

## CHAPTER V

### CONCLUSIONS

The present work has shown that it is possible to obtain a thin-film of PMMA on a substrate through vapor phase monomer deposition under atmospheric pressure. The system requires an inert gas purging, a low substrate temperature, a high intensity UV radiation source and a suitable photoinitiator.

The thickness and molecular weight of deposited film are found to increase with the increments of % photoinitiator, deposition time, and N<sub>2</sub> flow rate. Reduction of substrate temperature leads to increase in film thickness and molecular weight of deposited film. In addition, the deposition at low substrate temperature, high deposition time, and high N<sub>2</sub> flow rate gives deposited film with a smooth surface.

In this work, a smooth PMMA thin film on quartz substrate was obtained with 0.5% photoinitiator, deposition time of 4 hrs, substrate temperature of 263 K, and N<sub>2</sub> flow rate of 70 ml/min, using 100 W UV radiation source.