

Production of Polyurethane Foams from Bark Wastes

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Abstract : Currently, the polyurethanes industry is dependent on fossil resources to obtain their basic raw materials (polyols and isocyanate), as these are obtained from petroleum products. The aim of this work was to use biopolyols from liquefied *Pseudotsuga* (*Pseudotsuga menziesii*) and Turkey oak (*Quercus cerris*) barks for the production of polyurethane foams and optimize the process. Liquefaction was done with glycerol catalyzed by KOH. Foams were produced following different formulations and using biopolyols from both barks. Subsequently, the foams were characterized according to their mechanical properties and the reaction of the foam formation was monitored by FTIR-ATR. The results show that it is possible to produce polyurethane foams using bio-based polyols and the liquefaction conditions are very important because they influence the characteristics of biopolyols and, consequently the characteristics of the foams. However, the process has to be further optimized so that it can obtain better quality foams.

Keywords : Bio-based polyol, mechanical tests, polyurethane foam, *Pseudotsuga* bark, renewable resources, Turkey oak bark

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