

### In This Issue:

- Advances in Film
- It's All About Inks
- Monitor Calibration
- Legal Ruminations in Minnesota
- Vehicle Wrap Lamination
- Screen Printing
- Perfecting the Planning Process

# THE Wraps Effect

Industry professionals share how vehicle wraps are advancing vinyl film technology

## CONTRIBUTING PANEL:

Judy Bellah, Public Relations Manager,  
CLEAR FOCUS Imaging Inc.

Tim Boxeth, Marketing Manager,  
High Performance Media, Laminates  
& Tools, 3M Commercial Graphics  
Division

Craig Campbell, Product Manager,  
ORACAL USA

Stan R. Gee, VP Sales, LG Chem  
Graphic Films Division

Holly Szychowski, Marketing  
Communications Specialist, Arlon Inc.

Jeff Stadelman, Technical Marketing  
Manager, MACTac Graphic Products

Molly Waters, Sales Support Manager,  
Avery Dennison Graphics Division  
North America

IT IS SAID THAT NECESSITY is the mother of invention, so when the vehicle wrap market began to hit the mainstream, vinyl makers across the globe had to step up their game to meet the demands of this growing field.

"Manufacturers of vinyl films have certainly been challenged to respond to the rising popularity of the vehicle wrap segment of the industry," says Stan Gee, vice president of sales for LG Chem. "The vinyl films being produced today have vastly improved, in just a few short years, in terms of printability, durability and ease of installation."

*Sign Business* and *Wraps* magazine recently asked these manufacturers some questions about the special needs of the vehicle wrap film industry.

### How has film changed over the years?

Today, digitally printed films are combined with overlaminates and are expected to provide exceptional end-results.

That in mind, many changes have sprung up over the years including films with slideable and repositionable features, air release technology, and films that combat bubbles and/or wrinkles. Things also started to change for the vehicle wrap market when the cost of printers came down so smaller shops could afford to get into the wraps business.

### How have manufacturers kept up with consumer demand for vinyl wrap films?

Manufacturers are always trying to improve the performance of their products for their customers whether it is increased durability, improved removability and most importantly easier application. The most noticeable change for customers/installers is the ease of application.

Wrap films are engineered to meet customer needs as the wrap market is further segmented. Not all wraps are the same and each requires its own level of technology. If you're doing vehicle wraps and you want consistent performance, cast vinyl is probably the most reliable solution. Even for graphics on flat vehicle surfaces, cast films provide the best durability and dimensional stability.



Courtesy of Avery Graphics

There is a range of media that can be used for all parts of a vehicle.



**What specific benefits do cast films offer for wraps?**

Cast films offer excellent stability and resistance to shrinkage, as well as outstanding conformability. Developments such as air egress technologies have improved ease of application, and new advancements in adhesives have given rise to applications that never could have been thought of before. Not all cast films are the same. Some simply offer an air release feature, and some offer slideable and repositionable adhesives with an air release feature:

- MACtac's JH5529BFDM B-FREE is a highly conformable printable vinyl film with bubble free adhesive technology, designed specifically for vehicle wraps.
- Arlon's DPF6000X with X-scape technology is intended for speedy wrap installation while maintaining a high tack for a long-term bond.
- Avery Graphics' MPI 1005 EZ RS allows installers to completely remove the liner from a graphic and slide it across the hood of a vehicle to position it.
- LG Chem's second generation of cast vehicle wrap film, LD823AG, as well as the most recent addition to the AiRFree family of products features improved air egress technology and increased repositionability with the benefit of optimizing productivity.

- 3M films with Controltac and Comply or Comply v2 Adhesive offer

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Vinyl films offer solutions to making vehicles look more alluring, like this wrapped bus (before and after).



SkinzWraps did the design and printing for this wrap using Avery Graphics film.



3M's Controltac IJ380 film can be used on extreme curves for concave and convex areas like this Dodge Sprinter door.



Arlon's DPF2400 reflective film is easily viewable at night and can be applied to the curved surface of a vehicle.

slideable, repositionable and air release characteristics.

- Oracal's ORAJET 3951RA Professional Wrapping Film has RapidAir Technology to save time and mistakes during an install.

While all manufacturers have their own special technology, the ultimate function is similar—the elimination of trapping air bubbles during application. The air egress/release technology allows installers to apply vehicle graphics without getting bubbles trapped beneath the film, as they escape through the film's channels.

#### Are calendered films still being used?

Some research is finding that installers are now using more ultra-calendered film, such as ORAJET 3551 with RapidAir, as an alternative to premium cast wrapping products. Ultra-calendered films allow a user to wrap vehicles such as box trucks or delivery vans without paying the expensive price of a cast product. Before the development of these films, there wasn't much middle ground, but by having some performance characteristics of cast at a more competitive price, ultra-calendered films have gained acceptance.

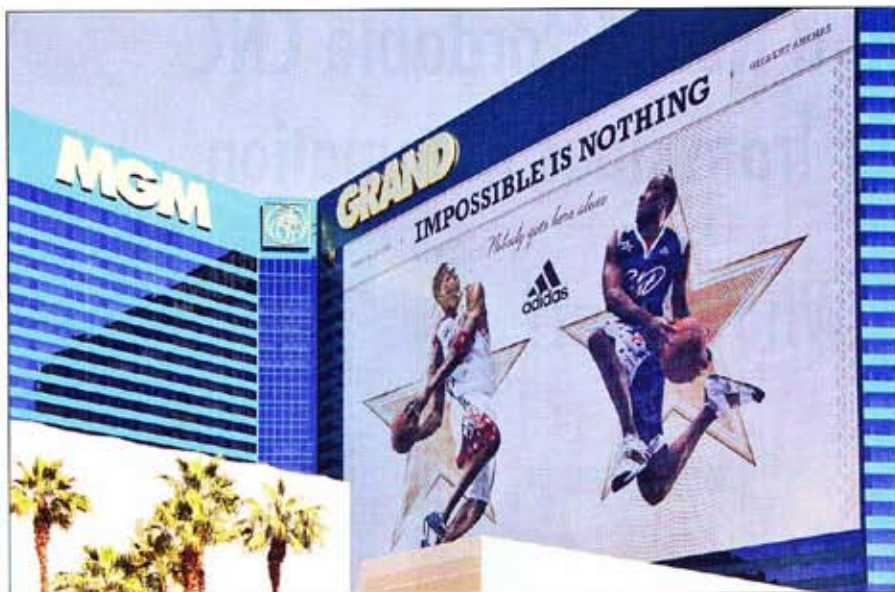
#### How is conformability improving in wrap films?

The pliability of the films to be able to conform to deep channels and corrugations is very important. Graphic installers are looking for graphics with better conformability for more challenging applications. Realizing that vehicles such as Dodge Sprinter vans and Chrysler PT Cruisers are complicated to wrap, manufacturers are improving the conformability in their films.

3M recently developed the 3M Controltac Graphic Film IJ380 that provides a solution to convex and concave wraps. It offers new technology providing highly conformable characteristics with excellent lifting resistance. Once applied, the graphic lacks memory and does not want to revert to its original state.

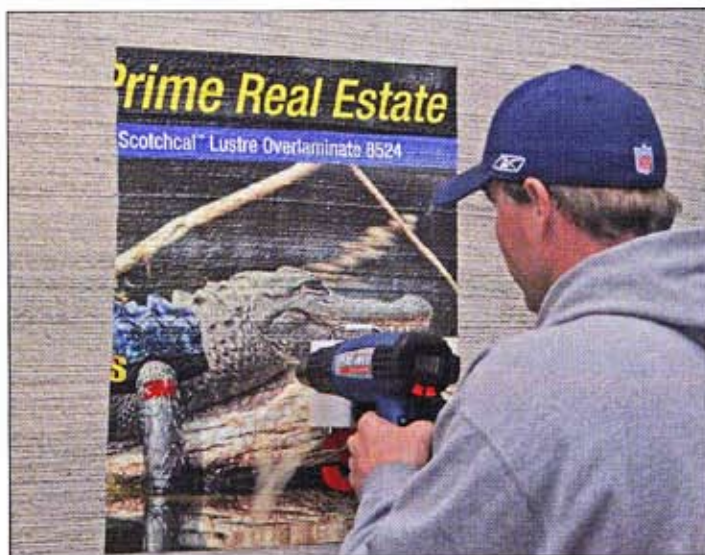
Arlon also offers a solution to such applications with its DPF6000X product;

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CLEAR FOCUS' line of window perf film can be used for extraordinary projects like the side of the MGM Grand in Las Vegas.

3M Scotchcal Graphic Film for Textured Surfaces IJ8624 with 3M Scotchcal Luster Overlaminate 8524 can be molded to rough surfaces - flat or curved.



MACtac's 6.0-mil IMAGin wallNOODLE product is a wide format option for wall murals, posters, decals and advertisements.

a soft film that allows for maximum flexibility around curves and deep channels. The adhesive has a strong bond, eliminating the need for adhesive promoters and primers. It is rated for an outdoor durability of up to seven years (unprinted).

It's important to note that the education of the user and what they can accomplish with the conformability of these films is also on the rise. This education pertains to the importance of selecting the matching laminate when performing wraps to achieve the maximum performance of the films for every application.

**Do overlaminates make a difference in wrap film performance?**

They certainly do. Thinness seems to be the latest trend in providing overlaminate upgrades. MACtac has created the 1.5-mil Permacolor RAYZor overlaminate film as an improvement over the standard 2.0-mil offerings. The 25 percent decrease in overlaminate thickness significantly improves the conformability of the completed graphic, allowing for faster application time. Together, Permacolor RAYZor and IMAGin B-free JT5529BFD bubble-free air-egress high-performance digital media reduce the thickness of the complete vinyl solution by 12.5 percent.

Avery also introduced a new product - DOL 1030, which is a 1.3-mil glossy cast overlaminate. This laminate is intended for vehicles with complicated curves that require a more conformable product.

3M's 1.2-mil overlaminate, 3M Scotchcal Gloss Overlaminate 8580, is a companion product to its new Controltac IJ380 film which utilizes technology for high conformability.

**What are the most difficult challenges to overcome when developing vinyl for the wraps market?**

Education is a key challenge. As vehicle wraps become mainstream and sign industry professionals realize the opportunities to add additional revenue to their businesses and added value to their customers, the importance of education with

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respect to new materials and specific applications becomes critical.

**Are there films for non-vehicle applications?**

Yes. Pressure sensitive adhesive vinyl films were created for flat applications first and have evolved over time to what we see in the market today. Films such as Oracal's ORAJET 3628 developed for interior walls and windows are also popular products for applications other than vehicle wraps.

Many stadiums, arenas, restaurants and retail spaces have hundreds of square feet of potential display space that's unusable because it consists of rough textured surfaces such as concrete block, brick, tile, poured concrete or stucco. 3M Scotchcal Graphic Film for Textured Surfaces IJ8624 with 3M Scotchcal Luster Overlaminates 8524 can be molded to rough surfaces (flat or curved) to create crisp images that promote and inform. The film may also be removed with heat.

Thicker films can also provide a solution for temporary, repositionable wall graphics. MACtac introduced the



MACtac offers its 1.5-mil Permacolor RAYZor overlaminates as a thin option for protecting graphics, thus increasing conformability.

IMAGin wallNOODLE, which provides designers with options for wide format wall murals, posters, decals and ads. It is a 6.0-mil versatile pressure sensitive vinyl with a white matte finish that works well with all printing types, including digital, screen and offset.

**What are some new developments in specialty wrap products?**

Some specialty materials for vehicle graphic applications include silver and

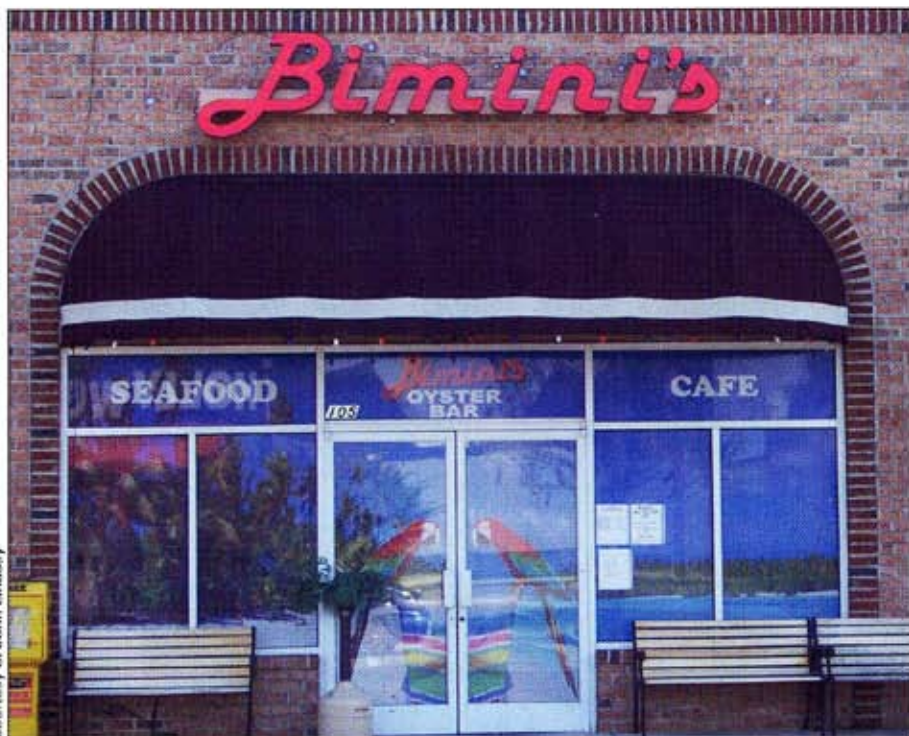
white ultra-metallics, white pearlescent, and retroreflective films. Since the digital inks are translucent the specialty finish of the film (the metal flake or reflective properties) are visible through the inks. These materials are an excellent option for overlay graphics to add accents to full vehicle wraps or partial wraps.

Arlon's DPF 2400 is a new product; a 5-mil printable reflective vinyl with repositionable pressure-sensitive adhesive. It is the perfect choice when designing graphic or promotional advertisements for daytime enhancement, or requiring increased visibility at night. It can also be applied to motor and railway coaches, and fleet and vehicle markings, including emergency and safety vehicles.

CLEAR FOCUS offers its ReflectVue product, a silver-gray/black perforated retro-reflective vinyl film suitable for a variety of window-signage applications in which image visibility in low-light conditions is desired without losing the film's see-through properties. The 10-mil film features 1.7-mm holes, a 60/40 perforation pattern (40 percent open area) and a reflectivity rate of 50, and has a clear removable acrylic adhesive and a solid paper release liner. ReflectVue is compatible with solvent-based inkjet printing.

**What are some new features to perforated window film?**

Perforated window films like Oracal's ORAJET 3675 and ORAJET 3676, offer the customer two different punch



Courtesy of John Lindsay

More often, window graphics are being completed using window perf.

patterns; 50 percent (leaving 50 percent material) of the material is punched out for 3675 and 40 percent (leaving 60 percent material) of the material is punched out for 3676, which gives a more vibrant print. ORAJET perforated films also feature a more permanent adhesive, which guarantees these applications will last for three years as stated.

One newly released product to note is CLEAR FOCUS' PerfxCoat, an optically clear protective coating designed for use with CLEAR FOCUS perforated window graphics produced with solvent-based inks. The clear coating protects graphics from the harmful effects of chemicals, abrasion and fading caused by UV rays; it also adds an attractive gloss finish to the print. As vehicle wrappers know all too well, adding an overlaminate to a graphic can create installation challenges, especially on curved surfaces. At 0.2-mil thick,

PerfxCoat does not bridge the film's holes nor does it add materially to the weight or thickness of the graphics, thus maintaining the window film's flexibility and ease of installation.

CLEAR FOCUS also offers ClassicVue—a 50/50 perf pattern and 1.5-mm holes—and SuperVue—a 50/50 perf pattern and 2-mm holes with a new 60-inch-wide version recently introduced – for the wraps market.

#### **What are some warranty considerations with films today?**

As with all digital printing, the warranty of the graphic is always the least durable component due to the wide variety of inks. Customers should always keep this in mind when offering a warranty for finished graphics.

Wrap shops need to consider the

**As with all digital printing, the warranty of the graphic is always the least durable component due to the wide variety of inks.**

quality of the warranty and who is offering it. Is the warranty backed by a reliable testing company? Is the

warranty clearly presented and defined? What is the application and what is the corresponding warranty? This information will assist in choosing a brand and the type of product used. Look for media and overlaminates that are designed for wraps and can perform consistently well on many types of surfaces, and offer a reliable warranty.

Manufacturers will usually have a clearly identifiable warranty associated with their products when they sell them. For example, MACtac's Open-Image Warranty covers many combinations of printers and inks used with MACtac digital media. For its products, 3M offers the 3M MCS Warranty and the 3M Performance Guarantee. ☺