

Screen Printing of Prismatic Sign Sheeting

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Technical Data Bulletin

Document Introduction

This Technical Data Bulletin provides guidelines to successfully screen print Aura Optical Systems' microprismatic reflective sign sheeting, including AURA® 196 Prismatic, AURA® 197 Prismatic, and AURA® 191 Metalized HIP Prismatic.

NOTE: If these procedures are not properly followed, any warranties provided by Aura Optical Systems may be voided.

Screen Ink Selection

Aura Optical Systems' microprismatic sign sheetings are designed for use with solvent-based acrylic screen inks. Acrylic-based screen inks are generally more durable than other forms of solvent inks and should be utilized whenever longer-term durability is required.

The AURA® 8100 Series Screen Ink is the preferred screen ink for use on Aura Optical Systems' products. However, most AURA® microprismatic products are fully compatible with many of the commonly utilized traffic signing screen inks available from other manufacturers. **NOTE: It is the responsibility of the end-user to determine the compatibility of any given screen ink with Aura Optical Systems' reflective sheeting products for their end application.**

Screen Set-up & Equipment

Screen Mesh: Use polyester monofilament screen fabric with a 157 mesh size. Utilizing a higher mesh size may not produce the proper color. Screens should be tensioned to approximately 20 Newtons/cm.

Stencil: Use solvent-resistant stencil materials, such as rapid photopolymer emulsions.

Squeegee: Use a rubber squeegee designed for use with solvent-based inks. The squeegee must be sharp with a durometer between 70 – 80. Any nicks in the squeegee may cause streaks or uneven printing. The squeegee width should overhang the image area by at least 50mm (2") on either side.

Screen Size: Screens should be made from wood or metal frames. The screen should be sized such that a well area of at least 6" is provided on either side of the squeegee.

Preparation for Printing

1. Prior to printing, both the ink and the sheeting should acclimate to room temperature for at least 24 hours prior to printing.
2. Thoroughly mix the ink by hand or mechanical mixer prior to use. If using a mechanical mixer, allow the ink to rest for a short period of time to allow air bubbles to escape.
3. Keep ink containers closed when not in use to avoid excessive solvent loss.
4. If necessary, 5% - 10% by weight of thinner can usually be added. Most inks are press-ready, and ink thinning may not be necessary except to replace lost solvents due to evaporation during storage. Please consult the specific guidelines of the ink manufacturer.
5. Ensure both the screen, squeegee, and reflective sheeting are clean and free of dust. Wipe the sheeting surface with a soft, lint-free cloth prior to printing.
6. Position the screen for off-contact screen printing. Depending upon the screen tension and size, position the screen above the printing surface between 7mm – 13mm ($\frac{1}{4}$ " – $\frac{1}{2}$ ").

Processing Method

Use off-contact screen printing. Inks should be applied to screen with an initial flood pass followed by the impression pass. Apply sufficient pressure during the impression pass so that only the corner-edge of the squeegee makes contact against the printing surface. Excessive pressure can damage the screen or create a printing defect. Direct contact screen printing is not recommended.

Always make a test print before starting any job. In addition to reviewing the print quality, ink adhesion should always be tested by performing a cross-hatch tape test.



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Drying

Air Drying

Air drying is best achieved on drying racks with high volume air flow and temperatures above 65°F (18°C). Drying racks should have a minimum 50mm (2") gap between shelves to allow air to freely flow through the racks.

Most inks will be touch dry within 2 – 4 hours. However, allow printed sheeting to dry for at least 24 hours prior to packaging.

Oven Drying

Before oven drying, consult with appropriate technical personnel to ensure the ovens have sufficient air flow for safe use with solvent inks.

Do not allow temperatures to exceed 160°F (70°C). Ensure high volume air is allowed to flow across the printed surface. Oven drying times will vary based upon the specific ink and air flow conditions within the oven. Many ink systems will be dry to the touch within 15 minutes of oven drying. As with air drying, wait at least 24 hours prior to packaging.

Packaging


Package printed signs or sign faces with slip sheeting or release liner against the printed face to avoid ink blocking. The glossy side (i.e. release side) of the liner should be positioned against the printed surface.

Important Warranty Information

The information, technical data, and statements made herein are believed to be reliable, but the accuracy or completeness thereof is not guaranteed and should not be construed as a warranty or representation for which Aura Optical Systems assumes legal responsibility. All Aura Optical Systems products are sold with the understanding that the Purchaser has independently determined the suitability of such products for its purposes.

*The following is made in lieu of all other express or implied warranties. **No implied warranty of merchantability or fitness for a particular purpose is made.*** Aura Optical Systems products are warranted to be free from defects in material or workmanship for a period of one year from date of shipment if the product is properly stored and/or applied. Aura Optical Systems' sole obligation shall be to replace such quantity of product proven to be defective. Aura Optical Systems shall not be liable for any injury, loss or damage, direct or consequential, whether foreseeable or not, arising out of the use or of the inability to use the product.

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