

CHAPTER V

CONCLUSIONS

The susceptibility of starch-based HDPE containing natural rubber and Zn stearate as prooxidant toward thermal oxidative degradation was confirmed by changes observed in MFI, CI and elongation at yield. Degradation of the HDPE matrix was not observed either in the samples containing starch as the sole additive or in the pure HDPE samples. This result suggested that the prooxidant additive was responsible for the thermal oxidative degradation. Starch content also had an effect on the rate of thermal oxidative degradation in samples containing prooxidant additive. The rate of enzymatic hydrolysis of the starch component depended on the starch content of the polymer blends with the increasing of the starch content, it was found that the rate of enzymatic hydrolysis of the starch component also increased. Combined thermal oxidative degradation and enzymatic degradation increased the rate of degradation of the polymer blends compared with degradation by oxidation or enzyme action alone.