

CO-PYROLYSIS OF LOW RANK COAL AND OIL PALM EMPTY FRUIT BUNCHES

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ABSTRACT

Indonesia as a country with natural resources such as coal and oil palm empty fruit bunches are abundant. It is necessary efforts to convert coal into liquid fuel through liquefaction technology. One appropriate method is pyrolysis. In general, the pyrolysis is used to produce liquid fuels and other chemicals, but the yield of products is low due to hydrogen ratio and low carbon. Therefore, to increase the yield, the necessary supply of hydrogen from other sources in this case used oil palm empty fruit bunches which are agricultural waste that has not been used optimally.

This research aims to study the increase in the yield of tar through the co-pyrolysis of low quality coal with oil palm empty fruit bunches (TKKS) the ratio of low-quality coal blending ratio with TKKS, and operating temperature. In this study, the method used is the co-pyrolysis in which the co-operation of the pyrolysis temperature ranges 300-700⁰C. Before entering the stage of co-pyrolysis of low quality coal with oil palm empty fruit bunches (TKKS) in the reduction of the particle size range of 149 μ m-2.38 mm. Then set the blending ratio comparison of low quality coal with TKKS on ratio 100/0, 75/25, 50/50, 25/75 and 0/100 with operating temperature 300,400,500,600, dan 700⁰ C. From the comparison of the blending ratio of low quality coal with oil palm empty fruit bunches and operating temperatures varying expected co-pyrolysis of coal is low quality with TKKS able to form a tar

yield that will yield more tar can be used as an alternative to liquid fuels to reduce the uses of fossil fuels such as diesel and gasoline.

The effect of co-pyrolysis Coal and TKKS are synergistic effect with increasing acquisition TKKS coal tar on the operating conditions, among others, at a temperature of 300°C, the ratio of 50:50; temperature of 300 °C, the ratio of 25:75; temperature of 600 ° C, the ratio of 50:50; and temperature of 600 ° C, the ratio of 25:75 . Acquisition of tar yield is highest at a temperature of 300 ° C is 16,89% ratio of 25:75. As well as the influences of supplay blending ratio of hydrogen to simplify the process of pyrolysis

Keywords: Coal, oil palm empty bunches, Co-pyrolysis.