CHAPTER V
CONCLUSIONS

The maximum adsorption of CTAB on precipitated nonporous silica Aerosil®OX50 was found to be ~130 μmol/g of silica. The amount of adsolubilized styrene increased with increasing styrene equilibrium concentration, as was expected. A two hour reaction time is sufficient to insure complete polymerization. The ratio of styrene to AIBN that yielded the highest molecular weight polymer is 1:15 while the ratio of styrene to VA-044 producing the highest was 1:7. In the specific polymerization condition, the water soluble initiator could produce much higher molecular weight polymer than the water insoluble initiator. Compared to emulsion polymerization, admicellar polymerization can produce comparably high molecular weight polymer with similar polydispersity, though it uses much higher initiator to monomer ratios. The polystyrene thin film formed the thickness between 2 nm –15 nm.

The application of RAFT to AP demonstrates the ability to apply new emulsion polymerization techniques to the process, opening doors for novel surface modification processes.