

Turkish Journal of Agriculture and Forestry

Turkish Journal



of

Agriculture and Forestry

Factors Affecting the Production of E1 Type Particleboard

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Abstract: This study aimed to determine the best manufacturing variables for the high physical and mechanical properties, and formaldehyde emission of particleboards produced from E₁ type adhesive. In the production of particleboards, two different press temperatures, press times, pressures and three different adhesive use ratios were used. The best manufacturing variables were determined for the particleboard produced from E₁ type adhesive. The effects of these manufacturing variables on formaldehyde emission, bending strength, internal bonding strength and thickness swelling were investigated. According to the results, when the E₁ type adhesive was employed, the use of 11% and 9% adhesive use ratios for the outer and middle layers, respectively, 200°C press temperature, 150 s press time and 32.5 kg/cm² pressure were found to be enough. It was suggested that at 180°C, the particleboards required 150 s press time and 35 kg/cm² pressure. It was found that in the production of E₁ type particleboard, the use of low emission adhesive was not enough, and all of the production parameters should be taken into account together. In addition, it was concluded that the amount of formaldehyde emission of manufactured particleboards should be low. Equally, the particleboards should meet the required physical and mechanical properties as stated in the relevant standards.

Key Words: E₁ type particleboard, technological properties, manufacturing variables

Turk. J. Agric. For., **26**, (2002), 31-36.

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