CHAPTER V
CONCLUSIONS AND RECOMMENDATION

5.1 Conclusions

In my research, the measurement of MMP has been done by the pressure decay technique. The effects of molecular weight, temperature and impurity gas on MMP were considered. The pressure decay curve was the exponential function. The initial pressure was rapidly decrease until it reached the equilibrium. Increase of oil molecular weight increased the equilibrium time which opposite to the increase of temperature which it decreased the equilibrium time. The MMP point is the maximum of pressure drop curve which it is the plot between total pressure drop and the initial pressure. From previous work, The MMP of n-decane as the oil reference at 20 °C from the pressure decay method was very good agreement (%AD = 0.12 %) with that obtained by the MRI technique. The increase of oil molecular weight increased the MMP of the system, increase of temperature increased the MMP of the systems, and increase of percent nitrogen increased the MMP of the systems. The results of MMP from the pressure decay technique was compared with the Li et $al.$ correlation. For condensate API 63.9, oil sample, n-decane at 20 °C there were the %AD around 23.36 %, 20 % and 21.08 %, respectively. For condensate API 63.9, oil sample at 30 °C, there were the %AD around 10.24 %, 2.97 %, respectively. The %AD of CO_2 with 1 % N_2 in oil sample at 20 °C and 30 °C were 16.58 % and 1.7 %, and the %AD of CO_2 with 3 % N_2 in oil sample at 20 °C was 12.1 %.

5.2 Recommendations

There was a constraint from CO_2 pressure because it was used from a gas tank which its maximum pressure was1000 psi. Thus, the studied condition was limited. For example, if it would be studied at 100 °C,the solubility of CO_2 in oil sample was decrease and it requires higher pressure to achieve miscibility. The next experiment should be use syringe pump to pressurize the system.

To get the correlation of the effect of temperature, the experiment should be done in the temperature varies from 20 to 40 °C.

Li *et al.* correlation should be improved for the calculation of pure liquid hydrocarbon and low temperature.