

## CHAPTER 5

### CONCLUSION

#### 5.1 CONCLUSIONS

The study of desulfurization of high speed diesel by using hydroperoxide and peroxide as oxidants and solvent extraction can conclude as follow:

1. Hydrogen peroxide can be effectively used as oxidant for oxidation reaction of sulfur compound in high speed diesel by hydrogen peroxide as oxidant changes sulfur compound structure to sulfone or sulfoxide forms more than by peracetic acid as oxidant at a pressure of 1 atm and a temperature of 90°C.
2. Sulfone and sulfoxide formed from oxidation reaction have higher polarity than sulfur compound and can be transferred to acetic acid layer, as solvent for oxidation reaction.
3. Methanol is the most efficient solvent for extraction of sulfone and sulfoxide. Solvent to high speed diesel ratio of higher than 4.0 can be effectively removed sulfur compound comparable to three time of oxidation reaction.
4. Desulfurization of high speed diesel using this method results in reduction of aromatic content, which in turns increasing its pour point, while other properties as density, viscosity, flash point, colour and distillation range, remain.

จุฬาลงกรณ์มหาวิทยาลัย