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Approved by NDG

Product

LF3640 RAYZor Cast Gloss Overlaminating Film

Permacolor

The **Permacolor** system is a line of pressure sensitive products for mounting and protecting in the imaging industries. Pressure sensitive **Permacolor** provides fast, efficient processing through cold roll laminators without the need for heat, drying or messy coating operations.

Product Description

LF3640 is a 1.5-mil clear **gloss**; highly conformable cast PVC film. The product is coated on one side with a clear permanent, acrylic pressure sensitive adhesive and supplied with a 1.2-mil polyester release liner. **LF3640** is designed for use with **cast or polymeric print medias** in long-term outdoor, marine, fleet or vehicle markings on flat, curved, corrugated and riveted surfaces. Additional UV protection is built into the overlaminating film to help extend the life of your graphic by resisting color fade caused by ultraviolet light. It can also be used over Perforated Window films due to its optical clarity even over the perforated holes in the films. Use **LF3648** with **RR100** in rough textured wall applications.

The line consists of two widths: **LF3648** is 54" wide **LF3649** is 60" wide

Physical Properties

Property	Typical Values	Test Method
Thickness, inches (mm) Film plus adhesive Total product	0.0025 (64) 0.0039 (100)	ASTM D-645
Peel Adhesion lb./in. (N/25mm) 180° on stainless steel - 20 min - 24 hr.	3.0 (13.1) 3.7 (16.5)	PSTC-1
Quick Tack, lb./in² (N/25mm) Stainless Steel	2.5 (11)	FTM - 9
Dimensional Stability, (%) 48 hours @ 158°F	max 0.01	FTM - 14 10" x 10" Sample Bonded to aluminum
Gloss (60°)	80 min	
Temperature Ranges Minimum Application: End Use:	40°F (+4°C) -50°F to 225°F (-45°C to 107°C)	

Surface Burning Characteristics (Meets ANSI, NFPA, and IFC as class A)		ASTM E84-01 or ANSI/NFPA 255 or IFC 8-1
Flame Spread	0	
Smoke Density	30	
Adhesive pH	Neutral	TAPPI-529
Static Coefficient of Friction (Slip Resistance)	No longer specified for indoor dry applications	

Chemical Resistance

Salt Water Spray

ASTM B 117-03

100 hours @ 5% solution no change

Water Immersion

100 hours immersed @ RT no change

Other immersion tests show:

- 1) Gasoline (30 min.) no change
- 2) Water and Detergents (24 hrs.) no change
- 3) 10% HCL (10 min) no change
- 4) 10% NH OH (10 min) no change

This product has good resistance to detergents, alcohol and some aliphatic solvents for short periods. Not recommended for use with ketones, esters, aromatic solvents and chlorinated hydrocarbons.

Durability

The outdoor durability is 5 years in outdoor vertical applications in the Central US and 7+ years indoors. Horizontal application or in the Southwest regions will be 50% less. While all Permaseal overlaminate films have UV resistance built in to help extend the life of your image, the durability of the image is mainly dependent upon the quality of the inks (see technical data sheets given by the ink manufacturers) and pressure sensitive media being used.

Limitations

- 1) The user is responsible for determining the product's suitability, including adhesion and if needed, removal characteristics when used in applications other than listed specifically in this Performance Guide.
- 2) If there are any questions about applications, please contact your Mactac sales representative to discuss your requirements for recommendations.
- 3) If this is a printed Performance Guide it is an uncontrolled document. Please check the Mactac website for the latest, most up-to-date version.

Shelf Life

Two years when stored at 75°F (24°C) and 50% relative humidity or less. Note: MACTac recommends that rolls be stored on end or suspended from the core.

Recommendations

- 1) We recommend you work in a controlled environment (> 72°F (23°C) and 50% RH), and condition the media in the printing room 24 hrs. before printing.
- 2) Ensure print is perfectly dry. Material should have 24 hrs. drying time, open to the air, and prior to lamination or transportation. Laminate through a professional laminator at 3 - 5 ft./min. Slight mottling may occur from being in the roll too long. This will go away with a little time (typically 24-hrs) in the sun. If this is not possible, simply heat the top roll on your laminator to a temperature of no more than 120°F (50°C) to remove. Caution: heating this film will allow it to stretch easier; special care with film tension will be required!
- 3) Since this is a very thin cast vinyl film, it is very easy to stretch, keep film face tension as low as possible to reduce this possibility.
- 4) Where exposure to harsh chemicals, solvents or high pressure wash is anticipated we recommend you seal the edges with varnish, heavy duty car wax or silicone in order to avoid penetration of these liquids into the adhesive.
- 5) To allow for easy transportation, IMAGin laminated with LF3600 Series can be rolled up, with the image out, with a minimum diameter of 7 inches (18cm). When an overlaminate does not protect the image, make sure the print is completely dry and protected in a plastic bag. During transportation or storage, avoid exposing them to extreme temperature and humidity changes.
- 6) Always test the combination of inks, media and laminating films prior to commercial use. Slight surface mottling may appear in this high gloss film while in the roll form due to the softness of the film itself. This will disappear after one to two days after lamination all by itself. However, if waiting is not an option, a small amount of heat (100° - 120°F) during the laminating process will remove the mottling immediately. Use care not to stretch the film during this process. Always maintain as little film tension as possible to minimize this possibility.

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- *Values given are typical and are not necessarily for use in specification.*

CALL 1-800-321-8834 for additional product information

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