

**PRODUCTION OF BIORESIN BY PARTIAL REPLACEMENT OF
PHENOL IN PHENOL-FORMALDEHYDE FORMULATION WITH
LIGNOSULFONATE**

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ABSTRACT

PRODUCTION OF BIORESIN BY PARTIAL REPLACEMENT OF PHENOL IN PHENOL-FORMALDEHYDE FORMULATION WITH LIGNOSULFONATE

Lignin was isolated from “serai wangi” black liquor with sulfuric acid at ambient temperature. It was found that the percentage lignin content in lignin sample was 82.55%. Phenol-formaldehyde (PF) was prepared to act as reference. Lignosulfonate-phenol-formaldehyde (LPF) resin was prepared by using two steps. First step consists of preparation of lignin phenol adduct (LP) and second step is the preparation of LPF resin. The properties of resin such as viscosity, non-volatile content and pH were investigated. In this study, LPF resin has lower pH value (4.91) and non-volatile content (29.36%) but higher in viscosity compared to PF resin. The isolated lignin, PF and LPF resins were analyzed by using Fourier transformed infrared (FTIR) and thermal gravimetric analysis (TGA). The analysis of LPF resin by FTIR showed similar structure to phenol resin while analysis of resins and lignin by using TGA showed degradation temperature was higher than 200 °C.