CHAPTER V
CONCLUSION

The benzoxazine monomer had been synthesized and characterized with FTIR and GPC. Both techniques show the consistent result that 88% of purified precursor is monomer. The successful preparation of organically modified montmorillonite with 5 types of modifying agents is done by ion exchange reaction and the AAS results approve that most of Na^+ ion are exchanged. The TGA results of OMOM show that there is some interaction between modifying agent and silicate layers and XRD results prove that the modifying agent is intercalated into silicate layers which d_{001} spacing is strongly dependent on size of modifying agent. The polarity of medium of the mixing is considered by the swelling of OMOM that the binary solvent system of 5% MeOH in toluene shows the good ability to disperse OMOM especially MOM_DODEC. The nanocomposite film prepared in this study can be classified as intercalated type.

However, the d_{001} of OMOM in the polymer matrix does not show any significant change. Therefore the delamination of silicate layers is strongly dependent on the compatibility of modifying agent and polymer matrix. TGA is used for study on heat resistance property of polymer-silicate nanocomposite. It is found that the silicate layer can enhance the heat resistance property. Moreover, water barrier property studied by TGA shows that the presence of silicate layers in the polymer matrix can decrease water absorption via in creasing the path length of water penetration.