



Industry Information

Adhesive solutions for the flooring industry

Our Word is Our Bond

Jowat
Adhesives



Partners for all situations

Jowat flooring adhesives for an optimum living experience.

Due to an increasing wealth of styles, modern flooring materials such as vinyl or design floors, classic parquet or high-quality carpets provide virtually unlimited possibilities for interior design. The flooring plays a major role in the atmosphere of a room. Jowat adhesives are perfect bonding partners and also provide special functions for all forms and designs, whether parquet, laminates, latest designs, fitted carpets or special flooring.

Flooring industry

The variety of different flooring designs has increased significantly, especially due to new materials. Today, the industry provides almost any desired design and quality. And the expectations of consumers for easy to install products with a superior design and durability are constantly increasing. Visually, the latest design floors can hardly be distinguished from real wood, concrete, stone or cork floors, and customers have huge expectations regarding their durability and resistance – even in kitchens and bathrooms. Powerful and tailored adhesives play an important role in the manufacture of floors. They ensure a strong and permanent bonding of the different substrates, provide additional functions such as water-re-

pellent properties or facilitate a superior appearance when applied for instance as a transparent top layer. These applications require standard tried and proven adhesives as well as intelligent new developments.

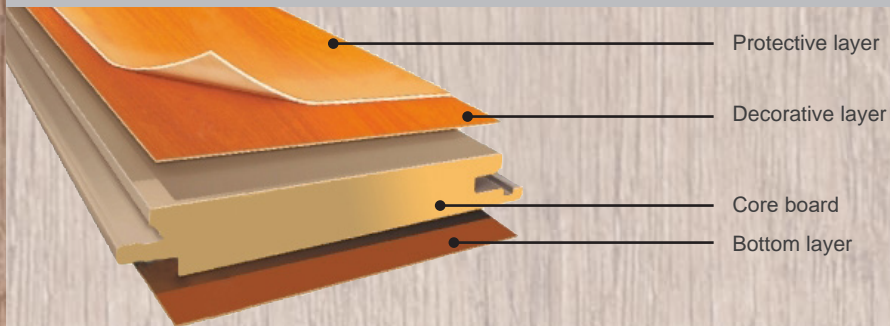
With an extensive know-how acquired in many years of activity, Jowat supports private and commercial customers in all bonding-related questions in the manufacturing of floors and is a reliable partner in every situation – from the development of new and special bonding solutions to the optimum organisation of the actual bonding process and a permanent support service.



Bonding in the flooring industry



Laminate



Protective layer

Decorative layer

Core board

Bottom layer

The overlay and the decor paper are usually supplied as a single layer. This layer is then bonded on a MDF or HDF substrate. In laminates which are exposed to increased wear and tear, an additional Kraft paper is added for a higher pressure resistance. The underside is reinforced with a stabilizing layer consisting of paper or thermoplastic material to prevent deformation due to the bending forces which occur during use. The decor foil with the overlay and the stabilizing layer are generally bonded with thermoplastic hot melt adhesives and joined by calender in throughfeed lines.

Engineered parquet



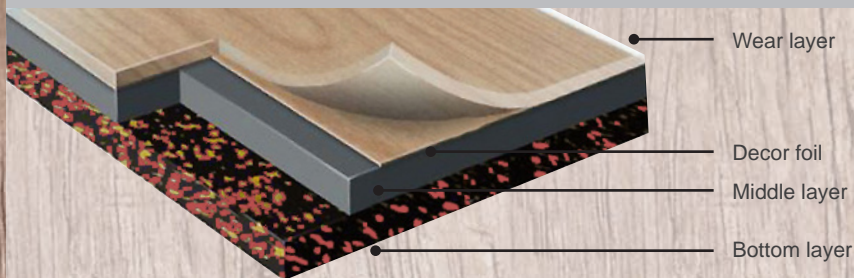
Real wood layer

Solid wood strips

Bottom layer

Parquet with two or three layers can be bonded with D3 PVAc dispersions as well as with PUR hot melt adhesives or a combination of the two in a bead application. The dispersions are applied on the full surface of the wood substrate. After drying, the real wood layer is usually applied in the form of different strip geometries and the two layers are pressed. An adhesive bead of PUR hot melt is usually applied on the substrate after which it is joined with the real wood layer in an inline pressing procedure, creating an even bonding result.

Access floor panels



Wear layer

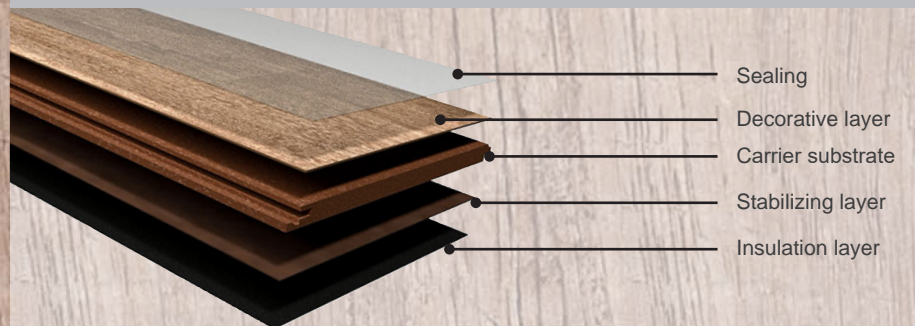
Decor foil

Middle layer

Bottom layer

In general, access floors are made from a high-density wood-based board, fibre cement or fibre-reinforced plasterboards as well as from steel or aluminum. These boards are supported by pedestals. The void created below the floor provides a flexible method for the installation of mechanical and electrical services. The classification of access floors is regulated by the EN 12825 standard. The functional or decor layers are usually bonded with PUR adhesives.

Design floors and LVT (Luxury Vinyl Tiles)



Sealing

Decorative layer

Carrier substrate

Stabilizing layer

Insulation layer

Design floors consist of a multilayer compound of different substrates made of PVC ("Vinyl"), the same materials as in LVT, with a plastic top layer. The stabilizing layer under the HDF, MDF or compact board may be made of paper or plastic as well as e.g. cork (foot-fall sound reduction). An additional stabilizing layer may be inserted between the carrier substrate and the decorative layer. Design floors can be bonded with dispersions, thermoplastic or PUR hot melt adhesives, depending on the composition and structure of the decorative layer and the wear layer.

For superior appearance and high quality

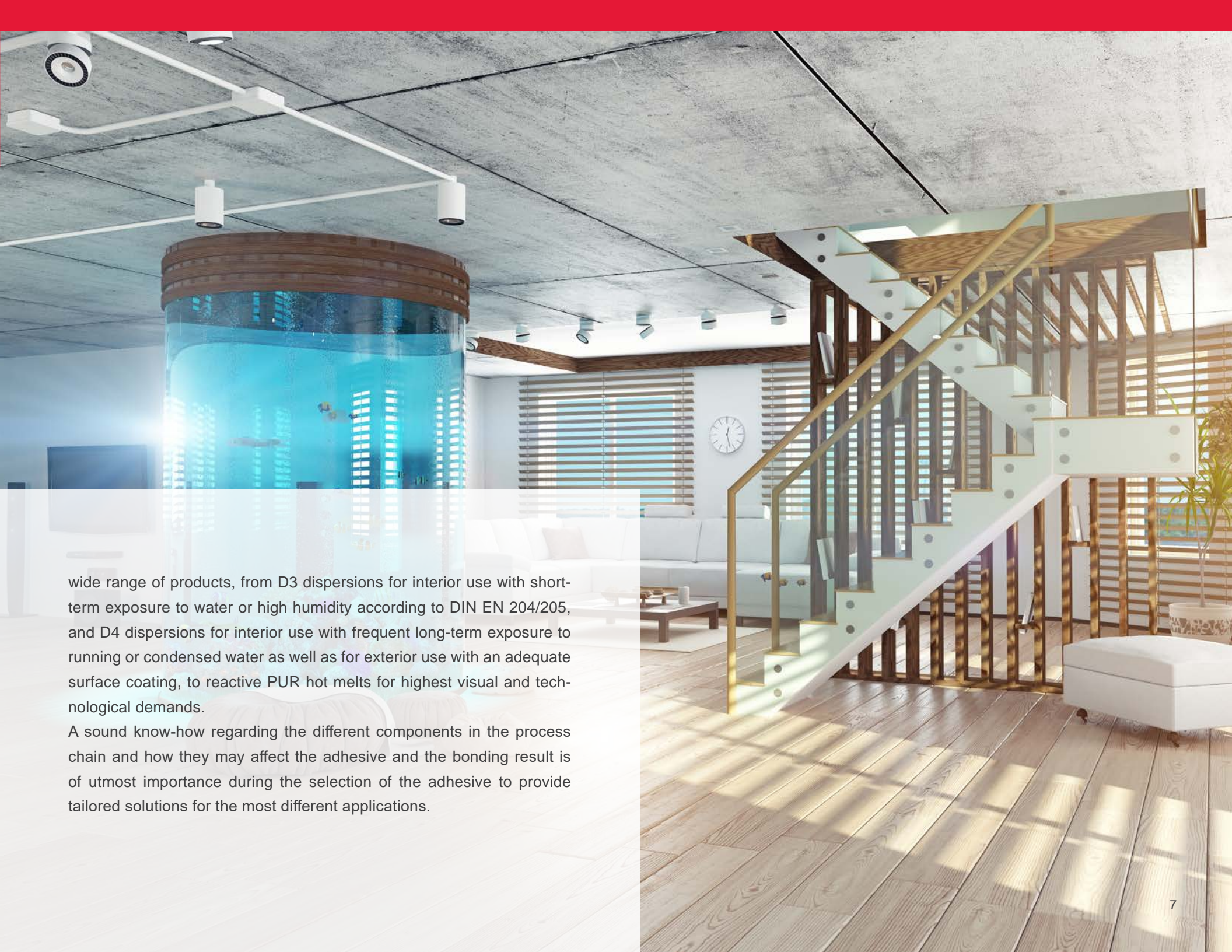
Flexible adhesives for the manufacture of engineered parquet.

In interior design, parquet floors stand for premium quality, permanent durability and superior appearance. The large variety of different forms, colours and wood species facilitates bespoke products. As a natural material, wood conveys a feeling of well-being and can have a positive effect on the atmosphere of a room.

Parquet

High-performance adhesives play a key role in the manufacture of engineered parquet and ensure high-quality and durable floors. Jowat has developed several modern reactive dispersion and hot melt adhesives which meet the different requirements for the bonding of the solid wood layers with the top layer. Which adhesive will provide the best results depends on several factors, such as the wood species used for the substrates. For instance, certain wood species tend to discolour when bonded with acidic adhesives. This is prevented with special D3 dispersions from Jowat with a neutral pH value. An additional benefit from these adhesives is the low corrosiveness, which reduces the wear and tear of the production equipment to a minimum. Further criteria which have to be taken into account when a suitable adhesive is chosen are the ori-

gin and the storage conditions of the wood, and the material mix of the product. For instance, it is essential to know whether the wood is rich in resins, has a high moisture content or has already been dried, or if it contains metal ions which could lead to a reaction with the adhesive. The structure of the wood also plays a role, as well as whether there are any differences in the tension of the wood and whether preserving agents have to be added to the dispersion. Modern reactive dispersion adhesives are characterized by high yield, short pressing times, elastic bondlines and a wide range of processing methods. Jowat supplies dispersions with a broad spectrum of viscosities for the different application procedures and surface properties. Depending on the intended purpose and the requirements for the floor, the Jowat product portfolio provides a



wide range of products, from D3 dispersions for interior use with short-term exposure to water or high humidity according to DIN EN 204/205, and D4 dispersions for interior use with frequent long-term exposure to running or condensed water as well as for exterior use with an adequate surface coating, to reactive PUR hot melts for highest visual and technological demands.

A sound know-how regarding the different components in the process chain and how they may affect the adhesive and the bonding result is of utmost importance during the selection of the adhesive to provide tailored solutions for the most different applications.

Hard floors: Laminate, vinyl and design floors

From classic to trend-setting

Bonding of laminate, vinyl and design floors.

From classic laminate, to vinyl and superior design floors the design possibilities are virtually unlimited, and with them also the requirements for suitable bonding solutions.

Laminates

For years, laminate has been one of the most demanded flooring materials. And there is good reason why: It is easy to maintain, combines many practical characteristics, such as resistance to water and wear or footfall sound reduction, and is available at a relatively low cost. The wide range of decor foils facilitates all possible designs. High-quality laminate floors with embossed structures match the appearance of solid wood parquet floors and frequently also feel similar to a “real” wood floor.

Laminates are manufactured from a MDF or HDF core board which is laminated with a top layer consisting of a cut sheet or reel material after which the compound is pressed. In downstream processing, the laminate

may then be sealed or enhanced with special functions, for instance with an additional protective layer by applying a coating of abrasion-resistant varnish.

Vinyl floors

Vinyl floors have also been established for many years for commercial as well as for private use. The flooring is manufactured by printing a decorative layer on a core layer made of MDF, plastic or cork which is then laminated with a PVC top layer. The reverse side is sealed or coated with special adhesives to make it water-repellent.

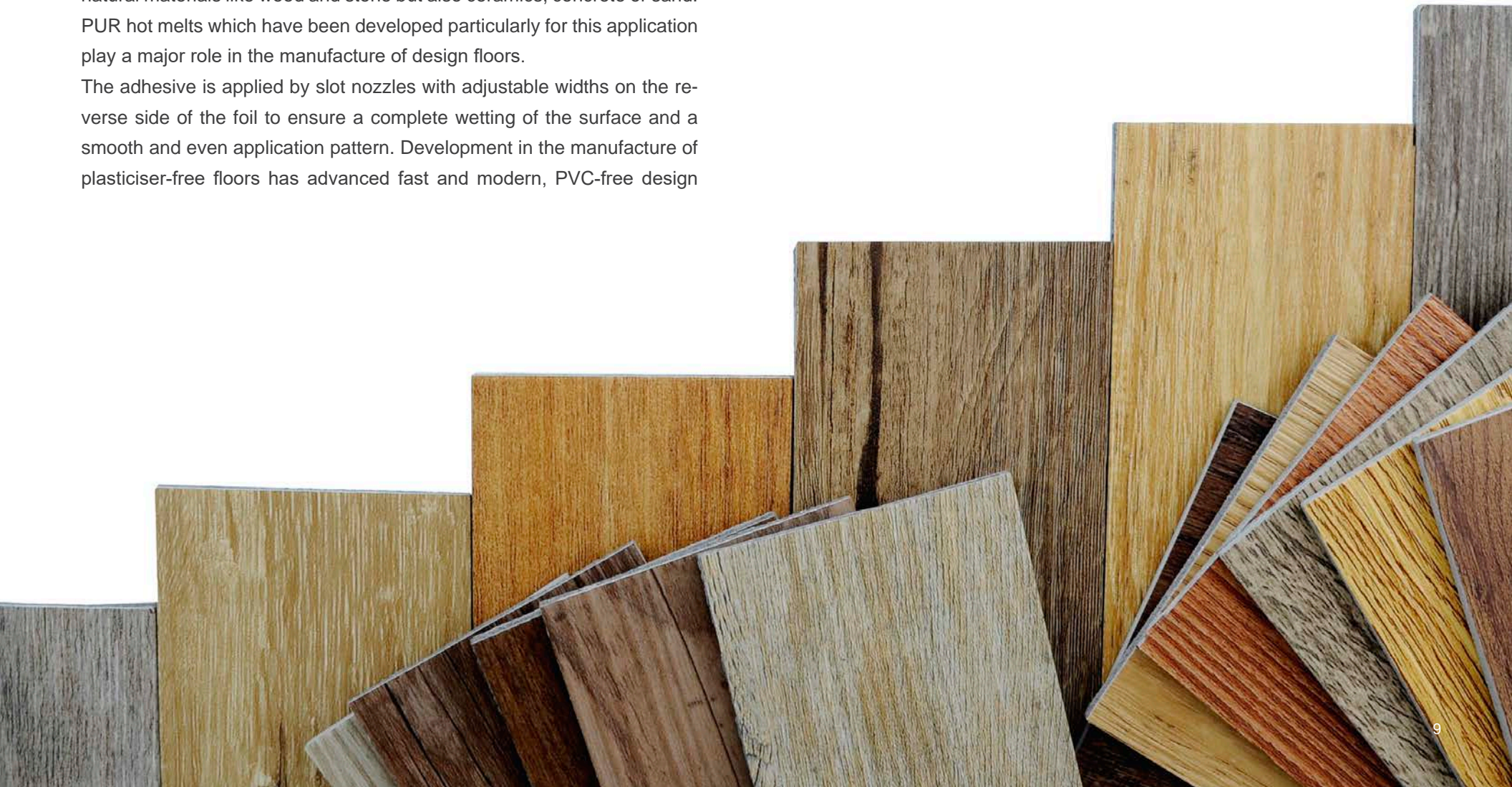


Design floors

Plastic-based design floors are the latest trend in floorings. There are virtually no limits to creativity in the manufacture of these floors. They can be laminated with transparent foils which may be equipped with further additional functions. Luxury Vinyl Tiles are available in a variety of formats from square tiles to boards in different sizes and offer the realistic look of natural materials like wood and stone but also ceramics, concrete or sand. PUR hot melts which have been developed particularly for this application play a major role in the manufacture of design floors.

The adhesive is applied by slot nozzles with adjustable widths on the reverse side of the foil to ensure a complete wetting of the surface and a smooth and even application pattern. Development in the manufacture of plasticiser-free floors has advanced fast and modern, PVC-free design

floors are becoming established as an alternative to vinyl floors. In response, Jowat has developed an environmentally compatible adhesive. The new foil adhesive with reduced emissions for the lamination of foils and decor papers provides a major input into ecologically compatible and healthy living conditions.



Double performance

Special solutions for commercial flooring.

Mostly used in the commercial sector, raised floors take a special position in the flooring industry due to the specific requirements for the product. Access floors can sustain extreme loads, frequently have to meet demands to resist high temperatures or fulfil anti-static requirements and provide space for special installations.

Access floors

Raised floors create a flexible and permanently accessible void which is hidden under the flooring and offers space for special installations, for instance communications cables and electrical wiring or water pipes. Therefore, access floors are widely used in specialized areas where easy access to mechanical and electrical services is a requirement, such as at trade fairs or in computer rooms. Access floor panels are characterized by high load carrying capabilities and frequently provide additional functions: The tiles are usually made from wood and laminated with a functional layer. In general, the substrate is laminated on the top and the underside with a special foil, e.g. of aluminum, using powerful hot melt adhesives based on PUR which are applied by rollers.

These foils provide additional functions and may be for instance anti-static or heat-absorbent. In the following step, the tiles are assembled and receive a surrounding edgeband which is usually made from aluminum. Panels which are not turned over during use are coated with a protective layer on the underside.

The adhesives used in the manufacture of access floors also have to fulfil certain requirements. They have to be characterized by optimum adhesion to rigid materials, high initial strength, high heat resistance, very short open times, and permanent durability. Special PUR hot melt adhesives for flat lamination meet these demands and ensure a permanent bond.

From the living room to the putting green

Textile floors for all uses.

Whether premium carpets for private homes or artificial turf for the football stadium powerful adhesives are also reliable process partners in the manufacture of textile floor coverings and provide a major input into the superior quality of the product.

Textile floors

In the manufacture of carpets, the tufted carpets are laminated on the reverse side with a textile bottom layer which improves the structural stability and ensures that the carpet lays flat on the floor when rolled out. Modern thermoplastic hot melt adhesives bind the filament to the underside and facilitate high pull strength. The polyolefin-based (PO) adhesives are applied by roller or by nozzle in a single operation on the complete surface of the textile. These powerful hot melt adhesives facilitate fast process cycles with lower adhesive application amounts compared to other procedures. In addition, no drying time is required for thermoplastic hot melt adhesives which leads to a savings potential in energy and equipment costs due to more effective processes.

Artificial turf has its own very specific challenges. On the one hand, the bonding has to resist the extreme mechanical stress to which the product is exposed during use. On the other hand, artificial turf has a lifecycle of up to ten years after which the textile floor has to be fully recyclable. PO hot melt adhesives from Jowat are based on the same chemical basis as

the PE bottom layer and the PP filaments, and therefore play a major role in the recyclability of the product.



Functional layers and water resistance



For special effects

Transparent functional layers and water resistance.

Transparent functional layers facilitate a superior high-gloss appearance of customised designs. The optimum interaction between the specially developed adhesive and engineering technology provides significant advantages for the manufacturing process and the product. In addition, hydrophobic agents from Jowat protect wood-based materials effectively against external influences for permanent high quality.

Protective layers

Design floors stand for high quality and superior appearance and are increasingly becoming established for giving rooms an individual touch. Apart from the lamination with a wide variety of decorative foils, the application of transparent functional layers plays an increasingly important role in the high-gloss finishing of the surface. Transparent foils are laminated from reels on the decor substrate. Due to the possibility to finish all types of wood-based substrates with different foils, the range of different designs is virtually unlimited, the decorative layer is directly visible through the transparent foil. The PUR hot melt from Jowat used in these operations has been developed particularly for the lamination of thin, transparent, PET, PVC or PU foils to create high-gloss surfaces and meets the requirements of this special application. The PUR hot melt adhesive is characterized especially by high UV stability, transparency and purity as well as high surface hardness and therefore ensures a permanent true brilliance of colour. Due to its special formulation and very low viscosity, the hot melt is homogeneous in the melt and has very good flow properties – an important

prerequisite for a flawless visual result in the lamination of transparent foils. An additional advantage: Compared to other finishing methods such as lacquering, foil lamination provides an efficient way of creating high-gloss surfaces in a single process.

Water resistance

For the sealing of the wood-based substrates, Jowat also supplies hydrophobic agents which protect the substrates against external influences such as moisture or chemicals and increase durability and reduce emissions from the materials. The special hydrophobic agent based on PU is applied either on the edges or on the reverse side of the substrate as a full-surface coating and penetrates through the wood-based material due to vacuum technology. In addition, the hydrophobic agent may also be used to seal mineral materials and to improve the bonding of materials such as plaster, limestone or cement-based substrates.

The full range

Jowat adhesives for the manufacture of floors.

Jowat supplies powerful bonding solutions for all current and future applications in the manufacture of modern floorings. In addition, products from Jowat have minimal or no emissions and therefore provide a major input into healthy working and living conditions.

Whether classic parquet or most modern design floors – Jowat adhesives have been successful and reliable partners for many years in the manufacture of all types of floors. Today, the requirements are much more complex than a simple bond. Transparent top layers or the moisture resistance necessary in bathrooms for instance are only possible with advanced adhesive technology.

Another key aspect is the elimination of harmful emissions as far as possible during the application of the adhesive as well as later during the use of the product. Bonding solutions from Jowat also provide a major input into the protection of the environment and comply with all legal limits. Specially developed dispersion adhesives with reduced emissions are ideal pro-

cess partners, especially in the manufacture of highly demanded design floors which, unlike PVC floors, can already be manufactured completely free of plasticisers due to a modern mix of materials.

Bonding solutions from Jowat ensure highly efficient processes in the production of floors as well as a permanent compound strength, modern designs, essential functions and additionally promote healthy living conditions.

Have we sparked your interest?

As a global innovation partner in the flooring industry, Jowat actively supports processors in optimising manufacturing processes and in meeting customer requirements. We understand the challenges in this industry – whether the increasing diversity of designs and materials, durability, equipping the product with special functions, requirements for high resistance, environmental compatibility, or demands for optimum energy and cost efficiency.



We are part of the entire manufacturing chain and provide extensive advisory services: from the continuous search and testing of new, sustainable raw materials, to the development of innovative adhesives in close co-operation with sub-suppliers and processors, and to carrying out individual failure analyses in case of rejects. For years, Jowat has played a key role in safeguarding success and protecting investments by providing adhesive solutions for the many different applications in the automotive industry and facilitating the optimisation of products and processes.

Have we sparked your interest? Contact us!
We look forward to working together.



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