

Abstract

Manufacture of plywood, with kinds of synthetic resin addition to high costs, has environmental hazards, therefore, applying the method to produce a variety of Eco plywood are essential. In this paper, was used the layer of European beech trees (*Fagus sylvatica*), to prepare green plywood. To make plywood using two levels of temperature (220°, 230° C) and two levels of pressure (66,83 kilograms per square centimeter) and five times (3.5, 4, 4.5, 5, 5.5 minutes) and use rosin as additive. So was obtained 4 layer boards such as the 6/0 × 11 × 22 cm. At the end followed by EN 314-1 prepared 6 samples of each board in 25 × 100 mm and tested shear strength in three modes, dry, after 24h immersion in cold water and 6h immersion in boiling water. The plywood shelf life in boiling water until to separated the layers, was measured the size of a minute. To study the interaction among treatments were used factorial test and Analysis of variance between treatments for comparison was used Duncan test at the 95% confidence level using SPSS software. The best combination for shear strength in dry conditions at a temperature of 230°C, pressing pressure 83 kilograms per square centimeter and pressing time was determined on 4 minutes without adding Rosin. The best conditions for the shear strength on the bonding surface after 24 hours immersion in cold water and for 6 hours immersion in boiling water also for shelf life testing in hot water was determined at a temperature of 230 Celsius degrees, pressing pressure 66 kilograms per square centimeter and 5 minutes press time with the addition of Rosin on layers. In generally the best combination for all exam boards measured in terms of 230 ° C, pressing pressure 66 kilograms per square centimeter and 5 minutes press time with the addition of Rosin to layers. The results showed that in the higher temperature and pressure, the boards has better resistance. Add Rosin soluble, increased the shear strength. Some samples not damaged of 72 hours in cold water and 8 hours, in hot water. Rosin increases the shear strength, durability and resistance to cold and boiling water as much as twice the standard.

Keywords: plywood, green plywood, adhesive, rosin, shear strength, boiling water



University of Zabol

Graduate school

Faculty of Natural resource

Wood and Paper Science and Technology

The Thesis Submitted for the Degree of Master of Science

(In Composite wood products)

**Made of Water Resistance Plywood Without any adhesive
(Green Plywood)**

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October 2013