

CHAPTER V

CONCLUSIONS

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Based on the results of the tests that have been done, it can be concluded that:

1. The lowest viscosity obtained by palm oil+ 10%wt at day-30 is 17.253 mm²/s. While the viscosity enhancement indicates that palm oil+5%wt have a gradient of 0.1064 that indicate palm oil+5%wt have the fastest viscosity rate than the other lubricants sample.
2. The lowest wear rate is shown by palm oil+0% wt by 9.66x10⁻⁶ mm³/Nm at 500 rpm and by 1.38x10⁻⁶ mm³/Nm at 1400 rpm, and the highest wear rate is shown by palm oil+10% wt by 2.03x10⁻⁵ mm³/Nm at 500 rpm and by 2.76x10⁻⁶ mm³/Nm at 1400 rpm.
3. The scar width of the disc and the scar diameter of the pin increase as the given load and rotational speed is increased. Where highest scar width is shown by palm oil+10% wt by 2342.833 μm at 500 rpm, and palm oil+5% wt by 4003.542 μm at 1400 rpm, While the highest scar diameter is shown by palm oil+5% wt by 2187.167 μm at 500 rpm and 4521.000 μm at 1400 rpm.
4. The highest coefficient of friction is shown by palm oil+10%wt by 0.193 at 500 rpm, and 0.127 at 1400 rpm, while the lowest is shown by palm oil+0% wt by 0.155 at 500 rpm, and 0.107 at 1400 rpm. From the test its observed that the coefficient of friction is decreased as the load and speed is increased.
5. Based on the test results, the addition of clove oil into palm oil has a positive effect on the physical properties that's shown by the decrease on the viscosity rate. While for the tribological properties, palm oil with clove oil addition has a negative effect that's shown by the increase on the wear rate and the coefficient of friction.

