Sign Substrate Preparation Guide

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Document Introduction

This Technical Data Bulletin outlines recommended substrate preparation procedures for aluminum and galvanized steel sign blanks. This document does not cover plastic substrates. (Please see TDB-108 for surface preparation of plastic substrates.)

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

Overview of Guidelines

Only flat sign panels are recommended for use with Aura Optical Systems' reflective sheeting materials. Unless otherwise specifically indicated, Aura Optical Systems' reflective sheeting products are not designed to be applied over ridges or around curved surfaces.

Substrates must be clean, smooth and free of dirt, oxidation, rust, loose paint, machine oils or grease, or other surface contaminants. The presence of any such contaminants may interfere with the adhesive bond allowing bubbles or wrinkles to occur in the finished sign.

Sign panels must be in good condition without any dents, warping, or other defects. The surface should be smooth and flat. Any texture or surface roughness may interfere with the adhesive bond.

Aluminum substrates should be degreased and then properly etched with diluted phosphoric acid solution (or other commercially available aluminum etching solutions). Galvanized steel substrates must be completely free of rust, oxidation, and loose flakes. Any machine oils or grease must be cleaned from the surface with applicable commercial cleaning agents.

After cleaning, the sign substrate should pass either a water break test or surface energy test to ensure proper preparation and cleaning.

Tests for Proper Surface Preparation

After substrate preparation, perform one of the following tests prior to sheeting application to ensure proper preparation.

Water Break Test

Spray a fine mist of water onto the substrate surface. The water should not bead-up. Instead, it should flow-out as a thin film on the surface. The presence of contaminants such as machine oil or grease will cause the water to bead-up and indicate that the surface has not been properly cleaned.

Surface Energy Test

Commercially available dyne pens may be used to check the surface energy of the substrate. A minimum dyne level of 50 should is required for proper sheeting performance. Please note that most commercially available dyne pens have a shelf life of only 6 months.

Additional Notes Regarding Aluminum

Recommended aluminum alloys are 5052 and 6061.

If aluminum is reclaimed, the surface must be ground and polished smooth to at least 110 abrasive grit or greater. Further, all surface preparation procedures must still be followed.

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