CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

Surface modification of clay was studied with different level of co-monomer and surfactant using a four step thin film formation technique. Characterization of the surface modified clay showed that the modification of clay surface induced its hydrophobic property, reduced the nitrogen BET surface area, and increased mean agglomerate particle size.

Comparison of clays modified by this new technique with unmodified clay showed that modified clay increases the cure rate and improves the tensile strength, elongation at break, tear strength and hardness except abrasion loss, flex cracking resistance, fatigue to failure property and compression set.

All the modified clays improved in hardness when compared to the unmodified clay. However, it did not show any significant between each condition.

The effect of amount of surfactant and co-monomer on clay surface was studied. The SIC # 5 (intermediate condition) is the optimum condition for the tensile properties even though it shows some degree of decrement in elongation at break. The SIC # 1 (high surfactant, high co-monomer) gives the maximum tear strength.

As clays are generally used together with other reinforcing fillers such as carbon black or silica, it will be interest to study further the rubber physical properties using these modified clays and those reinforcing fillers. On the other hand, co-polymers formed on the fillers' surface should be investigated in term of molecular structure in order that some phenomena might be explained more significantly. The fatigue life of vulcanisates, either on modified silica or

modified clay did not show any possible reason for its' poor property. Therefore, this point is one idea to improve, if possible, the in-situ polymerization technique using modified filler surfaces.