

Coproduction of biopolyol and MCC and preparation of biopolyurethane foam with the biopolyol

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In this study, liquefaction of sawdust(*Larix kaempferi*) was performed at 165 °C (high temperature), 135 °C (medium temperature) and 105 °C (low temperature) under various operating conditions such as 1–5% of acid catalyst(sulfuric acid), 300–500% of solvent/biomass ratio and etc. The simultaneously obtained MCC and polyol were analyzed by FTIR, XRD and etc. In addition, acid and OH values of polyol were evaluated according to ASTM-D4662 and D-4274. The polyol obtained under optimized operating condition was used to prepare biopolyurethane foam. A central composite design(CCD) was established as the experimental design with three independent variables of the mass ratio of polyol and PEG, blowing agent mass and stirring period upon reaction. Then the prepared biopolyurethane foam was characterized by analyzing its property such as compression strength, foam cell, creaming time, rising time, degree of phase separation and etc.