

CHAPTER V

CONCLUSIONS

Agglomerates composed of high structure carbon black are more difficult to disperse than agglomerates with low structure carbon black at comparable overall agglomerate density. Agglomerates of high structure carbon black are more cohesive than agglomerates of low structure carbon black at comparable agglomerate density.

When the percentage of carbon black loading is increased for all agglomerates (0%H, 20%H, 40%H, 60%H, 80%H, and 100%H), dispersion in polypropylene is found to be more difficult owing to the effect of packing characteristics on the blending system. As the mixing time proceeds, high structure carbon black, low structure carbon black and their blends show a decrease in mean agglomerate size with volume fractions of small size fragments increasing.

Polypropylene with the low structure carbon black aggregate exhibits higher mechanical properties than the case with the high structure aggregate, suggesting that the strength of polypropylene blends supported by carbon black networks depends on the factor of dispersion behavior rather than the packing characteristics of carbon black aggregates.