

Preparation of biopolyurethane foam using liquefied wood-based polyol

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Liquefaction of sawdust(*Larix kaempferi*) was performed at 165 °C for 60 min under operating condition of 1% of acid catalyst(sulfuric acid) and 300% of solvent/biomass ratio, which turned out to be an optimal wood-liquefaction condition(Run 2 of liquefaction experiment design) to prepare MCC and polyol simultaneously. Using the mixture of the liquefied biomass and PEG as polyol, biopolyurethane foam was prepared with the addition of PMDI and distilled water as a blowing agent according to its experimental design. 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.