WOOD YOU BELIEVE IT...

Exploring the latest innovations in ink, inkjet printers and colour management, Fernando Javier Tomas Badenes explains why he believes the future is digital for wood flooring decoration

Digital printing for the decoration of wood flooring is a relatively new phenomenon. While the market has been traditionally dominated by analogue print methods, things are looking up for digital.

The advantages of digital inkjet in this space are manyfold, from meeting the growing consumer demand for increased customisation in the décor space to the production of multiple prototypes within a short turnaround time, boosting manufacturing efficiencies and more. It also eliminates the need for plates, rollers and tooling, and makes the process a more sustainable one. Let's explore the virtues of digital's significant role in the future of flooring a little further.

MINERAL INKS

When it comes to wood flooring, a key element for many end users is a natural appearance. One solution to this requirement is the use of mineral inks, as formulated by EFI. Mineral inks, printed using EFI Cubik industrial, single-pass inkjet printers, penetrate the natural wood like a tattoo, digitally staining the substrate the desired colour while preserving the inherent knots and grains of the wood. We describe this as 'respecting the soul of the wood', because it has the unique ability to produce the desired result with complete tonal consistency while staying true to the beauty of the material. The pigment used in mineral inks is inorganic, meaning the wood decoration is lightfast and can therefore be used on wood flooring outdoors without fear that the colour will change over time.

While the use of mineral inks is very

Digital printer technology enables mineral inkjet stain to be printed directly to any wood substrate as an alternative to deco paper or manual staining

EFI Fiery proServer for Cubik allows users to measure calibration charts printed on wood planks to control the amount of ink used across the tonal range

much focused on direct printing to hardwood and veneers, they are not the only solution for high-quality flooring decoration. There are benefits to the use of UV-curable inks, particularly in instances where a more artificial presentation is not as much of an issue. While mineral inks penetrate the wood and incorporate its natural grains and gradients, UV inks sit on top of the substrate.

UV LED INKS

If the integrity of the substrate is not a major concern because you are looking to recreate the appearance of other floor materials, such as a stone effect, or you are aiming to print high-resolution graphics, vivid colours and patterns, UV LED inks for wood decoration are an ideal solution, offering a wider colour gamut, consistent results, and compatibility with a range of wooden substrates, including plywood, MDF and particle board. Other substrates are growing in popularity as the trend for products such as luxury vinyl tile (LVT) and stone plastic composite (SPC) continues to grow in the US, due in part to being lighter and therefore easier to transport, and easy to assemble. SPC particularly is forecasted to become increasingly popular in the coming years.

The environmental advantages of digital processes for floor decoration are another tick in the 'pro' column for inkjet. In the ceramic space, the shift from solvent towards water-based inks is resulting in the reduction of volatile organic compounds (VOCs) and carbon emissions, following the migration from analogue to digital, and digital for wood flooring is primed to head in the same

direction. Mineral inks from EFI are aqueous, formulated to reduce VOCs, as well as provide fire resistance. UV LED inks are also a green solution, not emitting any VOCs.

ADVANTAGES OF GOING DIGITAL

There are a myriad of reasons why going down the digital route for flooring decoration is an appealing prospect, but among the strongest value propositions are the advantages that stem from software implementation. Colour management software, such as EFI's Fiery proServer with dedicated colour management software for wood inkjet decoration, makes it simple and efficient to manage the required images and content while factoring in the manufacturing environment and the type of wood substrate you're working with, all ensuring you're in the driver's seat when it comes to the printed end result. Digital really shines when it comes to colour control; no

"Mineral inks penetrate the natural wood like a tattoo"

more ink mix stock, checking and retrying. It's now a streamlined process with less wasted materials and time. With wood especially, there are several additional factors to consider, such as the natural colour, porosity and humidity of the wood, so exhaustive adjustments can be costly.

This ties in with the increased demand for customisation in this space. Digital is the most efficient way to prototype, and, therefore, the fastest way for adopters of this technology to get the word out there about their products and capabilities. Imagine a flooring business, for example, that is ramping up mass production,

where prototyping is such a breeze that it is able to produce multiple samples for its sales network who can go out and demonstrate the possibilities to retailers. If a retailer offers the feedback that the colour shade is not to their exact specification, the team is able to re-prototype and provide what they need with very little turnaround time. Again, this is where an effective colour management tool and digital printer make these adjustments a quick and simple process.

With all the building blocks in place, an ecosystem that interacts and works together as a fully integrated solution is invaluable. The beauty of digital inkjet is it can be built directly into your current manufacturing line, and the process can be managed seamlessly from the initial design of the file to a colour management tool that considers the wood decoration process specifically, such as EFI's Fiery proServer, followed by the prototyping stage that facilitates the development of new products. Next, the treatment of the wood board, a single-pass inkjet printing process with EFI Cubik, and even post-printing treatments, i.e., the varnishing and protective layers. The result, aside from the desired flooring decoration, is a streamlined process that enables faster prototyping and product development, cost-effective shorter runs, reduced inventories, a wider range of decoration opportunities, and the ability to meet demand for differentiation and customisation, all in a way that consumes fewer resources for a more sustainable production environment. ■

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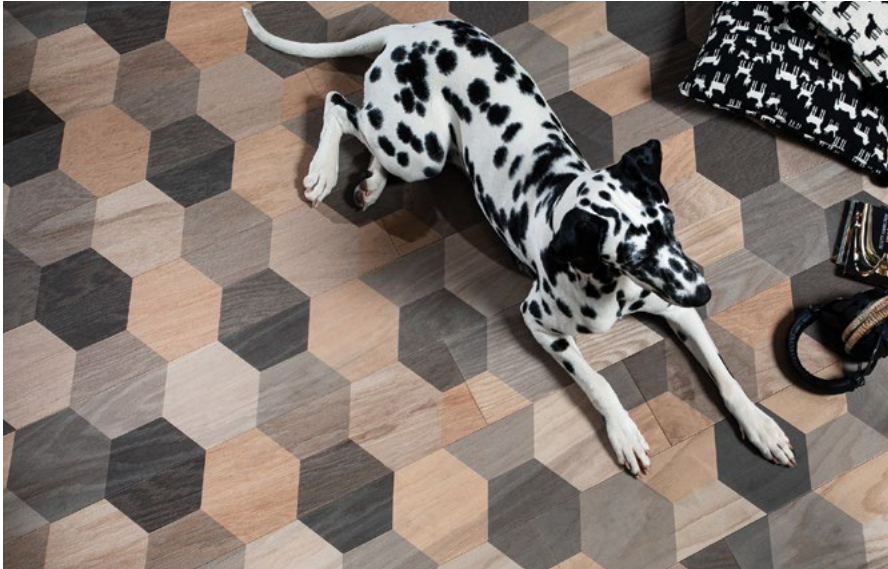
EFI Cubik technology can stain natural wood leaving the wood grain intact, or naturally decorate a wood to create a different pattern