

CHAPTER IV

CONCLUSIONS

This study demonstrates the effect of CaCO_3 on the static and dynamic mechanical properties of polybenzoxazine based on bisphenol-A and aniline. Tensile strength and flexural strength decreased while their modulus increased with filler content. The composite of B-a / 5 μm CaCO_3 shows the highest strength, whereas the larger and smaller particle size gave the lesser values. Surface treatment of CaCO_3 with stearic acid caused the reduction of composite strength by decreasing the surface tension of the filler resulting in lowered adhesion between the components.. Dynamic mechanical spectroscopy studies showed the higher loss modulus and the lower activation enthalpy of the specimen fabricated with surface treated CaCO_3 than those of the untreated one since a composite material with poor interfacial bonding tends to dissipate more energy than the same composite with good interfacial bonding. A benzoxazine resin exhibited lower viscosity than a novolac-type phenolic resin.