hönle group

hönle uv technology

Head of Hönle Group

Press Release

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Wood or not wood?

In interior design, flooring panels with the look and feel of wood are often used. Their manufacturing process consists of many steps, most of which employ UV curing. UV specialist Hönle provides customized curing systems for all production stages, enabling an efficient manufacturing – and the perfect final product.

Have you ever walked barefoot on an artificial wooden floor? You might not know it because modern plastic floor panels with a wood look are almost indistinguishable from real wood, both visually and to the touch. Achieving this effect requires a complex manufacturing process where, in many steps and layer by layer, the perfect illusion of a wooden plank is created – for the eyes and the haptics.

Typically, plastic panels are produced using an extruder and then cut to the desired format. The raw panels are transported on conveyor belts through the various printing and coating stations. The number of these stations varies depending on the quality requirements of the final product and the process used.

The actual appearance, including primer, colour, and grain, is developed in stages. It is crucial to precisely match the UV technology

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to the inks and varnishes used. This ensures a gelling or complete curing process in seconds, which results in efficient production.

There are several methods to achieve tactile effects. One example is the use of texturing embossing foils. Depending on the desired texture depth, multiple layers of varnish are applied but not fully cured. For this process, known as pinning, typically LED-UV modules are applied. Their wavelength can be perfectly tailored to this step's requirements, and they are highly energy efficient. The embossing foil is applied to the partially cured varnish layers and then peeled off in another step, which creates the typical wooden texture. Finally, a topcoat is applied and cured using UV irradiation.

Another way to imitate / reproduce the appearance and especially the texture of wood almost perfectly is through the DLEplus process, developed by the machinery and plant engineers of Hymmen, a specialist in large-scale production technology for panel materials. Here also, the primer and base coat as well as the ink for the visual effects are applied using digital printing with subsequent UV curing. This is followed by the patented and award-winning process of Digital Lacquer Embossing (DLE): depending on the desired grain depth, multiple layers of coating are applied and pinned using LED-UV technology. This is followed by a partial application of coating by inkjet printing, UV curing, and post-processing, a process that creates a unique 3D surface structure that feels indistinguishable from real

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wood. This effect is visually enhanced by a coating finish, which can have different gloss levels, always depending on the desired look. Finally, the topcoat and the matching UV curing ensure a durable, scratch-resistant surface – with guaranteed UV stability.

UV curing systems, sometimes LEDs, sometimes conventional gas discharge lamps, are found in most areas of a flooring production line. These air- or air/water-cooled curing devices are usually integrated into the individual stations of the plant, with external energy supply and control.

The development of an optimal production process requires close collaboration between machine manufacturers, chemical suppliers, and curing experts – at every single step. It is essential to precisely match the applied ink or coating with the individual UV curing system. Hönle's UV experts offer pre-production tests in their in-house application lab to ensure that all parameters fit together for a perfect final product and an efficient manufacturing process. UV technology plays a crucial role in this.

So, the next time you walk on a wooden floor that still looks perfect after years, it is probably not real wood. By the way, this also applies to kitchen cabinets, tabletops, and much more.

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Image 1: Digitally printed floor panels on their way to the application of the topcoat. Throughout the entire manufacturing process, the inks and coatings are cured using UV or LED-UV systems.

Image 2: In the Calendar Coating Inert (CCI) process, the applied coating is cured through a film under inert conditions.

Image 3: The process of Digital Lacquer Embossing creates floor tiles that are visually and tactilely almost indistinguishable from real wood.

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About Hönle Group: Dr. Hönle AG is the parent company of the Hönle Group, based in Gilching / Munich. The publicly listed UV specialist is one of the world's leading suppliers of industrial UV technology. The business is divided into three units: BU Curing, BU Adhesive Systems, and BU Disinfection.

The experts for curing and drying solutions for printing and coating applications of the **Business Unit Curing** develop, manufacture, and distribute UV / LED-UV devices and systems with or without inertisation as well as IR/hot air dryers for coating and all common printing applications, along with the corresponding measuring technology. Additionally, the product range of the UV experts include devices and systems for solar simulation and professional lighting, for example in the automotive industry.

In addition to **international subsidiaries** in China, Korea, France, Great Britain, Austria, Malta, and the USA, as well as a sales office in Italy, the group has a **dense network of distribution partners** worldwide.

An **extensive range of services**, consisting of service technicians stationed worldwide, decentralized spare parts warehouses, and the option for augmented reality-based remote service, ensures the sustainability of the customers' production processes.