

Tests on treated Radiata Pine samples (NZ)

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Background:

Treated timber samples of **Radiata Pine** (NZ) were investigated about the influence of the treatment to the bond strength by using one component Polyurethane adhesive from Purbond®.

The treatments of the samples are:

- **Untreated** wood, no color
- **LOSP** (light organic solvent process), green color
- **DDAC** (dedecyl dimethyl ammonium chloride), blue color
- **CCA** (copper chrome arsenic), violet color

To compare the bond strength between two different PUR adhesives, the following adhesives have been used:

- **PURWELD™ 663**
 - 45 – 60 minutes assembly time
 - about 3 hours pressure time
 - viscosity about 7000 mPa.s
- **PURBOND® HB 222**
 - 6 – 8 minutes assembly time
 - about 25 – 30 minutes pressure time
 - viscosity about 8000 mPa.s

For testing of the bond strength, delamination tests according European standard EN 391 process A (two cycles) has be done.

Results:

The table below shows the average delamination:

Wood	Treatment	Color	Adhesive	Delamination
Radiata Pine	Untreated	colorless	PURWELD 663	1.30%
Radiata Pine	Untreated	colorless	PURBOND HB 222	2.99%
Radiata Pine	LOSP	green	PURWELD 663	13.68%
Radiata Pine	LOSP	green	PURBOND HB 222	1.98%
Radiata Pine	DDAC	blue	PURWELD 663	3.33%
Radiata Pine	DDAC	blue	PURBOND HB 222	4.14%
Radiata Pine	CCA	violet	PURWELD 663	5.66%
Radiata Pine	CCA	violet	PURBOND HB 222	0.50%

See detailed delamination results in paper "Delamination test on treated wood 06 2003".

Conclusion:

- Delamination up to 3% is because of the variation within the timber samples
 - The treatments don't affect the bond strength in a high grade, except of LOSP with PURWELD 663 are all treatments no problem for the PUR
 - LOSP glued with PURWELD 663 seems to be difficult.
 - PURBOND HB 222 achieves better results overall than PURWELD 663. A reason for this could be the faster curing process of HB 222.
- ⇒ *In general it's possible to glue treated Radiata Pine with one component Polyurethane adhesive.*
- ⇒ *The fast PURBOND HB 222 is excellent for treated Radiata Pine.*
- ⇒ *Important is that the time between planing and gluing the treated timber is as short as possible.*