



ScotchCal™ Cast Film Material

3690E • 3698E

Technical Data

May, 2002

Product Description

3M™ ScotchCal™ Film 3690E and 3698E cast film materials with 3M™ Adhesive 320 provide high initial tack and bond to most substrates, including painted metal and low surface energy plastics such as polyethylene. These facestocks are flexible enough to conform to curved and textured surfaces, including most low surface energy plastics and small diameter applications and offer non-transferability on some surfaces. These film materials are dimensionally-stable and can withstand more than five years of outdoor exposure, including ultraviolet light, temperature extremes and solvents. High density bar codes can be printed on either stock with a thermal transfer printer and resin ribbon.

Construction

	Facestock	Adhesive	Liner
3690E	2.0 mil (51 microns) bright white cast film	1.0 mil (25 microns) 320 high tack acrylic	3.2 mil (81 microns) 55# densified kraft
3698E	2.0 mil (51 microns) matte silver cast film	1.0 mil (25 microns) 320 high tack acrylic	3.2 mil (81 microns) 55# densified kraft

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Conformability	Conformable to small diameter and complex curved surfaces.
Printing	Roll-to-roll screen printing – both UV and solvent-based inks are suitable. Sheet-fed screen printing must be evaluated for size and conditions. Flexographic, letterpress, and offset printing methods can be considered on a case-to-case basis. Thermal transfer printable with resin inks.
Temperature Range	Permanent: -76°F (-60°C) to 203°F (95°C) Short term: -76°F (-60°C) to 302°F (150°C)
Minimum Application Temperature	50°F (10°C)
Die-Cutting	Good kiss-cutting characteristics – weed stripping is recommended with a 25mm diameter idler
Performance Life to Vertical Surfaces	
Unprinted:	Outdoor: minimum 5 years Indoor: unlimited
Printed with 3M™ ScotchCal™ 6600 Inks:	Outdoor: minimum 5 years Indoor: unlimited

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Adhesion

Note: Peel test procedure is ASTM D-3330

3690E/3698E	Initial (48 hour Dwell/RT)	
	180° Peel	
Surface	oz/in	N/100 mm
Stainless Steel	102	110
Aluminum	95	103
Chrome	80	86
Acrylic Paint	80	86
ABS Plastic	80	86
Polypropylene	59	64

Liner Release

Note: 180° peel of liner from facestock

3690E/3698E	90"/minute grams/1" width
3690E/3698E	12

Environmental Performance

Samples were applied to stainless steel panels and allowed to dwell for 24 hours prior to exposures.

Liquid	Dwell Time/Exposure Condition	Results
Salt Spray – 20% @ 95°F (35°C)	240 hours	No change
Transformer Oil @ Room Temperature	24 hours	No change
Diesel Fuel @ Room Temperature	8 hours	No change
Water @ Room Temperature	150 hours	No change

Humidity Resistance:

200 hours at 100°F (38°C) and 95% relative humidity: no change

Weather Resistance:

1,000 hours accelerated weathering in Xenon Tester: no change

Application Ideas

- Bar code labels and rating plate labels for demanding industrial or equipment applications
- Durable goods labeling

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Application Techniques

For maximum bond strength, surface should be clean and dry. A typical cleaning solvent is heptane or isopropyl alcohol. **Note:** Consult the manufacturer's MSDS for proper handling and storage of solvents. For best conditions, application surface should be at room temperature or higher. Low temperature surfaces (below 50°F [38°C]) can cause the adhesive to become so firm that it will not develop maximum contact with the substrate. Processed labels should be stored in polyethylene bags to protect against moisture.

Shelf Life

Two years from date of manufacture of product when properly stored at 72°F (22°C) and 50% relative humidity.

Agency Approvals

UL Recognized, File MH16411 (www.ul.com under certifications)

CSA: Accepted, File 099316 (<http://directories.csa-international.org>)

UL Ribbons: **Armor:** AXR-7, AXR-600; **Coding Products:** 5440 Red, 5640 Blue, 5940 Black; **DaiNippon:** R-330 Black, R-510 Red, Blue, Green, Black, R-300, R-511; **Dynic:** HL-32; **ICS:** CC-2000, CC-4099-1; **limak:** PrimeMark; **Intermec:** 05258-2; **Japan Pulp and Paper:** JP Resin 1, JP Resin 2 Blue, Red, Green; **Kurz:** K500, K501; **Markem:** 716 (not suitable for exposure to lubricating oil); **Mid-City Columbia:** CGL-80, MCC-23HE; **NCR:** Matrix, Promark II; **Peak:** Ultra Premium, Ultra Extreme; **Pelikan:** T016; **Ricoh:** B110C; **Sato:** Premier 1; **Sony:** 4070, 4075, 4085, Signature™ Series Resin, Signature™ Series Wax, TR5075; **Zebra:** 5100

CSA: **Sony:** 5070 with Zebra, Sato, Datamax and Intermec thermal printers

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-223-7427 or visit www.3M.com/converter. Address correspondence to: 3M Engineered Adhesives Division, 3M Center, Building 220-7E-01, St. Paul, MN 55144-1000. Our fax number is 651-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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ISO 9002

This Engineered Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



Converter Markets
Engineered Adhesives Division

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Recycled Paper
40% pre-consumer
10% post-consumer

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