

# Plastic Substrate Preparation Guidelines

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Technical Data Bulletin

## Document Introduction

Although many Aura Optical System's reflective sheeting materials are supplied with a high-tack adhesive suitable for use on many plastic materials, the substrate must still be properly prepared and treated. This Technical Data Bulletin provides guidelines for the surface preparation of plastic substrates.

## Important Note About Plastic Substrates

All plastic substrates are different and will behave differently. Even substrates made from the same plastic resin (e.g. HDPE resin) will behave differently due to formulating or manufacturing differences. Further, even if properly treated, certain plastic formulations may not be compatible long-term with reflective adhesive materials. As such, this document is only intended to provide general guidelines regarding the preparation of plastic substrates. **It is the responsibility of the end-user to determine the suitability of Aura Optical Systems' products with their intended substrate. No warranty is provided for adhesion to plastic substrates.**

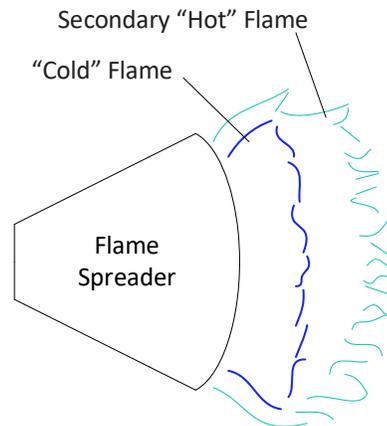
## Preparation of Low-Surface Energy Plastics

Flame-treatment of low-surface energy plastics (such as LDPE or HDPE plastic) can significantly improve the adhesion of Aura Optical Systems' reflective sheeting to such substrates. Flame treating is a process where an open flame is utilized to alter the surface energy of the plastic.

### Information on Flame Source

1. Use a propane torch (or similar torch) with a flame spreader.
2. The flame is characterized by two different zones. The darker colored zone adjacent to the flame spreader (known as the "cold flame") is lower in temperature. The secondary "hot" flame is characterized by a higher temperature and should be used to flame treat the surface. See Figure 1.

Figure 1:



## Flame Treatment Procedure

1. Wipe the surface of the plastic substrate with isopropyl alcohol. This cleans the surface and helps to remove any surface oils from the plastic. Allow the plastic to dry.
2. Using a flame spreader, briefly pass the secondary "hot" flame over the plastic surface in gentle, sweeping passes. No area of the plastic surface should be exposed to the flame for more than 1 second.
3. Wipe the surface of the plastic substrate with isopropyl alcohol a second time.
4. Test the surface by placing a few drops of water on the substrate. The water should not bead-up. Instead, it should flow-out as a thin film on the surface.

## Adhesion Promoting Primer

For certain plastic substrates, the use of a primer or adhesion promoter may be required to ensure sufficient adhesion. Many third-party primers are commercially available. The end-user should always test the compatibility of the Aura Optical Systems' reflective sheeting with any such primers or adhesion promoters.



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## Other Plastic Substrates

Many plastic substrates are naturally compatible with pressure-sensitive adhesives. Such plastics can simply be alcohol-cleaned prior to application of the reflective sheeting.

Similarly, other plastics (such as Coroplast) are pre-treated at the factory during the manufacturing process and can also be alcohol-cleaned prior to use. However, it should be noted that such pre-treatments may deteriorate over time.

As with all plastics, the user should always test compatibility of the reflective sheeting for their specific application prior to use.

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