

CHAPTER V

CONCLUSION

Reaction of monobasic acids with polyhydric alcohols under sulfuric acid catalyst in the presence of toluene as azeotropic agent gave polyol esters in good yield. The optimum condition for the reaction in most cases was 130 °C, 3 hours and 0.5-1.0 % by weight of catalyst. The products gave expected spectroscopic properties as determined by ¹³C-NMR and FTIR analyses.

Physical and chemical properties of polyolesters indicated that increasing number of carbon atom in acid moiety resulted in higher viscosity index, flash point and oxidation point of polyol esters. Only polyol esters of trimethylol propane gave pour point less than -50 °C which was excellent as base oil for refrigeration oils. The higher number of hydroxyl group tended to show higher properties of viscosity index, flash point and oxidation point within the same series of fatty acid.

From this study it could be concluded that polyol esters, especially, esters of trimethylol propane were good candidates as base oil for refrigeration oils.

Suggestion for future work

Since polyol esters of trimethylol propane have good properties as base oil for refrigeration oil, therefore, compatibility test with R134a refrigerant is recommended.