

A study on some factors of cement-bonded particleboard manufactured by lemon eucalyptus

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Abstract Lemon eucalyptus is one of the fast-growth species in southern China, but its utilization has not been explored completely. The object of this paper is to find the possibility of manufacturing cement-bonded particleboard by lemon eucalyptus, and some technical factors, such as the hydration characteristics of the wood mixed with cement, ratios of cement to wood as well as the type of cement were analysed. The results showed that the lemon eucalyptus is suitable for manufacturing cement-bonded particleboard by adding certain chemical additive or treating by hot water although the water extractive of the wood can retard the setting of cement; the optimum parameter of cement/wood ratio is 2.5 and the properties of the board by using cement type 525 is better than 425.

Keywords Cement-bonded particleboard; Lemon eucalyptus

提高刨花板尺寸稳定性的新方法

——以马来酸及丙三醇进行化学处理

在第23届国际刨花板及复合材料研讨会上, Hideto Fujimoto 等撰文介绍了一种利用二羧酸、马来酸及丙三醇(甘油)等试剂配成的水溶液处理刨花板, 提高其尺寸稳定性的方法, 该水溶液被称之为“MG”, 经此液处理的刨花板被称之为“MG刨花板”。其作用原理是通过处理, 使羟基与羧基基团以酯键连接, 在纤维素分子链间形成一个三维的网状结构, 从而限制了刨花的变形及木材自身的润胀。

“MG”的喷撒可作为刨花板常规生产中的一道辅助工序, 但对热压工艺条件有一定要求, 例如需较高的热压温度及较长时间的闭合堆放。如果生产中配备有后加热处理

或是热堆放工序的话, 则MG刨花板完全可以用以热油为传热介质, 或是常规的蒸汽加热热压机来生产。大批量生产的最佳工艺参数为: 1) “MG”的配制比例为3:1(重量比); 2) 施量为5~10%(绝干刨花重); 3) 热压温度为240~250°F; 4) 进行热堆放或后加热处理。

按此条件生产的MG刨花板的吸水厚度膨胀仅为未处理板的20~25%, 板材的力学性能, 尤其是IB及MOE增加, 而且在96小时的浸水处理后仍保持良好。

(摘自“美国林产品学会研究简报”

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