

## Abstract

A free-radical polymerization method is employed to synthesize homopolymers of acrylonitrile (I), its copolymers with Me acrylate (II) and terpolymers containing itaconic acid (III) in homogeneous solution (aq. NaSCN and DMSO media) and an aq. redox slurry system.  $^{13}\text{C}$  NMR was used to characterize the polymers in terms of steric configurations to study the effect of co- and termonomers on the microstructure of poly-I both at low and high conversions. There was no significant alteration in the microstructure of poly-I with the introduction of II and III. Similarly, the polymerization conditions did not affect the microstructure.  $^1\text{H}$  NMR and IR techniques were used to determine the composition of the polymers, and good agreement was observed in the results. The presence of unsaturated III was confirmed by  $^1\text{H}$  NMR.