

Bio-oil production from korean straw using Hamburg fluidized bed Process

박영권*, 김주식, 강보성, 이경해, 김승도¹
서울시립대학교 환경공학부; ¹한림대학교 환경시스템공학과
(catalica@uos.ac.kr*)

In order to produce bio-oil from rice straw, a bench scale plant equipped with a fluidized-bed and a hot filter was applied. We investigated the influence of reaction temperature on the production of bio-oil, the efficiency of a char-separating system, the content of alkali metals after deashing and the influence of fluidizing medium on the product spectrum. To elucidate the temperature dependence on the production of bio-oil, experiments were conducted in the range of 400 and 600 °C with a feed rate of about 1.3 kg per hour. Mass balance was established in each experiment. Additionally, analysis of product gas and oil was conducted using GC and GC-MS system. Char separating system is composed of a cyclone and a hot filter. After every experiment, we examined the particle distribution of each char and the content of solid in bio-oil to demonstrate the efficiency of the separating system. Before feeding rice straw, deashing was conducted with hot water including acid to demineralize. We compared the content of alkali metals in bio-oil before and after washing. Finally we studied the influence of fluidizing medium on the production of bio-oil using nitrogen and product gas.