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Abstract

In this study, production of bio-oil and biochar from soapstock via microwave-assisted co-catalytic fast pyrolysis combining the advantages of in-situ and ex-situ catalysis was performed. The effects of catalyst and pyrolysis temperature on product fractional yields and bio-oil chemical compositions were investigated. From the perspective of bio-oil yield, the optimal pyrolysis temperature was 550 °C. The use of catalysts reduced the water content, and the addition of bentonite increased the bio-oil yield. Up to 84.16 wt.% selectivity of hydrocarbons in the bio-oil was obtained in the co-catalytic process. In addition, the co-catalytic process can reduce the proportion of oxygenates in the bio-oil to 15.84 wt.% and eliminate the N-containing compounds

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