

CHAPTER 5

CONCLUSION AND SUGGESTION

5.1 Conclusion

The objective of this research is to find the dual viscosity index improver for the production of multi-grade engine oil.

The studies involved the combination of two types of viscosity index improvers to form six different systems to formulate API SJ/CF SAE20W50 test samples. The tested results showed that four systems were found to meet specification of SAE 20W50. The oil contained dual OCP-SIP system has excellent low temperature properties but is expensive due to the cost of SIP. The dual OCP-PMA VI improver provided an excellent thickening efficiency of blended oil but poor shear stability of the blended and high cost of PMA. The SIP-PMA system yielded similar results to the OCP-PMA system but even more expensive. The dual OCP-PIB VI improvers were found to meet specification with good thickening effect, reasonable low temperature properties and cheap. The followings are costs of the four systems after the additional of all additives; OCP-SIP \$416, OCP-PMA \$403, SIP-PMA 394, OCP-PIB \$376 per ton. Among the four systems used in this study, dual OCP-PIB VI improvers are the most suitable.

5.2 Suggestion for further works

Further work could be done by investigating systems of VII which composed of more than two types of VI improvers with various ratios.

Other lubricants systems, for example, hydraulic oil, gear oil or auto transmission fluid including synthetic engine oil could be studied.