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Synthesis and performance evaluation of vegetable oil based wood finish polyurethane coating

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Abstract:

The present work reports the development of wood finished polyurethane coating from peanut oil. The precursor for the polyurethane preparation, N, N-bis(2-hydroxyethyl) fatty amide was synthesized from peanut oil by aminolysis reaction and further characterized using ATR-FTIR and ¹H NMR spectroscopy. The prepared polyurethanes were applied to the wood panels and the performance of the prepared coatings was evaluated in terms of the coating properties such as mechanical, thermal, antimicrobial as well as water and chemical resistance. The obtained performance properties of the prepared coatings were compared with the commercially available polyurethane. The obtained results showed that the bio-based prepared polyurethanes have beneficial coating properties that could successfully replace the petroleum-based materials.

Keywords: Renewable, polyol, polyurethane, coating, vegetable oil, wood.

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