

# technical bulletin

Date: 08/01/2007

Re: Graphics – Vinyl Finish Alert - Mottling

Notice a slight haze or mottling on your newly installed graphics? Here's some information as to why this is happening.

## Short Course on Vinyl

Vinyl is composed of two simple building blocks: chlorine, based on common salt, and ethylene, from crude oil. The resulting compound, ethylene dichloride, is converted at very high temperatures to vinyl chloride monomer (VCM) gas. Through the chemical reaction known as polymerization, VCM becomes a chemically stable powder, polyvinyl chloride (PVC) resin.

PVC (PolyVinyl Chloride) resin is the key ingredient in vinyl. However, by itself, it's a very hard and brittle plastic material. Additives such as plasticizers, stabilizers, lubricants, pigments and processing aids change the PVC's physical properties and make it flexible.

## Plasticizer Migration

Vinyl resin must be blended with a plasticizer (such as a phthalate ester or phosphoric acid) to become pliable. The more plasticizers used in making the vinyl product the more flexible the vinyl becomes. These plasticizers make the vinyl pliable by sliding between the PVC molecules. Because the plasticizers are not chemically bound to the PVC molecules they can move from within the vinyl to the surface. This movement is called migration. When plasticizers migrate to the surface of the material it can cause surface distortion, like mottling (a spotty or hazy appearance on the vinyl surface), and can cause some inks or adhesives not to bond well. When plasticizers migrate to the underside of the material it can cause interference with the adhesive properties and degrade functionality of the adhesive of a pressure-sensitive vinyl.

## What to Do

To assist in the removal of such plasticizers, we recommend a cleaning product such as **Rapid Prep** followed with a treatment of our **Rod & Custom Show Gloss Crème**.



[autotrimdesign.com](http://autotrimdesign.com)