Effect of sanding process and knife wear on the surface quality of radiata pine

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Executive Summary

The objectives of this study were to evaluate the effect of knife wear on the planed surface of radiata pine and identify the best sanding process to prepare radiata pine wood surfaces to varnishing. Conventional sanding and planing processes were applied. Samples used to evaluate de effect of knife wear on the radiata pine were planed considering four planing distances : 200, 10.000, 20.000 and 30.000 linear meters. The cutting edge recession was measured on the clearance surface of the planing knife for each planing length. The gluing properties of radiata pine planed surfaces were also evaluated for each of the four levels of knife wear using polyvinyl acetate (PVA) and an EPI adhesives. The results showed that for the cutting conditions considered, the largest value of cutting edge recession on the clearance surface was 65 μm after 30.000 linear meters. The gluing performance was positively affected by knife wear. However, it was generally high in shear strength compared with the EN 204 standard. For samples after accelerated aging, the effects of wear on gluing were more significant. On the other hand, radiata pine wood surfaces were also evaluated in samples sanded using two types of abrasive minerals, six grit sizes programs and two feed speeds. Wetting properties and cell damage were used to assess surface quality. The results obtained will be presented.

Keywords Planing maching, sanding, surface quality, gluability, .