

研究论文

含氰基高性能聚芳醚材料的合成与表征

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收稿日期 2006-7-4 修回日期 网络版发布日期 2007-3-6 接受日期

摘要 将合成的含氰基的双二氮杂萘酮单体与二氟芳香单体进行亲核取代反应, 制备了三种含氰基的新型聚芳醚, 并用TGA, DSC和GPC等分析手段对其综合性能进行表征. 结果表明, 含氰基聚芳醚具有优异的热稳定性($T_{5\%} > 492\text{ }^\circ\text{C}$)、较高的玻璃化转变温度($T_g = 262 \sim 320\text{ }^\circ\text{C}$)和良好的溶解性能, 易溶于氯代烷烃(如氯仿)和极性非质子性溶剂(如DMAc, DMF, NMP等).

关键词 [氰基](#) [聚芳醚](#) [高性能聚合物](#)

分类号 [0631](#)

Synthesis and Characterization of Poly(phthalazinone ether)s Containing Cyano Groups

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Abstract Three kinds of cyano-containing poly(phthalazinone ether)s with high molecular weights were successfully prepared from bisphthalazinone containing cyano groups and different activated dihalide monomers via a N—C coupling reaction. The properties of these polymers were determined by TGA, DSC, GPC, viscosity and solubility tests. TGA results demonstrate that all polymers exhibited an excellent thermal stability with 5% mass loss at $T > 492\text{ }^\circ\text{C}$. Poly(phthalazinone ether)s had very high glass transition temperatures(T_g) ranging from 263 to $320\text{ }^\circ\text{C}$ due to their rigid bisphthalazinone structure. All polymers were soluble in chloroform and polar aprotic solvents such as *N,N*-dimethylacetamide(DMAc), *N,N*-dimethylformamide(DMF), *N*-methyl-2-pyrrolidinone(NMP).

Key words [Cyano group](#) [Poly\(phthalazinone\)s](#) [Polymers with a high performance](#)

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