Expanding Options for Glass Decorating

Introduction

Brand owners know that the retail shelf is where the majority of purchase decisions are made. This "moment of truth" emphasizes the importance of packaging that stands out from the competition. Packaging helps consumers identify favorite brands, however catching consumers' attention with engaging packaging also helps to drive product sales.

Another challenge brand owners face is determining the ideal packaging substrate. Stores are full of a wide variety of packaging substrates, from pouches, aluminum cans, glass containers and shrink sleeves to pressure-sensitive labels, paperboard, plastic, and heat-transfer labels.

Glass is a unique substrate that brand owners often prefer because of its rigid barrier. Glass automatically protects food or beverages from the migration of substances across the packaging substrate. It is an ideal barrier to resist chemicals, alcohol, and water. It is also a recyclable material that can be reused over and over again. The importance of glass can be seen through concerns about the migration of chemicals into baby milk and food in Europe, which have led to a mandated switch to glass containers for those products.

During an independent research study organized by Friends of Glass, of the 8,000 consumers interviewed, two thirds admitted to worries about food contamination, and 61% of those who opted for glass as their preferred packaging substrate said they chose it because it is the safest packaging for their health.*

However, the greatest challenge with glass has been the limitations in directly decorating the glass itself, which makes it difficult to represent product branding and imagery that utilize brand colors. Glass FRIT bonding screen printing limits the colors that can be used for direct decorating, and may also contain heavy metals which prohibit its use. As a result, labels are often the solution, sacrificing uniqueness in branding.

**FEVE, the European Container Glass Federation, 5/13/14.*

working for you.

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Color & Comfort

Organic inks from Sun Chemical allow brand owners to decorate their glass and ceramic packaging with bright, vibrant effects that can liven up the shelf presence. Organic inks, coatings and sprays significantly expand the color gamut versus the FRIT printing process, allowing brand owners to not only produce standout designs directly decorated on the glass, but to do so using real brand colors that meet the current industry regulations regarding heavy metals and VOCs.

UV ink systems can significantly increase mileage, reduce energy costs by using UV lamps versus firing ovens, use less floor space, and increase production speeds. The end result is a lower cost per print.

The SunVetro™ Solution

Sun Chemical's **SunVetro™** family of organic screen inks are specifically formulated for glass.

Using Sun Chemical's **SunMatch™** base colors to simulate Pantone® shades, SunVetro organic inks can print very bright, strong brand colors. Practically limitless color options are available from simple mixing systems. Typically the entire Pantone color range can be made from a base ink range of 12 monopigmented colors, and the cured color is fully repeatable time after time.

The **SunVetro VTGL** series of UV screen inks are a two-component system designed for printing onto glass, coated metals, and ceramics, as well as mirroring applications. These inks offer excellent adhesion to glass substrates, high gloss, excellent abrasion and chemical resistance, 100% solids with no heavy metals or VOCs, and additives to provide numerous special effects.

Formulated to cure with both mercury vapor and LED UV sources, the SunVetro VTGL series has a color matching system available with smart scale and ink dispensing systems.

Sun Chemical's **SunSpray WBSPG** (water-based spray paint coating for glass) enables brand owners to create colored glass. SunSpray WBSPG is a 100% water-based spray, and free of volatile organic compounds, bisphenol-A and hazardous air pollutants.

SunSpray UVSPG is a 100% solids UV spray coating specifically designed for plastic and glass. By utilizing a clear and frost base with SunSpray color concentrates, a wide gamut of coloring is achievable.

Preparing the Substrate for a UV System

Pre-treatment of the glass is critical to achieve optimum adhesion. The reason is that glass containers commonly have anti-scuff coatings applied during manufacture. To achieve adhesion, the surface of the glass must be altered (Figure 1).

Figure 1 *The formula needed to achieve optimum ink adhesion to glass.*

There are two ways to alter the glass surface tension. The first is by applying **SunVetro Glasprep** spray pre-treatment. This aqueous coating is applied to the glass as a fine mist and must be thoroughly flame dried prior to decorating.

A second option is utilizing Pyrosil™ technology from Applied Surface Technologies, LLC, which applies a flame and a proprietary liquid mix to the surface, leaving silicon dioxide on the glass and making it hydrophilic.

No matter the process utilized in preparing the glass, pre-treatment is highly recommended.

SunVetro VTR screen ink is a thermally cured component system for printing on glass and ceramic with excellent adhesion and is suitable for mirroring applications.

The SunVetro family of products can be used for ceramics, glass containers such as beer/wine beverage bottles, drinkware, cosmetics, and medical vials. They can also be used on glass for cell phones, computer screens, gaming machine mirrors, and furniture.

Special Effects

Sun Chemical offers a wide range of special effect inks, such as metallic, thermochromic, fluorescent, tactile, and etch effects, to name a few.

Thermochromic inks can be applied directly onto glass to indicate the ideal temperature of wines or beers, or can be used as a promotional message that appears at a specific temperature (Figure 2).

Figure 2 *Thermochromic inks were applied to these glasses. Colder temperatures change the color of the ink from white to blue.*

Figure 3 *"Frosted" glass bottles that were developed using Sun Chemical inks and coatings.*

Fluorescent and phosphorescent colors can shine brightly in black UV or glow in the dark, an effect which is great for displays and making labels stand out in a nightclub, etc.

Acid-etch or sandblasted effects can be printed or sprayed onto bottles. Creating this effect through the use of inks and coatings can significantly reduce the cost and environmental concerns associated with traditional acid etching and sandblasting (Figure 3).

Other surface effects, such as tactile effects to enhance the luxurious feel and quality appeal or non-slip finishes for practicality, can also be created.

Conclusion

Sun Chemical's organic solutions offer many benefits for glass decorators. These include cost savings, production efficiencies, and enhanced color gamut using heavy-metal–free pigments. However, to be successful, decorators should look at their printing process as a whole, understand their print buyers' end-use requirements, and employ the technology that makes the most sense for each application.

Samples of glass decorating that used Sun Chemical's inks and coatings.

To learn more about Sun Chemical SunVetro inks and coatings for glass decorating, email us at globalmarketing@sunchemical.com or visit www.sunchemical.com/glass-decorating.

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