

CHAPTER V

CONCLUSION AND SUGGESTION FOR FUTURE WORK

Conclusion

In this thesis, the study of the effect of engine parameters and fuel properties on emissions has concluded that:

1. The key engine parameter influencing emissions is load. Engine load appeared to have effect on emissions. Raising engine load from 0% to 50% reduced total HC, CO and BTX, but these emissions showed little response to load change from 50% to 80%. However, the NO_x emissions were significantly increased with raising load.
2. Raising engine speed was found to significantly increase NO_x emissions. However the speed change had little effect on total HC, CO, and BTX emissions.
3. The effect of distillation point does not seem to have significant effect on total HC, CO, and BTX emissions. Reducing the 10% distillation point tended to reduce NO_x emissions.
4. Total HC and CO emissions tended to decrease with increasing natural cetane number from 52-58, but the natural cetane number did not correlate with BTX emissions. Aromatics contents seemed to have more influence than cetane number on NO_x emissions. Lower aromatics contents tended to reduce NO_x emissions.

5. Additions of EHN and DTBP to the base fuel of cetane number 55 were effective in increasing cetane number in the range of 55-62. The volumetric concentration of EHN was more effective than DTBP.

NO_x , total HC, CO, and BTX emissions were little decreased as cetane number increased. The effects of EHN and DTBP on emissions were not significantly difference.

Suggestion for Future Work

1. The addition of cetane improver on base fuel with lower natural cetane number should be tested
2. The influence of individual subclasses of aromatics on emissions should be studied.
3. A beneficial degree of synergism by mixtures of peroxide and nitrate additives should be studied.
4. The exhaust emissions from the car tested under steady state conditions and under road conditions should be compared.