

Chapter IV

Conclusion

Used of Bu_4NOH as a catalyst in the crosslinking reaction of DGEBA with Schiff's base metal complexes decreased the crosslinking temperatures. The optimum amount of Bu_4NOH employed was 20 mole % of the metal complexes. Crosslinking temperatures employed in the preparation of Cu, Ni and Co-containing epoxy polymers were 150, 155 and 160°C , respectively. The Cu-containing epoxy polymer obtained from the equivalent weight ratio of $\text{CuL} : \text{DGEBA} : \text{Bu}_4\text{NOH} = 1 : 10 : 0.2$ showed the highest heat resistant with the weight loss of 1.9 % after treatment at 250°C for 24 h. The best mechanical properties was also obtained from Cu-containing epoxy polymer at the equivalent weight ratio of $\text{CuL} : \text{DGEBA} : \text{Bu}_4\text{NOH} = 1 : 12 : 0.2$, which gave tensile strength of 69 MPa.

The metal-containing epoxy polymers obtained from DGEBA and the metal complexes system showed better physical and mechanical properties than DGEBA/maleic anhydride and DGEBA/diethylenetriamine system.

The suggestions for future work are use of other quaternary ammonium salts as basic catalysts and variation of the catalysts amount.