

Innovative Multi-function Printable Film for Windows

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Abstract

The presentation describes an innovative inkjet printable film where the receptive layer is combined with low-tack repositionable adhesive. The resulting product is more cost efficient than traditional film + liner combinations and open the door to future developments where more functionalities can be combined within a single coating layer

Developing films for store shop windows:

The session proposes a short overview of recent developments undertaken at Sihl AG, Bern, to provide stores with easy to use and cost-efficient advertising substrates.

In the 21st century, “real shopping” has to face increased competition from internet-enabled virtual shopping. The shop window on a merchant street or in a mall is often the last chance to send a message and provide incentive to step in the shop and eventually buy.

Films applied on windows are not new – Polyester, PP, Vinyl have been around before digital imaging became widely spread. All these media have been coated for the various types of inks and provide valuable enhancement to showcase advertising.

A typical window product would consist of a thin film (usually vinyl or polyester), with an inkjet receptive coating layer on the topside, a removable adhesive layer and a protective liner on the backside.

These products face a high number of constraints:

- Transparency on unprinted areas,
- High image quality, including high-density sharp test printout
- Scratch & wear resistant
- Ease of installation & desinstallation by non-specialists
- Minimum waste – environment-friendly materials
- Affordable

The innovation developed by Heinzer Consulting consists of a polymeric coating layer combining adhesive function and inkjet image reception. The layer itself is fully transparent, matching performance of optical grade polyester film.

Ink porosity is high, enabling eco-solvent and latex pigmented inks to penetrate into the receptive layer. The layer structure swells and let the ink go through while managing the water + solvent flow control and dispersion during drying time.

Within a few minutes, the film is ready for application on a surface – usually glass.

Best performance is achieved with classic surface cleaning and preparation with soapy water. Film can then be applied, coated side on the glass surface and will stick independently of temperature and electricity ambiances.

To remove or reposition the film, lift off gently the film. The film can be repositioned using procedure described above.

No liner needs to be used, so that store has no issue with unnecessary waste. Field users have reported up to 20 installation/desinstallation cycles without degradation of adhesive & optical properties.

Technically speaking, the ink receptive + low tack glue layer consists of 40 micron of swellable glue with (porosity, density...) features.

The nature of coating material is appropriate to high-speed coating. Functional elements can be added to the coating to deliver glazed/frosted visual impression on unprinted areas, particles to provide a shiny/satin aspect, light filter to cut the UV penetration, all this for a marginal complexification of process and small cost increase.

Depending upon the purpose and location, the film can be applied inside (case of a merchant street shop) or outside (in a mall store).

The first product is meeting good commercial acceptance. Ease of use is confirmed by end-users, while printers and merchants appreciate the price reduction when compared with previous low tack glue + liner products of Sihl.

Extensions of ClearSOL product families are under consideration, ranging from opaque film (on white polyester base), privacy film with Frosted receptive layer, UV-cut variations, combining a third function into the receptive layer.

From what sounds like a modest innovation, we see a wealth of application enhancements and benefits for digital printers and users occurring. Main reported reasons:

- Price of innovation is valued as fair,
- Ease of use – Low cost of installations by non-specialists in branches and chain stores
- No standard firmly set yet when it comes to store and window decoration

The next milestone will be to review unexpected and innovative application and interact with users asking them “which function would you add to the coating layer” ?

References:

- [1] Sihl Clearsol application video – Author Roger Sigrist
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Authors Biographies

Dr. Paul Heinzer studied Physical Chemistry at the EPFL in Lausanne, Switzerland and MIT in Boston. During his long R&D career,

he worked on a number of subjects such as ink- and toner technology, security papers, electrophotography, non-impact printing. Today, he lives in Switzerland and is involved in new inkjet media developments.

Patrick Le Galudec graduated from HEC Paris, France, worked as marketing manager for Bull Peripherals, then Nipson printing systems on high speed printing machines.). He lives now in Switzerland and works on inkjet media OEM development and new Décor business for Sihl.