

## CHARACTERISTIC OF BINDERLESS COMPLY MADE FROM SENGON WOOD USING OXIDATION TREATMENT

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### Abstract

Comply is one type of composites product that has several advantages including high modulus of rupture and modulus of elasticity. Technology for producing binderless comply has been developed by using oxidation treatment. The treatment was used to produce free radical in chemical component of particle and veneer that can form bond formation between particle or veneer when hot pressing was applicated. Produced comply will free from formaldehyde emission because it was produced without adhesive. Method to produce binderless comply has been studied in our previous work and its indicated that optimum oxidant distribution between veneer and particle is 1 : 6 w/w. The purpose of this study is to determine optimum oxidant level to produce binderless comply. Materials used in this study were particle and veneer from sengon wood (*Paraserianthes falcataria*). Particle and veneer in air dry condition were oxidized using hydrogen peroxide and ferrous sulphate in various level, namely; 5/5 ; 5/7.5 ; 10/5 ; 10/7.5 ; 15/5 ; 15/7.5 ; 20/5 ; 20/7.5 (hydrogen peroxide/ferrous sulphate). Hydrogen peroxyde was calculated based on oven dry weight of particle and veneer, meanwhile, ferrous sulphate was calculated based on hydrogen peroxyde weight. Oxidized particle and veneer were hot pressed in 180° C for 12 minutes. The density target of comply were 0.75 g cm<sup>-3</sup> with dimension of 30 x 30 x 0,7 cm. The result indicated that 10% hydrogen peroxide and 5% ferrous sulphate are adequate to produce high quality of binderless comply. The mechanical properties of the boards are fullfill Japanese Industrial Standard A 5908 2003.

Keywords: Binderless comply, hydrogen peroxide, ferrous sulphate, oxidation