

CHAPTER V

CONCLUSION

The achievement of this research was to synthesize the diester waxes from glycols, i.e., 1,2-ethanediol and 1,2-propanediol, with fatty acids, i.e., lauric acid, myristic acid, palmitic acid and stearic acid, using concentrated sulfuric acid as a catalyst and toluene as the azeotroping agent. The reactions were carried out at 110°C for 4 hours.

From the results, it could be summarized that most of the diester products were waxy solids except one from 1,2-propanediol reacted with lauric acid which was a viscous liquid. The products had good physical and chemical properties, such as high flash point, and good thermal and oxidation stability.

From this research, these synthetic diesters could be used in the new application such as the lubricant additives, by blending with the base oil. The synthetic diesters were able to increase the viscosity index, in a sequence of the weight ratio 120:3>120:2>120:1 and to reduce the foam formation in the base oil, especially at the weight ratio of 120 : 3. Therefore, they were possible to be used as lubricating agent with antifoaming property.

Suggestion for future application

From the properties of the synthetic diester, it could be used as lubricating agent in pharmaceutical products, as coating agent for medicament powder instead of magnesium stearate, and in biodegradable synthetic grease. Therefore, further study in these areas should be investigated.