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 Version #1 (0326)  
 Approved by AS

## Product

LF4640 Rayzor Cast Optically Clear Gloss Overlamine

## Product Description

**LF4640** is a 2.0-mil Optically 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 1.5-mil polyester release liner. **LF4640** is designed for use with **cast 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 overlamine film to help extend the life of your graphics by resisting color fade caused by ultraviolet light.

## Physical Properties

| Property   | Typical Values                                 | Test Method  |
|--|--|--|
| <b>Thickness, inches (mil/um)</b><br>Film plus adhesive<br>Total product   | 2.5/64<br>3.9/100                              | ASTM D-645   |
| <b>Peel Adhesion</b><br><b>lb./in. (N/25mm)</b><br>180° on stainless steel<br>- 20 min<br>- 24 hr.                       | 3.0 / 13.3<br>3.7 / 16.5                       | PSTC-1   |
| <b>Quick Tack, (lb./in<sup>2</sup> / N/ in<sup>2</sup>)</b><br>Stainless Steel   | 2.5 / 11.1                                     | FTM - 9  |
| <b>Dimensional Stability, (%)</b><br>48 hours @ 158°F  | max 0.01                                       | FTM - 14<br>10" x 10" Sample<br>Bonded to aluminum |
| <b>Gloss (60°)</b>   | 80 min   |  |
| <b>Temperature Ranges</b><br>Minimum Application:<br>End Use:  | 40°F (+4°C)<br>-50°F to 225°F (-45°C to 107°C) |  |
| <b>Surface Burning Characteristics</b><br><b>(Meets ANSI, NFPA, and IFC as class A)</b><br>Flame Spread<br>Smoke Density | 0<br>30  | ASTM E84-01 or<br>ANSI/NFPA 255 or<br>IFC 8-1      |
| <b>Adhesive pH</b>   | Neutral  | TAPPI-529  |

## Chemical Resistance

### Salt Water Spray

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

ASTM B 117-03

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 overlaminated 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, Rayzor Series can be rolled up, with the image out, with a minimum diameter of 7 inches (18cm). When an overlaminates 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**

**IMPORTANT NOTICE:** The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy or completeness is made. In every case, user shall determine before using any product in full scale production, or in any way, whether such product is suitable for user's intended use for their particular purpose under their own operating conditions. User assumes all risk and liability whatsoever in connection with their use of any product. The products discussed herein are sold without any warranty as to merchantability or fitness for a particular purpose, or any other warranty, express or implied. No representative of ours has any authority to waive or change the foregoing provisions, and no statement or recommendation not contained herein shall have any force of effect unless in an agreement signed by the officers of seller and manufacturer. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent without authority from the owner of the patent. The following is made in lieu of all warranties, express or implied: Seller's and manufacturer's only obligation shall be to replace or credit such quantity of the product proved to be defective at its discretion.

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