



Tackling environmental and production concerns

With environmental practices becoming increasingly important to printers, and to their customers, a more diverse range of rigid plastic, recyclable substrates are entering the market. The challenge this poses to printers is that these newer, more environmentally friendly substrates are much more difficult to print on at speed and at high-quality. This leaves many print service providers facing a choice: compromise environmental credentials, or compromise speed, quality and profitability.

PVC (polyvinyl chloride) has held a strong position in the market for rigid sign and display as its characteristics make it ideal for printers looking for an inexpensive, durable, lightweight and highly impactful solution.

While print businesses have benefitted from PVC (also known as vinyl) for many years, some of its flaws have recently come under the microscope and its properties are causing concern for the market. PVC is regarded as one of the most environmentally damaging plastics. It contains two extremely toxic chemicals – chlorine and dioxin – which, through PVC's lifecycle, are released into the air and water supplies, potentially damaging eco-systems and posing a significant threat to human health. An added detriment is that PVC is one of the least recyclable plastics – it contains so many additives that attempting to recycle the material is not only impractical, but very expensive.





A rigid solution?

In order to improve both their operations and reputations, printers are looking for an alternative solution to PVC that is not only environmentally friendly, but can also deliver both high-quality print work and durability. While PVC remains the key substrate for the sign and display market, other substrate materials with stronger environmental characteristics are entering the fray, with some printers now abandoning the use of PVC altogether in favour of alternative media that can help them achieve a greener approach to business.

Polypropylene, much cleaner and more environmentally friendly than PVC, is a fit-for-purpose substitute, while polystyrene, another low impact alternative normally used for retail displays, indoor banners and signage, has excellent thermoforming and fabrication characteristics.

PHAs (polyhydroxyalkanoates), a group of the more recently developed thermoplastics, offer substantial environmental benefits due to their biodegradable and readily compostable properties. However, PHAs are a costly alternative to PVC and the print market has yet to take this material on as a long-term solution. Nevertheless, the potential of the more chemically-based plastics becoming more expensive or even banned altogether could create a gateway for PHAs.

While these substrates have the benefit of being more environmentally friendly, a concern for the print market revolves around their ink adhesion qualities. The print production process often has to be slowed down to ensure that ink adheres effectively to the surface of these alternative materials which, in a highly competitive market where fast and efficient production is crucial, can prove problematic to say the least.

The challenge for printers is finding an environmentally sound solution that still allows for the production of high-quality, durable print, with no compromise to production speeds.



Ongoing issues

Another production-related obstacle for printers using rigid plastic revolves around static charges. Static can lead to problems when loading and unloading media, as well as during the printing process, leading to inferior quality print work.

Plastic substrates, when shipped, are generally packed tightly together. Transit is likely to lead to friction, which generates static charges that can hamper the unloading procedure, as multiple sheets may stick together and potentially cause electric shocks to workers. The presence of static charges on the surface of the media can also cause ink drops from the printer to 'misbehave'. They may be misdirected away from the intended surface area, which leads to poorer quality print and a subsequent increase in wastage levels.

Static can be combatted through ionised air. Placing equipment, such as ionised air curtains, just before the beginning of the print process can eliminate the sticking phenomenon – the air blows positive and negative ions onto the substrate's surface, neutralising the charges.

For optimum print production, any ionisation devices should be partnered with contamination removal technology – as static attracts airborne particles, such as dust, dirt and other assorted fibres, to the surface of materials. Any small particles can affect the appearance of some areas of the print, preventing a smooth, consistent finish and potentially tarnishing the print altogether.

A combined cleaner and ionisation system can help printers using any form of rigid plastic media to remove static and any attracted contaminants, ensuring a fully functional print line, fewer production interruptions and more consistent print work.



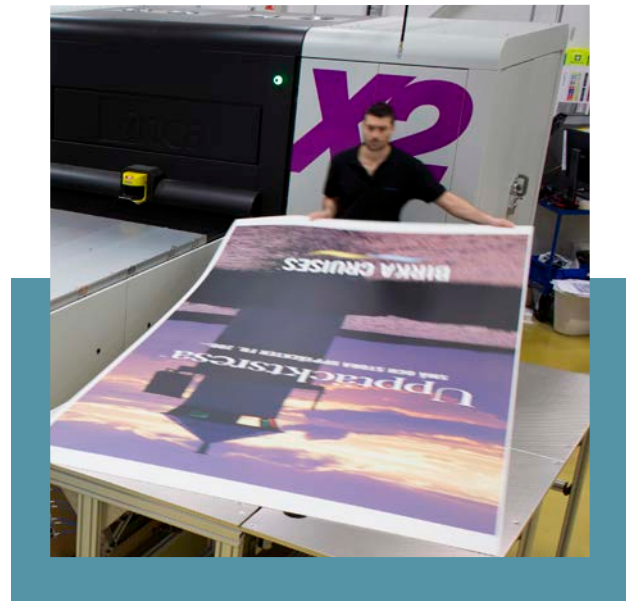
A long term solution

Many printers are reviewing the need for alternative substrates and ancillary equipment, and in the process, may assess their print technology and inks too. Technological developments are creating more and more solutions to improve both the quality and productivity of print production. Among those at the forefront of driving technology to help printers adapt to the market's ever-changing requirements, are Fujifilm and Inca Digital through their ever-expanding Onset range.

Fujifilm has recently released a brand new ink range called Uvijet OX which has been specifically designed, in combination with the newly launched Onset X HS, manufactured by Inca Digital Printers Ltd, to offer much greater versatility for printing on rigid plastics at the highest speeds.

The ink possesses excellent adhesion to a wide range of rigid plastic substrates, including polystyrene and fluted and flat sheet polypropylene. With powerful curing performance in all print modes without loss of adhesion, Uvijet OX can be used with more environmentally-friendly and non-hazardous rigid materials without compromising print quality or finish. Crucially, it can achieve all of this at extremely high print speeds. Key to its capabilities is the completely new UV ink technology that makes use of a specifically weighted monomer blend, which offers particularly low shrinkage when polymerised, and inherently low polarity. This offers excellent wetting properties both before and after polymerisation, allowing for exceptional adhesion of the ink to the substrate even at the highest 'single cycle' speeds of the new Onset X HS, without impacting on the quality of the finished print. For example, Uvijet OX ink, when used in the Onset X3 HS, allows print speeds of up to 1450m²/hr to be achieved.

With higher print speeds and reduced job set-up times, the Onset X HS range has been introduced to help large format print service providers meet the increasingly demanding requirements in the display and POP markets in terms of productivity, versatility and environmental credentials.



The next steps

Printers should take the opportunity to analyse their current operations to determine how alternative plastic substrates and effective static control can offer substantial benefits in terms of producing consistent print quality at high speeds, while minimising environmental impact. Changes in the market are continually affecting the types of substrates that are available, or deemed suitable, meaning that printers need to keep abreast of these changes and adapt their production accordingly. Fortunately, new technologies are allowing many more substrates to be printed at the highest possible production speeds, giving printers the opportunity to adapt to market changes, and ensure their operations are optimised to maximise the potential for profit.

For further information:

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