CHAPTER V

CONCLUSION

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The catalytic cracking process conducted in this research follows the three-lump model fairly well and the reaction was found to be the first order. The predicted data calculated using the model is comparable with the data obtained from the experiment. The deviation of the calculated and experimental data is quite small, less than 10%. Using this model, the rate constant values for the catalytic cracking reaction are:

- 9.3964, 1.7581, and 0.4732 h^{-1} for reaction temperature of 623.15 K
- 20.0346, 3.5761, and 0.5977 h^{-1} for reaction temperature of 673.15 K
- 28.2084, 5.1278, and 0.6639 h^{-1} for reaction temperature of 723.15 K

Using the Arrhenius equation, the activation energy is 41.49, 40.36 and 12.78 kJ/mol for E_1, E_2, and E_3, respectively. These values of activation energy are valid from reaction temperature of 623.15 K until 723.15 K.

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