

The background of the entire slide is a close-up photograph of numerous stacked wood logs. The logs are cut into various sizes and are arranged in a way that shows their circular cross-sections. The wood is a light tan color with visible grain patterns and some darker, possibly charred or decayed, areas. The logs are piled on top of each other, creating a textured, layered appearance.

Industry Information

# Adhesive solutions for the wood industry

Your partner in bonding

**Jowat**  
Klebstoffe

The Jowat logo consists of a small square icon containing the word "JOWAT" in a bold, sans-serif font, with "LEIME" and "GETRÖCKT" written in smaller text below it.



## Bonding naturally

Competent bonding solutions for the wood industry.

A lasting boom in the construction sector has ensured continuing growth in the wood industry. This includes the manufacture of glulam as well the window, the parquet, and the furniture sectors. Requirements for the adhesives used in these applications are very diverse and depend on the production process as well as on the purpose of the different products. Jowat provides optimum bonding solutions and many years of expertise to meet all challenges in these industries.

### Wood industry

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Attractive and modern designs, high resistances and a permanent durability of the product are common expectations in virtually all sectors of the booming wood industry. Like no other material, wood stands for quality and naturalness, and is a true “all-rounder” – it can be used for load-bearing structures in construction as well as for kitchen worktops, tables, chairs, windows or floors.

Due to the very unique requirements for the different products, choosing the suitable adhesive is of utmost importance for a smoothly running manufacturing process and a superior quality of the product. For instance, adhesives for load-bearing construction applications have to provide a

highly resistant bond with permanent durability and also be approved and certified for building purposes. Window scantlings and door frames may be exposed to heavy weathering conditions. And the highly demanded durable wood requires excellent adhesive know-how due to the special treatment of the wood. Environmentally friendly and healthy living conditions as well as sustainability and therefore a substantial reduction of harmful emissions – also from the adhesive – play a major role in all applications. Jowat offers a deep expertise from many years of experience in the wood industry, provides competent adhesive solutions for all applications and is a reliable partner for all steps of the bonding process.



## A supporting role

Special adhesives for glulam.

The manufacture of glulam parts has to comply with very strict regulations. The wood is laminated with special certified adhesives which also optimally meet the different requirements in all fields of application.

### Structural timber

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Manufacturers of wood elements for load-bearing construction purposes face great challenges. On the one hand, the production process is subject to special standards, and the used adhesives have to be approved for building purposes and certified. On the other hand, each individual application, whether fingerjointing or laminating, has a unique set of requirements. Jowat supplies a product portfolio with one-component, moisture-curing polyurethane prepolymer adhesives which are adapted specifically to the different applications and products – from glued laminated timber (GLT) to cross laminated timber (CLT), and from solid structural timber to I-Joist formwork beams. The performance of these adhesives from the Jowapur® series has been extensively verified in

complex procedures before release. Due to their specific composition, characteristics and processing parameters, these adhesives meet the demands of the different applications in the manufacture of load-bearing glulam. For instance, several special adhesives from the Jowapur® series are particularly suitable for fast and flexible production processes due to their short processing time. Other products provide a long open assembly time and therefore facilitate the manufacture of big parts and large batches.

Polyurethane adhesives provide several advantages for the manufacture of load-bearing wood parts and a superior product quality compared to other systems such as condensation resins. They are completely free of formaldehyde and can be applied in a much lower grammage due to a solids content of 100 %. In addition, prepolymers cure within a few min-





utes at room temperature and provide an invisible bondline due to their colourless appearance.

Jowapur® adhesives are processed as a single component. Mixing, pot life and adhesive remnants from too much prepared adhesive become obsolete. The minimal foaming prevents the lamellas from sticking together when they are stacked on top of or next to each other and signifi-

cantly reduces the cleaning effort. PUR prepolymers are reinforced with fibres which prevent fingerjoints from sliding apart after pressing during production and curing time. These adhesives do not run off and are highly suitable for contactless application. Jowat provides special adhesives for application in the manufacture of structural timber and for all established application technologies.

## Open for everything

Flexible adhesive solutions for windows and doors.

Whether window scantlings or door frames: A permanent resistance of the solid wood elements is essential due to the exposure of these products to outdoor conditions. The Jowat product portfolio with powerful D4 dispersions, EPI dispersions and PUR adhesives provides processors with the opportunity to meet different requirements.

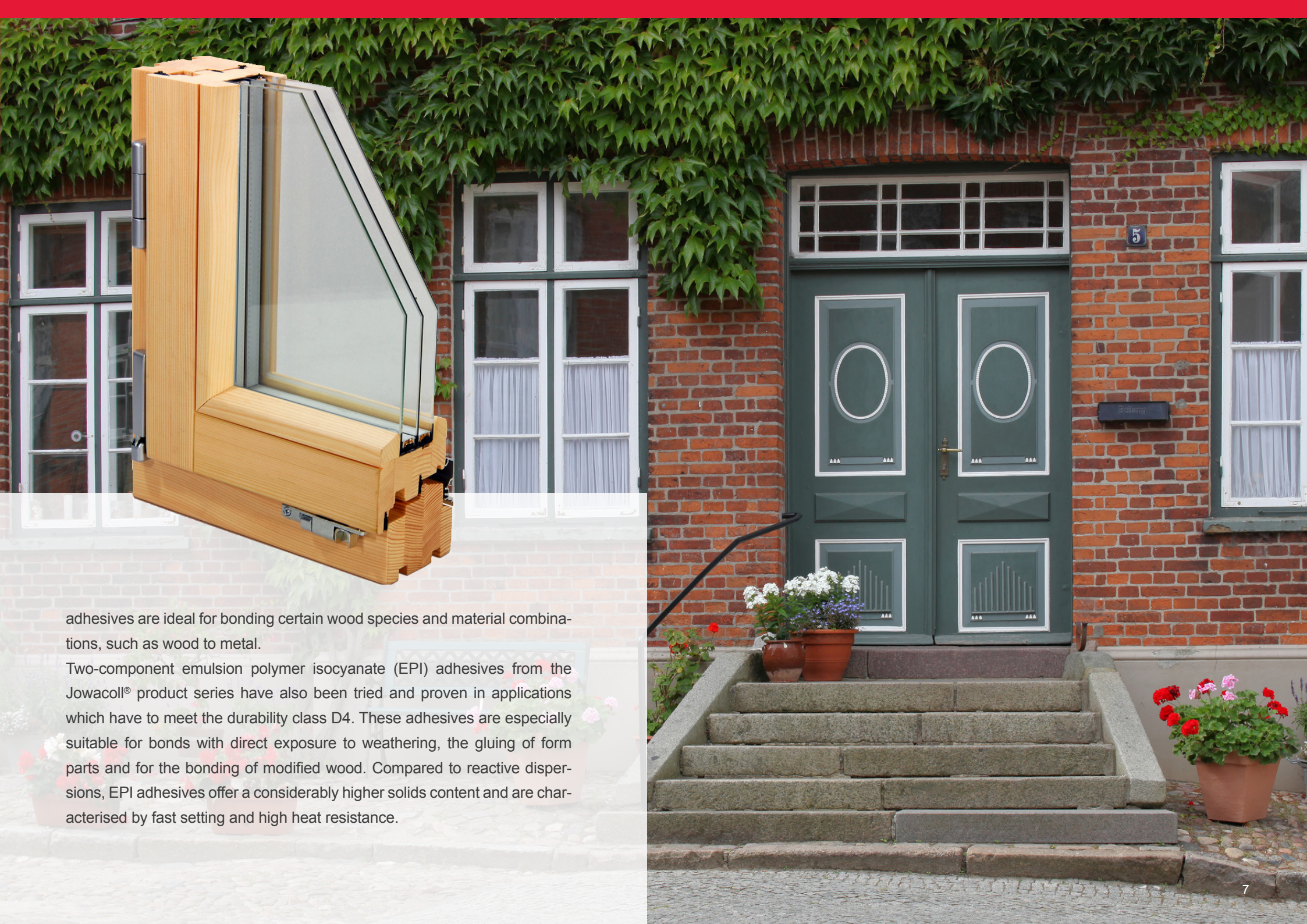
### Window scantlings and door frames

In the manufacture of window scantlings and door frames, certain regulations which also involve the processed adhesive have to be observed. Laminated window scantlings and door frames are largely bonded with PVAc adhesives which meet the requirements for durability class D4 according to EN 204. Products which are bonded with PVAc glues and are intended for exterior use need an appropriate surface coating. For a moisture-resistant bond, Jowat provides special reactive one- and two-component D4 dispersions. Compared to other systems like the UF resins which were largely used in the past, these reactive dispersion adhesives of the latest generation offer several major advantages. They are free of formaldehyde and therefore meet the strict requirements regarding a “pollutant-free” interior

atmosphere, and have a considerably higher adhesive yield. In addition, these reactive dispersions impress with shorter pressing times in cold gluing applications and a more elastic bondline. They can be processed at significantly lower temperatures in hot pressing procedures and thereby lead to a reduced energy consumption. Due to their great processing variability, dispersion adhesives are highly suitable for solid wood bonding applications.

For applications with special requirements, such as in the production of facades which have to withstand high static loads or patios, Jowat offers polyurethane adhesives with an increased resistance to heat and moisture. The product portfolio includes certified PUR adhesives, which are approved for load-bearing construction purposes. In addition, these moisture-curing



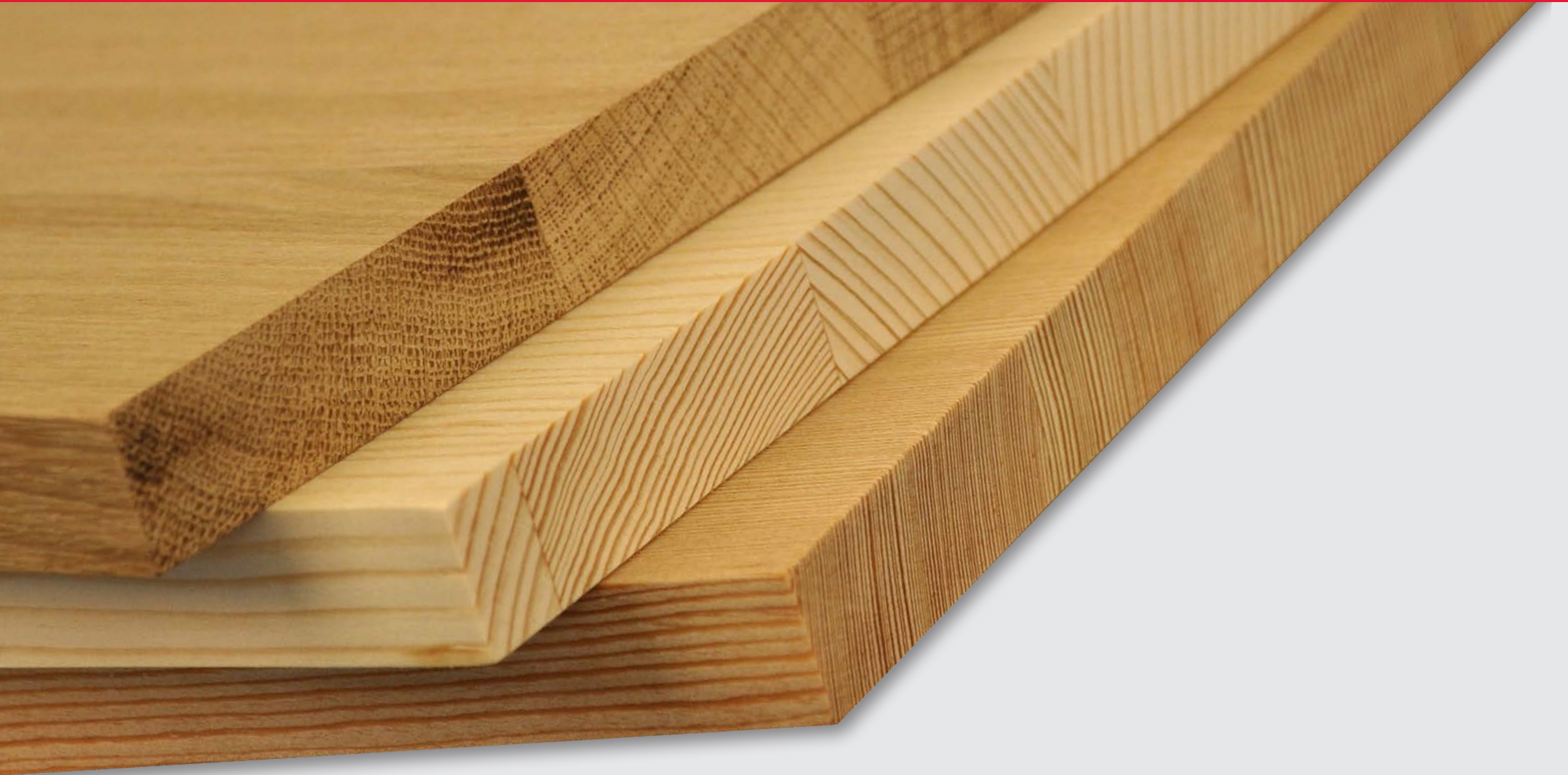


adhesives are ideal for bonding certain wood species and material combinations, such as wood to metal.

Two-component emulsion polymer isocyanate (EPI) adhesives from the Jowacoll® product series have also been tried and proven in applications which have to meet the durability class D4. These adhesives are especially suitable for bonds with direct exposure to weathering, the gluing of form parts and for the bonding of modified wood. Compared to reactive dispersions, EPI adhesives offer a considerably higher solids content and are characterised by fast setting and high heat resistance.



## Solid wood processing: Solid wood board





# Boards of the highest quality

Adhesives for the manufacture of solid wood panels.

Single- and multilayer solid wood panels for the furniture and flooring industry have to ensure consistent and superior quality. Jowat supplies powerful adhesives for all the different manufacturing processes and requirements for the end product.

## Solid wood panels

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Single- and multilayer solid wood panels consist of slats or strips of wood which are mostly glued together with PVAc adhesives based on polyvinyl acetate. These adhesives meet the requirements of the durability class D2 and are suitable for indoor use with occasional short-term exposure to running or condensed water. Reactive dispersions which meet the requirements for the durability class D3 are used for interiors with frequent short-term exposure to water or high humidity as well as for exteriors with no direct exposure to weathering. The Jowat portfolio includes a wide range of different formaldehyde-free dispersions and special adhesives which have been tried and proven for many years in this application and provides the suitable adhesive for all the different manufacturing process and requirements for the end product.

D2 dispersions used in the manufacture of solid wood boards for interior use have a short setting time. Certain wood species tend to discolouration when bonded with acidic adhesives. This can be prevented with pH neutral D2 and D3 dispersions. In addition, the wear and tear of the production equipment is

reduced to a minimum due to the low corrosiveness of these dispersions. Jowat supplies D3 glues with a wide range of viscosities and therefore provides the suitable adhesive for every established application method – whether by roller, nozzle or doctor blade – and surface properties.

Adhesives for the manufacture of solid wood boards for products which are exposed to heavy weathering, such as outdoor furniture or cladding, have to be characterised by an increased resistance to moisture and heat. The products of choice for these applications are EPI dispersions and PUR pre-polymers from Jowat.



## Overcoming resistance

Specialists for the bonding of treated wood.

Whether outdoor furniture, patio decking or facades and bridges: The fields of application are constantly increasing for the modified wood species which have been highly demanded for several years. The great challenges in manufacturing are met with special adhesives.

### Durable wood

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Wood species which are naturally less durable undergo a chemical or thermal modification procedure to increase the moisture and heat resistance and to make the wood suitable for outdoor use. After a thermal treatment during which the wood is heated to a defined temperature and then cooled down, the water absorption speed of the wood is reduced significantly. In addition, this procedure also changes the appearance of the wood, making it darker. Alternatively, the wood may be impregnated and given water-repellent properties through a chemical modification process. However, modified wood with a higher resistance to weathering also is more difficult to bond. Adhesives used for bonding these materials face a great challenge and have to be significantly more powerful than products

used for bonding untreated wood. The substantially reduced moisture absorption and release as well as the added ingredients have a huge impact on the bonding properties of the substrate. This may lead for instance to chemical interactions with the added chemicals, which can have a detrimental effect on the bonding result. In addition, the use of water-based adhesives is usually also uneconomical. Due to the hydrophobic treatment of the wood, the water becomes trapped in the glueline and dries only slowly. This leads to much longer pressing times.

For bonding modified wood, Jowat provides special, chemically crosslinking adhesives which optimally meet the superior requirements. EPI (Emulsion Polymer Isocyanate) adhesives which are processed as two-component systems and mixed with isocyanate crosslinkers, ensure a fast





setting of the adhesive even on durable wood with reduced water absorption. In addition, the chemical reaction of the crosslinking agent leads to a bond with high heat resistance. Therefore, EPI adhesives are optimally suitable for gluing hardwood, wood with a high resin content, and tropical wood species even with direct exposure to weathering. Due to the solids content of 100 percent, the setting time of one-component PUR prepolymers is not affected by the reduced water absorption of the wood. Both adhesive systems enable bonds with a moisture resistance considerably superior to the requirements for the durability class D4.



## Made of the right stuff

Bonding in the finishing of wood-based materials.

The finishing of wood-based materials includes many different applications in which wood is frequently processed in combination with other materials for furniture manufacturing, structural elements production or other manufacturing sectors. Jowat supplies the suitable adhesive solution for each application.

### Processing of wood-based materials

When the suitable adhesive is chosen for the processing of wood-based materials, for instance to manufacture parquet floors, the top layer of the substrate plays a major role. Jowat provides modern reactive dispersion and hot melt adhesives for different requirements in the production of all types of flooring. A wide range of suitable hot melts adhesives for the wrapping of floor or furniture profiles with the most diverse coating materials is also available.

Particleboard for the furniture industry is usually already finished before delivery. These boards can be laminated with the most different finishing materials, such as resin-impregnated decor papers, veneers, or thermoplastic foils. Conventional EVA hot melt adhesives have been tried and proven for many years in flat lamination applications with finish foils. Moisture-curing

polyurethane hot melt adhesives ensure highest strength values and resistance, are an ideal solution for e.g. kitchen and bathroom furniture, and are particularly suitable for modern, high-gloss plastic decors based on thermoplastic foils. New foil adhesives from Jowat with reduced emissions provide an environmentally compatible bonding solution for alternative, plasticiser-free materials such as PET, TPU, PP and other thermoplastic materials on particleboards, hardboards and plywood laminated on roller lamination and wrapping units.

In edgebanding, new unfilled PUR hot melt adhesives facilitate bondlines of the highest standard due to a considerably reduced application amount and a transparent adhesive film. In addition, these adhesives are now available for the first time also as unfilled granulate.

Jowat also supplies a portfolio of powerful dispersions and hot melts with special adhesives for the manufacture of lightweight boards. The boards can be sealed with an Appretur of the substrate which reinforces the surface of the wood-based carrier substrate increasing its hardness and reduces the release of VOC by preventing emissions. Jowat provides special Appretur systems based on polyurethane for this purpose. Appretur is applied as a partial or full surface coating of the substrate and drawn into the material through vacuum. This method may be used for instance to give the edges of laminate flooring water-repellent properties so that it can be used in environments with high humidity such as bathrooms or kitchens.





## From standard to tailor-made

Perfect support along the entire process chain.

Adhesives used in the wood industry have to meet very different requirements. At the same time, the fields of application are constantly developed further and frequently require special solutions. In addition to the described bonding solutions for standard applications, Jowat also provides adhesives and advisory service for special applications.

### **Innovative adhesive solutions**

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Modern designs and functional requirements are leading to a constant demand for new products. This also applies in the wood industry. Wood may be laminated for instance with metal or plastics for visual reasons. And in the medical sector, doors may be equipped with copper sheets or lead plates as radiation protection, for instance to shield x-ray rooms. The standard product range does not always provide a bonding solution for such special applications, and frequently intelligent special solutions based on PU have to be developed to meet the demands.

With Jowat you will always have a reliable partner at your side who will design and optimise every new bonding process together with you, even for all special requirements – from the assistance during the development of the process, to choosing the suitable adhesives and testing them in internal trials, to the industrial production and the following maintenance of the process. Jowat provides a first-class bonding support along the entire process chain.

# Have we sparked your interest?

As a global innovation partner in the wood industry, Jowat actively supports processors in optimising manufacturing processes and in meeting customer requirements. We understand the challenges in the wood-processing industries – whether superior designs, special material combinations or new modified wood species, requirements for high resistance and durability and also with regard to energy and cost efficiency, as well as an increasing diversity in all fields of application.



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 cooperation 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 wood industry and facilitating the optimisation of products and processes.

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





**[www.jowat.com](http://www.jowat.com)**

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