

## CHAPTER 5

### CONCLUSION

From the results presented in this thesis, it was concluded that studies have been carried out to investigate the effect of reaction temperature and time on the properties of chlorinated paraffins prepared from dewaxed light distillate oil and converting them into semi-synthetic lubricating oil.

Light distillate was first dewaxed, by using methyl ethyl ketone, to decrease pour point and reduce ranges of hydrocarbon for chlorination. Methyl ethyl ketone could extract up to 56.42 % by weight of wax and 43.58 % by weight of oil. The results after chlorination of dewaxed oil indicated that reaction temperature from 60 to 120 °C had little or no further effect on properties of chlorinated products, and increasing chlorine content led to an increase in viscosity. At reaction time 12 hrs, chlorine content tend to stop increasing. chlorinated paraffins from dewaxed oil were dark viscous liquid.

Alkylation with toluene and self- condensation of chlorinated paraffins have been applied to convert them into semi-synthetic lubricating oil. The results suggested that self-condensation gave oils which had more desirable properties. The prepared oil was increased from 62 to 77, the color was better than dewaxed oil.

Ultimately, it can be seen that although chlorinated paraffins from dewaxed oil had undesirable color and couldn't use for direct applications, it could be converted to semi-synthetic lubricating oil. It was expected that the prepared oil could be used as semi-synthetic lubricating oil which could be upgraded to lubricating oil by adding additives and several grades of other lubricating base oils.



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