



## CHAPTER V CONCLUSIONS

Polyethylene could be coated onto the surface of glass fibers using the admicellar polymerization technique. The system pressure decreased with time during the adsolubilization and admicellar polymerization steps. SEM micrographs and weight loss measurements confirmed that polymerization of ethylene had taken place within the admicelle. However, solution polymerization also took place in the system containing surfactant, and at high surfactant concentrations emulsion polymerization occurred in the solution. Thus, three separate types of polymerization process occurred during admicellar polymerization, viz. admicellar polymerization, emulsion (micelle) polymerization and solution polymerization. It is feasible that the glass fibers could be coated with admicellar and solution polymerized polymer, the emulsion polymer, if present, remaining in solution in the form of micelles.

Admicellar polymerization can be used to improve adhesion between the glass fibers and polyethylene of glass fiber/polyethylene composites. The evidence for improved glass fiber-polyethylene adhesion is that composites made from admicellar-treated glass fibers had mechanical properties almost the same as composites made from solution-treated and micelle-treated glass fibers, and were better than untreated and as-received glass fibers.