

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

The admicellar polymerization of polystyrene coat on surface of natural rubber particle was investigated by using FTIR, SEM, GPC and TGA. From this equipment, the modified natural rubber showed characteristic peak of polystyrene which the thickness about 0.3-0.5  $\mu\text{M}$ . The molecular weight of polystyrene film was about 300,000-330,000 in optimum condition that the ratio between styrene and initiator at 1:0.04 under salt condition. The degradation temperature of pure natural rubber was occurred at 380°C and polystyrene in modified natural rubber was found at 420°C that increasing a slightly when compare to the pure natural rubber.

The mechanical property in aging and not aging condition was investigated by using DMA and tensile testing. DMA results showed the storage modulus increased in aging condition as same as the result in  $\tan \delta$ . The mechanical properties of blended samples from tensile testing showed the Young's modulus increased after aging when the concentration of styrene monomer in modified natural rubber increase. Tensile strength has only slight decrease for the blended sample after aging. It can be concluded the modulus, tensile strength and thermal mechanical property can improved in aging condition due to the aging condition helped to increase compatibility between the two components.

The condition of admicellar polymerization have many factors that can not investigated in this research work such as the effect of time to the property of polystyrene film, type of salt in the effect of adsorption and adsolubilization, varies the weigh ratio between styrene monomer and natural rubber at 90/10-10/90 in the effect of mechanical property and impact strength of blended sample. These conditions should be further investigated.