CHAPTER V
CONCLUSIONS

Organically modified clays were successfully synthesized by ion-exchange reaction using a series of primary alkylamines and quaternary ammonium salts as modifying agents. AAS, FTIR, TGA, and XRD results verified the incorporation of modifying agents into the clay structure and revealed that the degree of basal-spacing expansion was increased with the length of hydrocarbon part in the structure of modifying agents. Moreover, XRD spectra indicated that exfoliated nanocomposites of NR and organically modified clays could be prepared through both solution and melt techniques.

The resulting composites exhibited considerable improvements in mechanical properties and cure characteristics. Especially, composites prepared by the solution technique showed better properties than those prepared by the melt counterpart. Interestingly, the increases in tensile strength, modulus, and hardness of composites were not significantly sacrificed by the loss of elongation at break.