

CHAPTER V

CONCLUSION

In this research, used low-density polyethylene with Coal was converted to oil product by catalytic hydrocracking. To achieve this objective, the reaction conditions were varied in terms of reaction temperature, hydrogen pressure, reaction time and ratio of LDPE: Coal. The optimum condition from this study were indicated below: reaction temperature 420°C , hydrogen pressure 60 kg/cm^2 , reaction time 60 min, ratio of LDPE: lignite as 15:1.

The optimum conditions were shown above. The percentage yield of oil was 68.1. The distribution composition of oil product from the optimum condition was 44.3% of naphtha, 9.6% of kerosene, 6.3 % of light gas oil, 3.2 % of heavy gas oil, 4.7 % of long residue, 13.7% of gas products and 18.2% of solid. The catalytic cracking reaction could not occur at the temperature below 400°C and hydrogen pressure below 45 kg/cm^2 .

Suggestion for the further study

Arising from this research are suggested and shown below.

1. The type of coal that used in this research can be changed to another type such as Peat charcoal and Bituminous coals, to compare percentage of oil product that is achieved from reaction.
2. The effect of catalyst on reaction condition and pore size of catalyst can be studied because they have more important effect on catalyst activity, on product distribution composition.