عنوان مقاله:

Novel thermally stable poly(sulfone-ether-amide-imide)s for high performance applications

محل انتشار:

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خلاصه مقاله:

A novel sulfone ether amide diamine was prepared through a two-step synthetic route. At first, ۳,۳'-((sulfonyl bis(۱,۴-phenylene))bis(oxy))dianiline was produced from nucleophilic aromatic substitution reaction of ۳-aminophenol with dichlorodiphenyl sulfone in the presence of K۲CO۳. In the second step, reaction of this compound with isophthaloyl chloride resulted in preparation of a unique aromatic diamine containing amide, ether and sulfone groups. Then three different kinds of poly(sulfone-ether-amide-imide)s were prepared by polycondensation of synthesized diamine with different dianhydrides including pyromellitic dianhydride, benzophenone tetracarboxylic dianhydride, and hexafluoroisopropylidene diphthalic anhydride. The structures of synthesized monomers and prepared polymers were characterized using elemental analysis, ۱H NMR and FTIR spectroscopy method. Thermal behavior and stability, inherent viscosity, and solubility of polymers were studied. As the polymers showed high thermal stability and improved solubility, they potentially can be used in high performance applications including aerospace and microelectronics industries.

کلمات کلیدی:

Poly(sulfone-ether-amide-imide), diamine, thermal properties, solubility