

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Experimental results show that Metal Organic Frameworks (MOFs), Basolite C300 and Basolite Z1200; give much more gravimetric amount of methane adsorption than those of activated carbons; Eucalyptus Powder Activated Carbon, Coconut Shell Granular Activated Carbon, Calgon, and Coconut Shell Powder Activated Carbon. The physical properties of adsorbents, including BET surface area, micropore volume, total pore volume, and apparent density (packing density), are key success factors of the methane adsorption capacity. The addition of the adsorbent could increase the methane storage capacity in the CNG vessel. The experimental data were best fitted by Sips isotherm model.

5.2 Recommendations

Although MOFs have very high gravimetric amounts of methane adsorption, the volumetric amount of methane adsorption of MOFs is low due to their apparent densities. It is recommended to do further study on MOFs synthesis in order to increase their apparent densities while keeping other physical properties of MOFs the same as in this study.

The study of the adsorption efficiency of the methane adsorption on the adsorbents used in this research is inadequate for the real application of the adsorbents in the storage tank. The study of desorption efficiency is still required to complete the study before real application can take place.