

论文

聚酰亚胺的微球化

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摘要:

依据缩聚反应的特点, 提出了一条聚酰亚胺微球的有效制备路线, 通过在缩聚溶液和沉淀剂中加入聚乙烯吡咯烷酮(PVP)改变体系特性. 探讨了PVP及沉淀剂对微球形貌、粒径及分布的影响. 结果表明, 在二胺与二酐缩聚溶液中加入PVP可以得到较好的球形聚合物颗粒; 增加PVP含量, 微球粒径减小且分布均匀, 而分子量有所降低; 以水为沉淀剂所得微球的形貌优于乙醇沉淀剂, 并且随着PVP用量的增加, 微球粒径减小, 均匀性亦随之提高. PVP在制备过程中分别呈现出成核、成球及分散稳定的作用, 从而实现了聚酰亚胺材料在微米尺度上的微球化.

关键词: 聚酰亚胺 微球 聚乙烯吡咯烷酮

Research on Sphericization of Polyimide

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Abstract:

A new method for preparing PI microspheres was proposed. The properties of the solution and dispersion medium were modulated as PVP had been added. The effects of PVP and its content on the morphology, size of PI microspheres were investigated. The results show that the favorable spherical polymer particles were obtained with PVP in the solution. The average size of PI microspheres decreased with the increase of the PVP content and better size distribution was also measured. Meanwhile, the molecular weight of the polymer decreased lightly. The morphology of PI microspheres with water was better than that of with ethanol. The size of microspheres decreased with the increase of PVP concentration in water, and the uniformity of microspheres was also improved. PVP played roles of nucleation, balling and dispersion respectively in the whole process. The polyimide microspheres could be prepared in the micro-scale by this way.

Keywords: Polyimide Microsphere Polyvinylpyrrolidone(PVP)

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