

Durable wood

- Durable bonding of chemically and thermo modified wood
- High resistance to moisture and heat



Jowacoll® Five Star 102.49
Jowapur® 687.40

Adhesives for highest stress levels



When wood species with limited durability are used for parts intended to be used outdoors, various chemical or thermal modification methods have been developed over the past years. With brand names like e.g. Accoya®, Lignia®, Keboni® and others, modified types of wood have increasingly appeared on the market over the past years which now complement the range of resistant wood species that had already been used for these applications, like Meranti, Bongossi, robinia and teak.

All these naturally resistant or modified types of wood have one thing in common: the high resistance against climate exposure, which is due to a much slower moisture absorption and release, among other factors. This performance, and also the natural composites of the wood or those that were introduced by the modification process, are of major impact on their bonding performance. For instance, using water-based PVAc adhesives is usually not economical, since these glues have a long pressing time. Direct sun exposure in exterior applications, especially on

dark surfaces, also requires increased thermal resistance of the bondline, which can not be supplied by the use of thermoplastic PVAc adhesives.

In order to meet the special requirements on the bond, chemically crosslinking adhesives are available from the Jowat portfolio:

- 2-component EPI adhesives
- 1-component PUR adhesives

Both adhesive systems have in common that they are highly resistant to moisture, achieving bonds that clearly exceed the durability levels of the grade D4 of the EN 204/205.

In heat resistance testing under the EN 14257 (Watt 91), both the EPI system and the 1-component PUR adhesives reach tensile shear resistances >7 N/mm² at 80 °C. EPI (Emulsion polymer isocyanate) adhesives differ from reactive PVAc dispersions, based on their clearly higher solid content, which offers the advantage of fast setting, although the moisture absorption is slower for the resistant modified wood. The chemical reaction of the isocyanate

crosslinker additionally minimises the thermoplastic behaviour of the adhesive, and a very heat-resistant bond develops.

EPI adhesives are always processed in two-component form, with a 15 % crosslinker addition, and always require premixing. The pot life indicated must be observed. Application is possible by most standard units from dispersion processing. When down times of the machines exceed the indicated pot life, the unit must be emptied and cleaned.

Liquid PUR prepolymers are moisture-curing and are processed as one-component products. They are adhesives with a solid content of 100 %, so that the low moisture absorption of resistant timber will remain without impact on the setting process. The bondline, however, has to be

adequately prepared for sufficient moisture exposure, to allow a complete chemical reaction of the polyurethane adhesive: This means that when the moisture level of the wood is less than 8 %, the bondline must additionally be fogged. PUR adhesives are processed with special applicators which prevent any contact of the adhesive with moisture or humidity before the application process itself takes place. Both for laminate assembly of modified wood, and for fingerjointing or dowelling, special solutions are available from the Jowat adhesives programme. Due to the different composites of the various types of resistant wood, it is not possible to use all adhesive / wood combinations. The bonding performance of the individual timber or modified wood has to be tested in all cases before processing.

Jowacoll® Five Star 102.49 + 195.60

For all bonding procedures of hardwood species (e.g. oak, beech), timber with high resin content (e.g. pine), tropical timbers (e.g. teak, Meranti), and wood containing up to 15 % moisture. For bonds used in direct exterior exposures with adequate surface protection, e.g. windowframe scantlings or framework panels.

Type		2-component
Durability class		D4
Solid content	[%]	approx. 60
Viscosity Brookfield at 20 °C	[mPas]	approx. 11,000
Density	[g/cm ³]	approx. 1.5
pH-value		approx. 7
MFT	[°C]	approx. 5

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Adhesive for hardwood species, laminate compounds, galvanized iron / metal, polystyrene (sanded) on wood, stone, and many other substrates. Not suitable for larch in outdoor applications. For shipbuilding applications.

Processing temp.	[°C]	>+10
Open assembly time at 20 °C/ 50 % RH	[min]	30 - 40
Pressing time at 20 °C	[min]	105 - 120
Viscosity Brookfield at 20 °C	[mPas]	approx. 6,000
Density at 20 °C	[g/cm ³]	approx. 1.1
Solid content	[%]	approx. 99
Foaming		minimal
Colour of the glue film		light beige



Specimen: Acocoya® scantling...



in the splitting process ...



after splitting ... 100 % wood failure.

Jowat | Ihr Partner in Sachen Kleben

Jowat | Your Partner in bonding



The information given in this leaflet is based on test results from our laboratories as well as on experience gained in the field, and does in no way constitute any guarantee of properties. Due to the wide range of different applications, substrates, and processing methods beyond our control, no liability may be derived from these indications nor from the information provided by our free technical advisory service. Before processing, please request the corresponding data sheet and observe the information in it! Customer trials under everyday conditions, testing for suitability at normal processing conditions, and appropriate fit-for-purpose testing are absolutely necessary. For the specifications as well as further information, please refer to the latest technical data sheets.

Jowat – Kleben erster Klasse

Jowat – first class bonding

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