

Production of renewable hydrocarbon through catalytic pyrolysis of large biopolymers: A review

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Abstract:

Considerable efforts have been made to convert biomass to liquid fuel since the oil crisis in mid-1970s. Among various processes for conversion of biomass to liquid fuel, catalytic pyrolysis is considered as one of the most promising ones due to its inherent flexibility allowing production of fuels and value added chemicals. It also fits well in the recent bio-refinery concept which perceives biomass not only as a source of fuel but also as a source of a spectrum of other marketable products. The liquid yield of pyrolysis is widely used as a source of renewable energy. This review focuses on the recent developments in the field of catalytic pyrolysis for bio-oil production. In this review, focus is given on molecular sieves, such as HZSM-5, ZSM-5, MCM-41, SBA-15, HUSY, REY and their modified catalysts which are most widely used in biomass catalytic pyrolysis process. The effect of catalysts on bio-oil yield, quality, composition, stability etc. are also discussed.

Keywords: Biomass, Catalytic pyrolysis, Bio-oil, Zeolite

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