

CHAPTER V

CONCLUSION AND SUGGESTION

5.1 Conclusion

The presence of EPDM incorporated and dispersed into PP matrix phase increases in NI and decreases in MFI, FS and hardness of composite. Several reinforced additives used in PP/EPDM blends for example talc, clay, carbon black, glass fiber and HDPE are normally used to increase in mechanical properties. The use of talc gives specific improvements in FS and hardness while clay gives little effect to the properties. On the other hand, carbon black, which has smaller particle size than dispersed phase, increases NI in all tested samples. Although glass fiber gives high FS of the composite compared with commercial resins, but its MFI is lower. Finally, type and particle size of reinforced additives is importance factors in designing good mechanical properties.

In this work, the composite that provides good balance of mechanical properties comparable to those of commercial resin B, composed of 90 wt% of PP and 10 wt% of EPDM and reinforced additives at 30 wt% talc and 15 wt% carbon black of the amount of PP and EPDM. This composite shows MFI at 9.2 g/10 min, impact strength at 5.9 kg.cm/cm², flexural strength at 248 kg/cm² and hardness

(shore D) at 53.5. Consequently, this composite is a potential material replacing commercial resin due to good mechanical properties and cost advantage.

5.2 Suggestion

According to this research, the mechanical properties such as NI and FS of prepared composite can not achieved those of commercial resin A. In order to improve properties close to that of commercial resin A. The following studies are suggested.

- 1) The effect of high MFI of PP and HDPE on mechanical properties.
- 2) The effect on type and particle size of reinforced additives on the properties.
- 3) The effect on parameter of EPDM such as EP content, diene content and mooney viscosity.
- 4) The effect of EPDM in pallet form.
- 5) The effect of crosslinking system to mechanical properties.
- 6) In order to improve mixing efficiency, Internal mixing, Banbury mixer, Brabender mixer and Twin screw extruder may be investigated.
- 7) Field test of prepared composite as car bumpers.

Moreover, it is important to consider the cost performance, recyclability and environmental impact of the polymer blends as well.