



France to be the European Pilot Market for Digimarc Recycle



In March 2022's edition of *Authentication & Brand News™*, a technical feature looked at how digital watermark specialist Digimarc was working on invisible watermarks that could increase plastic recycling. The technology from Digimarc is amongst a basket of innovations that sit at the overlap between authentication and sustainability – in this case giving plastic packaging a 'voice'.

The watermarks are in the form of invisible unique barcodes that are about the size of a postage stamp and are repeated across the entire surface of the packaging to create a tile effect that is easy to detect and scan. The codes are either integrated within the packaging label artwork (by means of subtle changes made to the artwork pixels) or embossed into the mould that forms the plastic container.

The codes can carry a wide range of information on the manufacturer, stockkeeping unit (SKU), type and composition of plastic used, and whether food or non-food was contained in the packaging.

The watermarks are a key part of a huge initiative called HolyGrail 2.0, which is driven by the European Brands Association and backed by dozens of global brands, including Procter & Gamble, PepsiCo and Unilever.

Digimarc has now announced an expansion of the HolyGrail 2.0 Initiative. Building on successful semi-industrial trials, stakeholders across the packaging value chain have selected France as the European pilot market for Digimarc Recycle. All operators in France have been invited to participate, marking an expansion in activities that were previously limited to HolyGrail 2.0 members.

The idea behind Digimarc Recycle is that by linking covert digital watermarks (used to deterministically identify plastic packaging to any desired level of granularity) with an extensible cloud-based repository of product attributes (such as the afore-mentioned brand, SKU, product variant, packaging composition and food/non-food use), it's possible to overcome the limitations of today's optical sorting technologies.

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Luminescence Sun Chemical Security Acquires InData Systems

Luminescence Sun Chemical Security (LSCS) is part of the Sun Chemical global security solutions business unit, specialising in inks, pigments and coatings-based authentication solutions. In January 2023, LSCS acquired InData System's (InData) patented invisible barcode reading technology, which consists of a variety of dedicated readers that can verify and decode 'invisible' fluorescent codes.

Under the agreement, ownership of the full range of InData's code scanning systems, in use at over 70 customer sites, has been transferred to LSCS. LSCS will continue to serve the existing client base and actively market the technology through its worldwide sales network.

The dedicated readers for invisible barcodes were first introduced by InData in the early 2000s and were continually updated as new technologies became available. Current applications include reading invisible barcodes for brand protection, product diversion tracking and revenue stamps for beer, wine, spirits and cigarettes. The barcode readers can read a variety of UV, IR fluorescence and tailor-made taggant codes. LSCS offers security inks for all of these applications.

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Distinkt – a New Name in Nanotech Authentication

Nanotechnology has been a fertile breeding ground for authentication and brand protection devices – given that structures that can be controlled at the nanoscale (roughly the size of a few atoms or molecules) exhibit responses to light that are distinctive and near impossible to replicate. Now, a team of researchers and entrepreneurs is set to launch a new optical ink feature into the market.

Distinkt is a university spinout set up to exploit a patent filed by the Catalan Institute of Nanotechnology and Nanoscience (ICN2), Autonomous University of Barcelona (UAB) and the Spanish National Research Council (CSIC). The patent is protected in the EU, USA, Japan, China and India.

To help launch the product, the researchers recruited a team of experienced entrepreneurs and MBAs in early 2022 to jointly form the company.



The technology uses phase change materials to create unique visual and covert effects. After five years of intense investigation, the team discovered a way to control organic materials so that they create a specific visual response when stimulated by near-infrared light. The thermo-luminescent inks are unique in their ability to transition between colours at a specified rate and to then revert back (or not) to their original state. The company claims that the method of activating and reading the inks is irreplicable.

The unique authentication capability of the product comes in the combination of the colour changes selected, the duration of the change and the reversibility of the change (or permanence). Additional levels of authentication are produced through the way the inks are activated by near-infrared LEDs. A further layer of protection is created by the software solutions written to read and trace the patterns created.

Sustainability and growth

The company provides an inexpensive and organic solution to visual authentication using readily available materials. It takes care to avoid harmful chemicals, rare earths or other materials which are in short supply or constrained by transport across national borders.

Distinkt is a young company in outreach mode. The company's initial strategy is to address two very different market sectors – brand protection (both industry and consumer brands) and government issued documents such as banknotes, ID cards and tax stamps.

'The two markets are very different with different entry points and dynamics,' said Luca Venza, CEO. 'For the brand protection market, name brands are under tremendous pressure from customers to demonstrate that they are protecting their brands and that the goods sold in brand name stores are authentic. Distinkt can

print directly onto consumer products (or industrial materials) with invisible ink solutions, or we can produce our own series of trademark labels, tags and QR codes for specific customers.'

'In the banknote print market, we can integrate our raw material with existing suppliers of UV or standard inks as an entry point to the market. We will build long term relationships with central banks and government suppliers,' he added.

Distinkt is now looking for industrial partners to embed its technology in practice. They have commercially available solutions ready for customers, as well as the ability to develop custom solutions when needed. Product turnaround is fast, with unique solutions available within three weeks to three months. They can integrate their technology into most off-the-shelf ink solutions and create their own inks and printed solutions.

The company is always on the lookout for potential corporate or venture partners for investment to accelerate its growth.

The management team comes with an impressive track record of success. It consists of a group of MBAs and PhDs with experience in Global 100 companies and top university laboratories. Collectively, the founders have started eight companies, filed 10 patents, and successfully exited from three start-ups. They have led three major M&A acquisitions from both the sell and buy sides.

To learn more about Distinkt's technology, and meet with members of the management team, be sure to attend ODDS 2023 in Prague, Czech Republic (17-19 April) where Chief Technology Officer, Alex Julia, will be presenting a paper on 'NIR-induced colour/fluorescence changing inks'.

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