



Gerber's Solara Ion cationic UV flatbed printer in use

PRINTING DIRECTLY ONTO DIFFICULT SUBSTRATES

Lisa Walsh outlines the benefits to sign-makers of using cationic UV inks as an alternative to solvent and other free-radical inks

SIGN SHOPS CAN ONLY succeed in today's market if they have an edge over the competition; they need durable signs that are reasonably priced. One of the biggest obstacles is finding an affordable printer that offers flexible, durable ink. While solvent inks are widely used in the marketplace, there are inherent problems with them.

The core issue is that solvent inks do not adhere well to non-porous surfaces, and this eliminates a huge array of durable, economic substrates for businesses that want to compete in the exterior sign market. "The ink flakes off and won't stay on the substrate," says Chris Ray of Budget Signs (USA), for instance. "We printed thousands of signs that went into the real world and they all came back. Some signs came back in three months, some in six months, and some are still coming back today."

Unfortunately, this is not an unusual occurrence. In order to get the durability they desire, most shops have to print on vinyl, cut and trim the image, then adhere it to the desired substrate. Solvents require up to 24 hours to complete the curing process before the vinyl can be applied to the substrate, meaning lost revenue and decreased profit for the sign-maker.

CATIONIC INKS

Cationic inks are a good alternative to solvent and other free-radical inks. While solvent inks need heat to expedite the evaporation of chemicals to complete the printing process,

cationic inks are cured with exposure to ultraviolet (UV) light and cure almost instantly with limited drying time. This allows cationic inks to adhere directly to a wide variety of materials, including those sensitive to heat



An exterior sign created with a cationic UV flatbed printer

such as Fome-Cor, Coroplast, paper and corrugated cardboard. This eliminates the need to print on vinyl, trim the image and then adhere it to the substrate, which reduces production time and cost.

Cationic inks are also preferable to traditional free-radical UV inks because once exposed to UV rays, the cationic reaction will continue until the inks are completely cured, even after the UV rays are turned off. The curing process for free-radical UV ink begins with exposure to UV rays, but when the inks are exposed to oxygen, the process stops. As cationic inks continue to cure even after they are no longer being exposed to UV light, their cure is always complete. This produces a more durable, flexible ink bond to the material, resulting in a longer image life.

Many printer manufacturers have tried to produce cationic inks for inkjet printers but have had only marginal success. Gerber Scientific Products has developed GerberCAT cationic UV inks, a set of four colour inks that are extremely elastic and durable. They work hand-in-hand with the Cold Fire Cure process, which cures the GerberCAT inks at nearly room temperature. Gerber offers both of these technologies in its Solara ion UV flatbed printer, a reasonably priced entry-level flatbed printer that can be upgraded with higher print resolution and other options as a business grows.

DIRECT PRINTING

Owners of cationic flatbed printers love their machines because they



Detail of an exterior sign created with a cationic UV flatbed printer

can print directly onto the substrates that solvent and free radical printers cannot, saving labour and material costs. These machines also provide durability and flexibility, solving the problem of finding a reasonably-priced flatbed printer that uses cationic UV technology.

"We saw samples printed on the Gerber Solara ion at a sign show, and we were happy with how well the ink held up," Ray continues. "We tested jobs by printing on Coroplast, which had given us the most trouble with our old printer. We printed the jobs and left them outside in water. After they were exposed to the air and water for up to two days, we rubbed them in alcohol, abraded them and still couldn't scratch off the ink."

"With the inks from our old printer, once we flexed the material, the seal between the substrate and the ink was destroyed, and the ink would literally break off in big chunks," he adds. "Our old

printer claimed their signs could be used outside, but that wasn't the case."

The development of cationic inks and low-temperature curing technology gives sign-makers the edge they need in today's market. With cationic flatbed printers, they can continue to thrive in the current economy for years to come. ■

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