

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

PolyHIPEs porous foam was prepared successfully by using mixed ratio 6.3:0.4:0.3 (SPAN 80 : DDBSs : CTAB) (7s) and 11.3:0.4:0.3 (SPAN 80 : DDBSs : CTAB) (12s) copolymerized with MAPES(0, 2.5, 5, 10, 20, and 30 %wt). The obtained polyHIPEs were characterized for phase morphology and surface area. The surface areas of PolyHIPEs, containing MAPES 0-30% for both mixed surfactants 7s and 12s, are found to decrease with increasing MAPES content. From the result, indicate that when increase content of MAPES, the formation of the emulsion droplet results in the system of polyHIPEs becoming unstable. On the other hand, CO<sub>2</sub> gas adsorption capacities were found to increase with increasing content of MAPES due to MAPES has S=O functional group which soluble with CO<sub>2</sub>. The optimum load content of MAPES that can be accepted and does not decrease mechanical properties (compressive modulus and compressive strength) and morphology is 10 %wt MAPES. The highest CO<sub>2</sub> adsorption capacity of the obtained polyHIPEs is 20 %wt MAPES.

A new method of polyHIPEs preparations were challenged to enhance the CO<sub>2</sub> gas adsorption capacity by changing monomer, changing crosslinker and changing surfactant system. To accomplish the goal, polyHIPEs should adsorb the other toxic gases.