

Ethylene glycol 을 사용한 폐지의 액화 및 액화물로부터 polyester 제조

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A novel method to prepare polyester from wastepaper through liquefaction and crosslinking stages was studied. At the first stage, the liquefaction of wastepaper was carried out in the presence of ethylene glycol under acidic condition. The factors that affect of liquefaction yield were found to be reaction time, temperature, and acid concentration, and their ranges were 60~120 minutes, 150~170°C, and 2~4%, respectively. The optimum condition was found to be 100 minutes, 160°C, and 3% sulfuric acid concentration, and the liquefaction yield at this condition was 67%. At the second stage, polyester was prepared from the liquefied wastepaper obtained at the optimum liquefaction condition by crosslinking with succinic anhydride. The effect of reaction time and carboxylic group/hydroxyl group ratio on crooslinkage were investigated at conditions covering 30~50 minutes of reaction time and 1.5~2.5 of caboxylic group/hydroxyl group ratio. The crosslinkages of polyester prepared were 80~90%, which were almost same regardless of reaction conditions.