



Synthesis, Characterization and Thermal Properties of Aromatic Fluorinated Polyamide bearing Pendant Pentadecyl Chain

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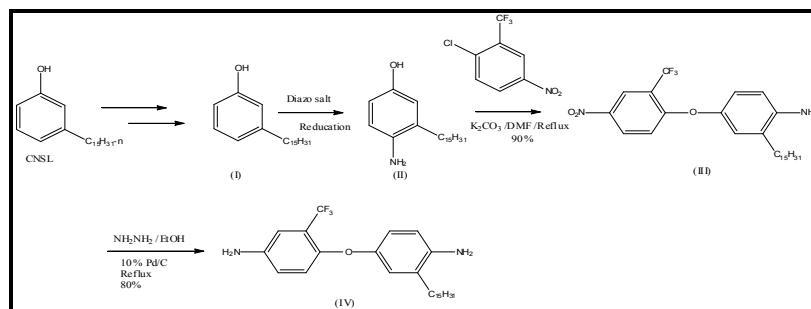
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ABSTRACT

Synthesis of a new aromatic fluorinated diphenyl diamine ether type monomer with pendant pentadecyl chain group, viz. 4-(4-amino-2-(trifluoromethyl) phenoxy)-2-pentadecylaniline (ATPP) (IV) and its derived polyamide. The aromatic polyamide was synthesized from condensation of diamine with terephthaloyl chloride (TPC) and isophthaloyl chloride (IPC) and its equimolar mixture via interfacial polycondensation method. The resulting polyamides were characterized by inherent viscosity measurement, solubility, FT-IR, thermal properties and XRD. At room temperature all polyamides were readily soluble in polar aprotic solvents. The polyamide shows inherent viscosity in the range between 0.30-0.63 dL g⁻¹ in *N*-methyl-2-pyrrolidone (NMP) at 30°C. The polyamides showed useful levels of thermal stability with glass transition temperature (*T*_g) in the range of 150-175°C and no 10% weight-loss below 448°C and amorphous in nature.

Graphical Abstract



Synthesis of 4-(4-amino-2-(trifluoromethyl)phenoxy)-2-pentadecylaniline (ATPP) (IV)

Keywords: Polyamide, Trifluoromethyl, Pentadecyl chain, Thermal properties.