

CHAPTER V

CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

From the results of this study, it can be concluded presence of flame retardant in ignition-resistant HIPS compounds has shown following influences:

- Tensile strength, flexural strength and flexural modulus are relatively independent of the flame retardants.

- The izod impact strength is significantly greater when the flame retardant ,with lower molecular weight is used. An exception is the tetrabromobisphenol A.

- Melt-flow rate increased with lower molecular weight flame retardant and can be slightly improved slightly by the addition of CPE.

- The vicat softening temperature is higher for the flame retardant that has higher decomposition temperature.

- Ignition resistance, as measured by LOI, is increased by increasing the amount of flame retardant and synergist in the compound. The addition of CPE can scarcely improve the ignition resistance.

By comparison of four types of the flame retardants, DE 83-R or DE 79, BA 59 or PBDS-80 can be used to formulate the most suitable HIPS with flame retardant according to the combination properties of its compound.

5.2 Suggestions for further work

1. Other brominated flame retardants should be investigated to obtain more information on structure property relationship.
2. Thermal stability of selected flame retardant should be studied.
3. The combination of different brominated flame retardants should be investigated for the property improvement of HIPS with flame retardant.