

**SYNTHESIS OF POLYURETHANE RESIN FROM OIL PALM
FROND**

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ABSTRACT

SYNTHESIS OF POLYURETHANE RESIN FROM OIL PALM FROND

Synthesis of Polyurethane-based alkyd resin from oil palm fronds (OPF) by reaction of aromatic isocyanate which is toluene diisocyanate (TDI). Oil palm frond (OPF) was used to replace petroleum as source production of polyurethane. The polyurethane was prepared by two stages; preparation of alkyd resin by using palm oil and synthesis of polyurethane. The first stages cellulose been extracted from OPF and then react with ethylene glycol to produce glycoside. After the reaction, the glycoside was mixed with palm oil to synthesized alkyd resin and second stage continued when previous mixture which is alkyd resin was react with toluene diisocyanate. Vigorous reaction take place in the process to synthesis polyurethane. In addition, vary ratio of alkyd resin and isocyanate was tested by 1:1, 1:2 and 3:1 ratio to find a best ratio that suitable for adhesives by their internal bonding. The polyurethane was analysing by chemical characterization with Fourier Transform Infrared Spectroscopy (FTIR), Melting point using Automated Melting Point System and Tensile strength (Internal Bonding) using Instron 5569 Universal Test Machine.