F (10°C to 38°C).

## Removal

3M luminous film 6900 has an aggressive, pressure sensitive adhesive. The use of a heat gun or steam cleaner will aid in removal. 3M™ Citrus Base Cleaner is recommended for the removal of adhesive residue from substrates.

## Luminance Characteristics

The afterglow of luminous film degrades with time once the charging source is removed. This characteristic must be taken into account when designing and locating signs and markings. The amount of afterglow visibility (luminance level) depends upon the observation conditions such as ambient light, observer, etc. Typical afterglow (luminance) values for 6900 luminance film are:

| Elapsed Time (Minutes) | ASTM E 2072-00                                |  |
|------------------------|---|--|
|                        | Luminance Specification (mcd/m <sup>2</sup> ) | Typical Luminance <sup>1</sup> (mcd/m <sup>2</sup> ) |
| 1                      | N/A   | 600  |
| 10                     | 20  | 50   |
| 60                     | 2.8   | 8  |

<sup>1</sup> Luminance is measured according to ASTM E 2073-00 "Standard Test Method for Photopic Luminance of Photoluminescent (Phosphorescent) Markings."

## Chemical Characteristics

- Resists mild acids, mild alkalis, and salt spray.
- Excellent water resistance.

## Storage and Packaging

3M luminous film 6900 should be stored in a cool, dry area, preferably at 65-75°F (18-24°C) and 30-50% relative humidity and should be applied within one year of purchase.

## Health and Safety Information

Read all health hazard, precautionary, and first aid statements found in the Material Safety Data Sheet and/or product label of chemicals prior to handling or use.

## Warranty

3M warrants that 3M™ Luminous Film 6900 sold by 3M to be used for interior photoluminescent signing in the United States and Canada will remain effective for seven (7) years interior exposure and one (1) year exterior exposure.

If 3M™ Luminous Film is processed and applied in accordance with all 3M application and fabrication procedures provided in 3M's product bulletins, information folders, technical memos (which will be furnished upon request), including the exclusive use of 3M matched component systems, protective overlay films, application tapes and recommended application equipment; and

If the film deteriorates due to fading or cracking 3M's sole responsibility and purchaser's and user's exclusive remedy shall be:

- 3M will replace 3M **materials** per the following:

| Total Warranty Period | Full Materials Replacement | Pro-Rata Materials Replacement | Monthly Reduction in Allowance |
|-----------------------|----------------------------|--------------------------------|--------------------------------|
| 7 yrs. (84 mos)       | 52 mos.                    | 53rd - 84th mo.                | 1/32                           |

## Conditions

Such failure must be solely the result of design or manufacturing defects in the luminous film and not of outside causes such improper fabrication, handling, maintenance

or installation; use of process colors, thinners, or coatings not made by 3M; use of application procedures not recommended by 3M; applied to a surface at greater than ±20° from vertical; failure of substrate; exposure to chemicals, abrasion and other mechanical damage from fasteners used to mount the marking; collisions, vandalism or malicious mischief.

3M reserves the right to determine the method of replacement.

Replacement sheeting will carry the unexpired warranty of the sheeting it replaces.

Claims made under this warranty will be honored only if 3M is notified of a failure within a reasonable time, reasonable information requested by 3M is provided, and 3M is permitted to verify the cause of the failure.

### **Limitation of Liability**

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