

Levulinic acid production from glucose by batch reaction of acid catalytic hydrolysis

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MTHF(methyltetrahydrofuran) is an organic compound with the molecular formula $\text{CH}_3\text{C}_4\text{H}_7\text{O}$. It is a highly flammable mobile liquid. It is mainly used as a replacement for THF(tetrahydrofuran) in specialized application for its better performance, such as to obtain higher reaction temperatures, or easier separations (as, unlike THF, it is not miscible with water). It is derived from sugars via levulinic acid(LA) and is occasionally touted as a biofuel. MTHF can be a new solution and it can be mixed with gasoline up to 30% and can be an alternative to THF.

This study was performed for LA production from lignocellulosic sugar by acid catalytic hydrolysis. LA, the raw material of MTHF, is normally produced by hydrolysis of hexose via 5-HMF(5-hydroxymethylfurfural), and it can enable easily by acid catalyst.

For finding out of feasibility of LA production from glucose by acid catalytic hydrolysis, the reactions were conducted with two cases. The first case was proceeded by high concentration of sulfuric acid at low temperature(120 °C), and the second of it by low concentration at high temperature(150~190 °C).