

## Structure Analysis of the Thermotropic Liquid Crystalline Copolyester

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The structure of the thermotropic copolyester, poly(phenyl-p-phenylene-terephthalate) in the as-spun state, has been studied by X-ray diffraction techniques and molecular modelling. Poly(TPA-PHQ) in the as-spun state, prepared from terephthaloyl chloride(TPA) and phenylhydroquinone(PHQ), has a distorted structure somewhere between the nematic and highly crystalline state. Cylindrically averaged Fourier transform of a single chain has been calculated and the effect of chain conformation on the intensity transform has been studied for the complete random and rigid chain models. The interference effect that occur when chains are packed has also been considered with the release of perfect axial register by introducing a normal distribution function, with standard deviation  $\sigma$ . Thus It has been shown that the diffraction characteristics which we associate with the crystallinity can be generated with the introduction of minimal axial register.