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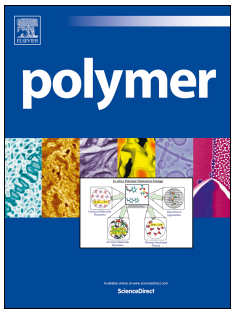

Synthesis and Characterisation of Water Dispersible Copolymer Submicron Spheres of Poly-(Phenylenediamine-co-N-Sulfopropyl Aniline) via Random Copolymerisation

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reference: JPOL 18430, Article reference: JPOL_POLYMER-15-1719, Article title.

Dear Dr. S Raja,

Please remove the figure 6(c) caption highlighted below. Figure 6 C is not attached with figure 6

Figure 6. W-XRD diffractogram of A) P-MPD, M-COP75, M-COP50, M-COP25, PSPA B) PPPD, P-COP75, P-COP50, P-COP25, PSPA C) P-OPD, O-COP50, O-COP25, PSPA

In fact the same is given as figure and figure caption in figure 7 . see below

Figure 7. WXRD diffractogram of P-OPD, O-COP50, O-COP25 and PSPA.

Thanking You

Dr, Jinish Antony M

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HIGHLIGHTS

- The homopolymers of poly-phenylenediamines (P-PD's) and poly-N-sulfopropyl aniline (PSPA) were synthesized via chemical oxidative polymerization of phenylenediamine monomers and sulfopropyl aniline using ammonium persulfate as oxidizing agent in acidified medium.
- Three homopolymers of phenylenediamines synthesised were poly (m-phenylenediamine) P-MPD, poly (p-phenylenediamine) P-PPD and poly (o-phenylenediamine) P-OPD.
- Poly-N-sulfopropyl aniline (PSPA) is a self doped water soluble conducting polymer. Random copolymerization of N-sulfopropyl aniline and phenylenediamines would enhance the solubility of the copolymer nanomaterials.
- Three different copolymer compositions (COP25, COP50 and COP75) were employed for copolymer synthesis based on weight percentage of co-monomers feed.
- Homopolymers and copolymers were characterized by fourier-transform infrared spectroscopy (FT-IR) and elemental analysis.
- The uv-visible absorption spectra of the samples in water were shown the characteristic polaron- π^* and π-π^* peaks.
- The solid state ordering of the samples recorded by powder wide angle x-ray diffraction studies reveals that homopolymer samples were partially crystalline, whereas copolymers were either amorphous or less crystalline than homopolymer.
- Morphological features of the polymers and copolymers were recorded by scanning electron microscope (SEM). Poly (m-Phenylenediamine) was uniformly distributed submicron spheres with an average size of 850± 50 nm, whereas the poly (p-phenylenediamine) non-uniform spheres with size in the range 600-100 nm.
- The P-OPD sample was highly crystalline and shown some ordered rod like structures.
- Interestingly, all copolymer samples like M-COP25, P-COP25, and O-COP25 were formed as uniform submicron spheres.
- Poor water solubility of poly-phenylenediamines in aqueous solution was increased tremendously upon copolymerization.