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The Influence of Bark Content, Wooden-dust Layering and Adhesive Amount to Medium Density Fiberboard from Plywood-mill Dump

ABSTRACT

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The growth of the forest product manufacturing industries such as plywood-mill have not followed with rendement increasing expedient yet. There is about 50% wooden materials dumped. This research intended to study the possibilities and influence of bark-waste and wooden-dust waste uses as board content and outer layer in manufacturing process of MDF from Plywood-mill dump.

Raw materials had been taken from PT KUTAI TIMBER INDONESIA, the plywood factory based in Probolinggo - East Java. It consists of bark waste, log-cut reduction, veneer peeler cores, green and dry veneer clippings and wooden-dust. Materials are mixed with the same composition as the factory's dump. Pulping with 180° C thermomechanic process. Wet process mat formatting. Layering to be did after predrying and taken to hot-press process immediately. Physical properties' examinations include density, moisture content, water absorption and swelling. Mechanical properties' examinations include compressing strength, internal bonding, MoE and MoR. The research design is Completely Randomized Design with Factorial Trial.

Bark content addition will increase physical properties but decrease mechanical properties. Extra layer of wooden-dust will increase all of the properties except internal bonding. Adding adhesive will increase all of the properties. The range of density : 0,633 - 0,726 g / cm³, moisture content : 6,977 - 7,56%, water absorption : 99,89 - 311,42%, swelling : 48,44 - 158,38%, compressing strength : 7,793 - 53,23 kg/cm², internal bonding : 0,147 - 0,596 kg/cm², MoE : 1497 - 10663 kg/cm², MoR : 11,2 - 153,6 kg/cm².

keywords : bark, dust layering, adhesive, MDF, plywood-mill dump

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