

CHAPTER V

CONCLUSIONS

From the investigation of glass fiber/HDPE composites using surface modified glass fiber, i.e. a coating of polyethylene applied to glass fiber reinforcement via admicellar polymerization, the following conclusions can be drawn.

Polyethylene film can be coated onto the surface of glass fibers using the admicellar polymerization technique. Evidence that a polymer coating had been formed on the glass fiber were (a) the ethylene pressure drop which occurred during the adsolubilization and admicellar polymerization processes, (b) weight loss measurements and (c) SEM micrographs. Moreover, increasing the initiator to surfactant ratio led to higher consumption of ethylene monomer and higher rates of admicellar polymerization. The admicellar-treated glass fiber improved the adhesion between the glass fibers and PE matrix resulting in composites having higher tensile and flexural strength compared with composites made from untreated and commercial (silane-treated) glass fibers.