



Test report 0510-2019

1. General Information

Customer	ACCSYS, UK
Initiator	Scherrenbacher, Holger
Date	16.10.2019
Examiner	Reiser, Vincent; Zieger, David
Field of application	Solid Wood

Assignment	Accoya boards shall be bond to composites with different adhesives based on PUR and EPI. Each composite consists of three Accoya boards. After curing the composites have to pass the "Rosenheimer Kanteltest".
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Adhesive System	Name	Hardener
1K-PUR	KLEIBERIT 501.0	-
1K-PUR	KLEIBERIT 510.3	-
EPI	KLEIBERIT 304.1	304.3
EPI	KLEIBERIT 304.4	808.0

Substrates	Name	Specification
Modified timber	ACCOYA boards	ACCOYA treated Pine

2. Results

The customer provided Accoya treated Pine boards. The boards get grinded and cleaned with pressurized air before bonding.

For the bonding, two PUR and two EPI based adhesives are used. The adhesive is applied on one side with a simple paint roller and an application quantity of 150 g/m² for all adhesives.

Each composite consists of three boards (respectively 2 glue joint) and is pressed for 1 hour at room climate (23°C/50% rel. humidity) with a force of 1N/mm². After curing for one week, the samples are cut into pieces with a width of 50 mm according to the "Rosenheimer Kanteltest". The samples are separated with hammer and chisel to check the quality of the bonding (figure 1). To check if the joints are closed, a penetration fluid is applied on the glued joints. After 5 minutes, the samples are separated and analysed (figure 2). The samples have to pass a water storage series consisting of 3h at 20°C, followed by 3h at 60°C, 18h at 20°C and finally 72h drying at room climate. The samples are examined after each part of the water storage series to see if the joints are open.

When separating the cured samples, all adhesives show a good bonding strength and 100% wood breakage. None of the samples show any intrusion of the penetration fluid, so the joints are considered to be completely closed. None of the glued joints opened during the water storage or after the 72h at room climate.

Conclusion:

The provided Accoya boards were (as expected) successfully bonded with all above listed KLEIBERIT adhesives and passed the well known and ambitious Rosenheimer Kanteltest with ease. The adhesives also have a positive D4 certificate according to DIN EN 204 and a positive test according to DIN EN 14257 (WATT91).



3. Tables / Pictures

Table 1 Protocol of the Rosenheimer Kanteltest

Adhesive	wood moisture	glued joint between lamella	visual check for open joints	penetration fluid in the joint?	fracture pattern, wood breakage [%]	water storage for 3h @ 20°C	water storage for 3h @ 60°C	water storage for 18h @ 20°C	reconditioning 3 days 20C/65%rel. ah.
						glued joints open?	glued joints open?	glued joints open?	glued joints open?
304.1+304.3	*	I/II	closed	no	100	no	no	no	no
304.1+304.3	*	II/III	closed	no	100	no	no	no	no
304.4+808.0	*	I/II	closed	no	100	no	no	no	no
304.4+808.0	*	II/III	closed	no	100	no	no	no	no
501.0	*	I/II	closed	no	100	no	no	no	no
501.0	*	II/III	closed	no	100	no	no	no	no
510.3	*	I/II	closed	no	100	no	no	no	no
510.3	*	II/III	closed	no	100	no	no	no	no

* Could not be measured due to the accoya treatment which lead to unsteady results of the measurement

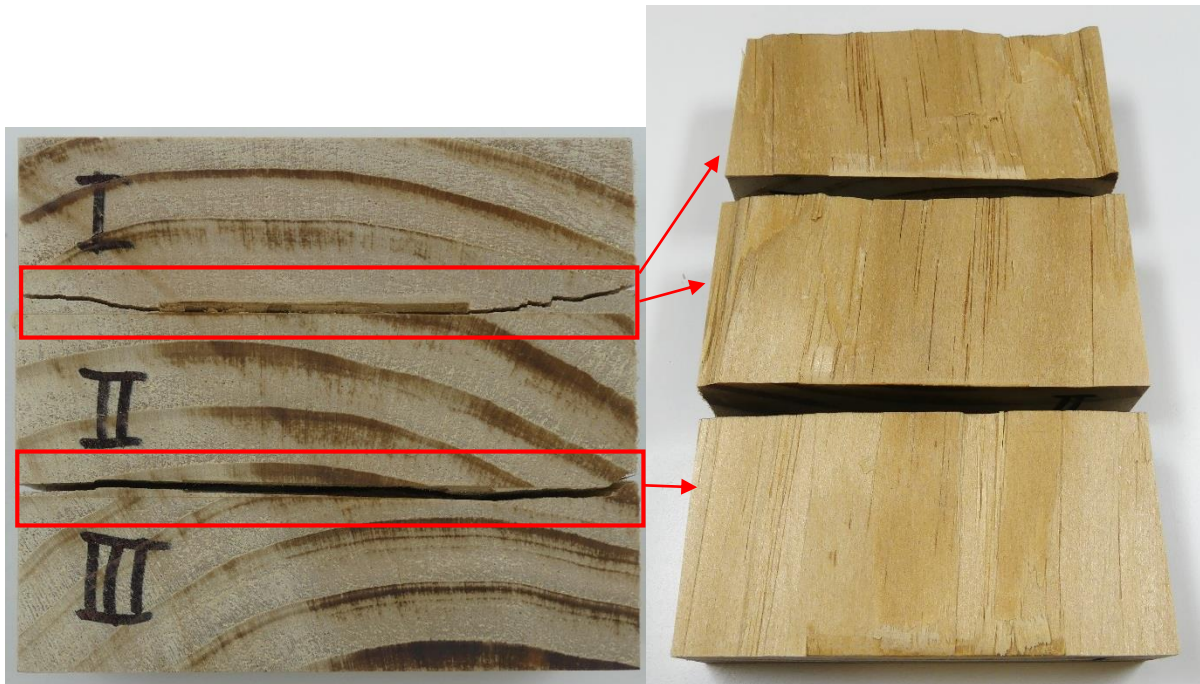


Figure 1 Exemplary fracture pattern of a cured sample
All Samples showed either fibre tear or wood break.

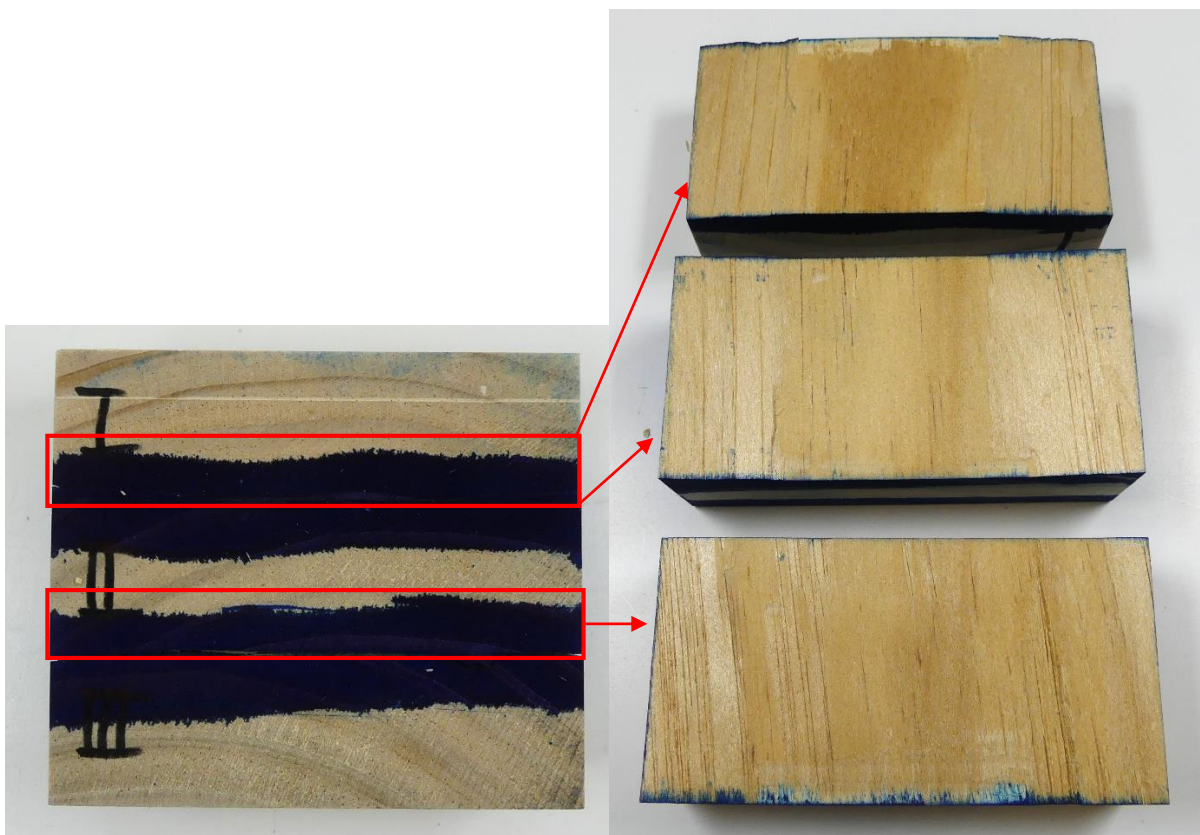


Figure 2 Exemplary result of the penetration test
None of the Substrates showed deep penetration of the fluid into the joint. The penetration at the bottom middle is a result of separating it with hammer and chisel.



Figure 3 Samples after the water storage series

None of the samples shows any opening of the glued joints after the water storage.

4. Technical Information

Processing	Facilities/Machine	Specification
	Press	Friz PL 125 cylinderpress
	Parameter	Value
	climate	22°C / 48% rel. humidity
	date of bonding	29.07.2019
	application method	foam roller
	application quantity	150 g/m ²
	bonding pressure	1 N/mm ²

Examination	Test methods	Tools
	Rosenheimer Kanteltest	Hammer, Chisel, magnifier

Reiser / Scherrenbacher_2019-10-17

Testing costs: 4.140,- €. This service is free of charge for Kleiberit business partners.

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