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论文

新型可溶性含氟聚芳醚酮的合成、表征及性能

张鹏, 刘新才, 李鹏, 周宏伟, 陈春海

吉林大学麦克德尔米德实验室, 长春 130012

摘要:

制备了新型可溶性含氟聚芳醚酮高性能材料, 使该材料结合了含氟聚合物与聚芳醚酮两种材料的优点, 既具有很好的热稳定性、溶解性和阻燃性, 又有较低的介电常数和吸湿性[5,9,10]. 对于提高聚芳醚酮类材料的性能, 拓展其使用范围和加工方法具有很大的开发前景和实用价值.

关键词: 聚醚醚酮 六氟双酚A 含氟聚合物 可溶性聚醚醚酮

Synthesis, Characterization and Properties of Novel Soluble Poly(ether ether ketone) Containing Fluorin Structure

ZHANG Peng, LIU Xin-Cai, LI Peng, ZHOU Hong-Wei, CHEN Chun-Hai*

Alan G. MacDiarmid Institute, Jilin University, Changchun 130012, China

Abstract:

The novel and soluble poly(ether ether ketone)(PEEK) containing fluorin structure(6F-PEEK) was prepared by nucleophilic reaction of 4,4'-difluorobenzophenone, bisphenol A and hexafluobisphenol A in the presence of anhydrous K_2CO_3 with tetramethylene sulfone as the solvents. The molecular weight of the polymer was determined by GPC. The structure of the polymer was characterized by FTIR, ^1H NMR and ^{19}F NMR spectroscopies. The glass transition temperature and the temperature for 5% mass loss of 6F-PEEK were 153 and 493 ℃, respectively. The polymer exhibits an excellent thermal stability, mechanical property and solubility. The rate of elongation at break, tensile strength and tensile modulus of 6F-PEEK were 55.2%, 66 MPa, and 2.13 GPa, respectively.

Keywords: Poly(ether ether ketone) Hexafluobisphenol A Fluorinated polymer Soluble PEEK

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