

A Study on the Reaction Characteristics of the liquid phase catalytic pyrolysis of Lignocellulosic Lignin

김주일, 이인화[†], 김병희

조선대학교

(ihlee@chosun.ac.kr[†])

Lignin was converted from high molecule to low molecule by pyrolysis process. The goal of this work was to convert lignin to liquid fuel through pyrolysis in batch reactor. Depolymerization and liquid phase radical oxidation were carried out with lignocellulosic lignin, hydrogen peroxide and iron(III) sulfate by controlling the temperature using furnace respectively. The reaction was progressed very explosively at 200 to 400°C for 3 hours. After batch reaction on water soluble lignin 10wt% concentrations, all products were analyzed by GC/MS(FID), HPLC-GPC and SEM-EDX. GC/MS results showed approximately 40 kinds of pyrolysis products, mainly composed of methanol, acetic acid, benzene type, phenol type, guaiacol type, and syringol type. As a results of pyrolysis using radical oxidation, the highest methanol yield obtained 10.58% at 350°C. To investigate atomic compositions of the reactant, the surface of the sample was observed using SEM-EDX.