

An Experimental Investigation of Hydrogen Production from Biomass

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摘要 In gaseous products of biomass steam gasification, there exist a lot of CO, CH₄ and other hydrocarbons that can be converted to hydrogen through steam reforming reactions. There exists potential hydrogen production from the raw gas of biomass steam gasification. In the present work, the characteristics of hydrogen production from biomass steam gasification were investigated in a small-scale fluidized bed. In these experiments, the gasifying agent (air) was supplied into the reactor from the bottom of the reactor and the steam was added into the reactor above biomass feeding location. The effects of reaction temperature, steam to biomass ratio, equivalence ratio (ER) and biomass particle size on hydrogen yield and hydrogen yield potential were investigated. The experimental results showed that higher reactor temperature, proper ER, proper steam to biomass ratio and smaller biomass particle size will contribute to more hydrogen and potential hydrogen yield.

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