

## CHAPTER V

### CONCLUSION

This research was intended to find the optimum conditions which used to determine the concentration of high molecular weight dispersant additive in gasoline and diesel oil by HPLC/GPC method. The research work described in this thesis can be summarized below.

#### 1. Gasoline

Gasoline can be injected directly into HPLC/GPC system by manually or via an auto sampler. The optimum conditions of HPLC/GPC system were

- PLgel 5  $\mu$ m 50 A 300x7.5 mm column
- 100°C of the EMD temperature
- 8 l/min of Nitrogen gas flow rate
- 1 ml/min of THF as mobile phase flow rate.

The 20  $\mu$ l of sample loop was used to fix the volume of sample. The high molecular weight dispersant additive molecule peak (the first peak) from integrated chromatogram was used to calculate the concentration of dispersant additive in gasoline by compared the peak area of unknown sample with standard calibration curve of the known samples.

## 2. Diesel

Diesel can not be injected directly as gasoline because of the effective from high molecular weight composition in base diesel. Then in diesel must be separated the dispersant additive molecules away from the base fluid materials such as the base oil.

The conditions which used to separate the dispersant were

- 2 g alumina neutral as absorbent which packe in 5 ml syringe as packed column
- 10 ml. hexane as solvent 1 which separated base diesel from absorbent
- 10 ml THF as solvent 2 which separated dispersant molecules away from absorbent
- 25 ml diesel which loaded in packed column.

The solvent from step above was make exactly volumn by THF and injected into HPLC/GPC system with the conditions as in gasoline.

To determine the concentration of dispersant additive in diesel by calculated like in gasoline, too.