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论文

界面扩散聚合法制备樟脑磺酸掺杂聚苯胺纳米管或纳米纤维及其电化学电容行为研究

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摘要 利用界面扩散聚合法制得了樟脑磺酸掺杂聚苯胺纳米管或纳米纤维. 扫描电镜(SEM)和透射电镜(TEM)表明所生成的聚苯胺纳米管径与樟脑磺酸浓度成反比, 且低浓度的苯胺和掺杂剂有利于管状及纤维状聚苯胺的形成. 充放电测试结果表明, 聚苯胺纳米管在5mA放电时电容值可达249F/g , 比相同条件下聚苯胺纳米纤维的比电容高14.7% , 而比聚苯胺粉末的比电容高41.5%.

关键词 掺杂聚苯胺 纳米管 界面聚合法

分类号

PREPARATION AND CHARACTERIZATION OF CAMPHOR SULFONIC ACID DOPED POLYANILINE NANO-TUBES AND NANO-FIBRILS BY INTERFACIAL POLYMERIZATION

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Abstract camphorsulfonic acid doped polyaniline(PANI-CSA) nano-tubes and nano-fibrils fabricated by interfacial polymerization (IP) without templates The SEM and TEM images revealed that the average diameter of obtained polymer nano-tubes or nano-fibrils was about 100 nm. It is proved that the lower concentrations of aniline and dopant were liable to the PANI-CSA nono-tube or nano-fibrils formation. Furthermore,charging-discharging tests fevealed the good electrochemical capacitance performance of PANI-CSA nano-tubes. Their specific capacitance was as hish as 249 F/g at 5mA discharging compared to that of the fibrous PANI-CSA (217 F/g at 5mA) and the granular PANI-CSA(176 F/g at 5mA).

Key words PANI-CSA Nano-tubes Nano-fibrils Interfacial polymerization

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