EFFECT OF CORN COB ACTIVATED CARBON ON THE POLYURETHANE FOAM DERIVED FROM THE WASTE COOKING OIL POLYOL

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ABSTRACT

EFFECT OF CORN COB ACTIVATED CARBON ON RIGID POLYURETHANE FOAM BASED WASTE COOKING OIL(WCO) POLYOL

This study is carried out to determine the effect of corn cob activated carbon with potassium hydroxide (KOH) activation on rigid polyurethane foam based waste cooking oil. The raw waste cooking oil was filtered and treated by using the corn cob activated carbon. Then, the transesterification process was carried out to produce the treated WCO polyol. The percentage free fatty acid (% FFA), Acid value, the change of colour of WCO and Fourier Transforms Infrared (FTIR) analysis were analysed to determine the effect of corn cob activated carbon on WCO and WCO based polyol. The treated WCO showed the decrease in % FFA and acid value. While the WCO based polyol showed the increasing in % FFA and acid value. The FTIR spectrum showed that the corn cob activated carbon did not alter the functional group presence in the raw WCO after the absorption process of corn cob activated carbon on WCO. The WCO based polyol is mixed with water, glycol, THF and MDI to form the polyurethane foam. The FTIR analysis showed that the amide group (NH) at 33 and urethane linkage (C=O) at presence in the PU foam. This study proved that the WCO is the potential raw material in the production of polyurethane foam. The SEM analysis of polyurethane foam showed the irregular hexagonal shape has formed in rigid PU foam.