

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In this study, high internal phase emulsion polymer or polyHIPE was prepared from divinylbenzene (DVB) and styrene (S). Mixed of surfactants (span80, CTAB, and DDBSS) equal to 7 wt% was used to form emulsion. PolyHIPE filled with different S/DVB ratio of 0:100, 20:80, 80:20. The morphology of polyHIPE was showed open cell structure which high amount of DVB in monomer ratio to achieve small pore size diameter. High amount of DVB in monomer ratio provided highest surface area was 100% DVB, which was 509.42 m²/g. PolyHIPE at high amount of DVB was high displayed of degradation temperature (T_d) and high retained residue yield because high degree of crosslinking in structure. Furthermore, high amount of DVB in monomer ratio was affect to highest Young's modulus due to DVB as a crosslinking co-monomer and compressive strength (MPa) not significant different. PolyHIPE are produced more hydrophilicity after to modify surface on polyHIPE, therefore layer by layer technique enhanced functional group on the surface. CO₂ adsorption the morphology after modified changed. At highest %CO₂ adsorption was achieved for polyHIPE to prepare from 100%DVB (146.43%)

5.2 Recommendations

5.2.1 Suggestion for modification on polyHIPE

The polyHIPE was modified on the surface by LbL technique. After modification the morphology has plug the pore. For the further study, it may be good study CO₂ adsorption to apply LbL technique by flowing solution that can capture CO₂ though sample.

5.2.2. Suggestion for CO₂ adsorption

The thin sample was packed in a column about 1 g for testing CO₂ adsorption. Capacity of polyHIPE may be affect to CO₂ adsorption.