

研究论文

反胶束模板制备聚甲基丙烯酸甲酯/无机纳米粒子/石墨纳米复合材料及其表征

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摘要 以甲基丙烯酸甲酯(MMA)和三氯甲烷(CHCl₃)为油相制备反胶束微乳液, 依靠表面活性剂十六烷基三甲基溴化铵(CTAB)自组装形成的“微反应器”作为模板成功地制备了PMMA/Eu(OH)₃/EG和PMMA/Ni(OH)₂/EG纳米复合材料. 并用红外光谱(IR)、扫描电镜(SEM)、透射电镜(TEM)、X射线衍射(XRD)和差热-热重(TG-DTA)对该复合材料进行了表征和分析. 研究表明, 反胶束法可以有效地应用于有机-无机纳米复合材料的制备.

关键词 [膨胀石墨](#) [甲基丙烯酸甲酯](#) [纳米复合材料](#) [反胶束](#)

分类号

Synthesis of PMMA/Inorganic Nanoparticle/EG Nanocomposite through Reverse Micelle Template and Its Characterization

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Abstract The PMMA/inorganic nanoparticle/EG nanocomposite was prepared by polymerization of methyl methacrylate (MMA) *in situ* through reverse micelle template, in which the methyl methacrylate (MMA) and CHCl₃ was used as oily phase. The advantage of this method is that nanocomposites were prepared without the process of modification of nanoparticles with organic substance and dispersion of them in the matrix. The morphology of nanocomposites was observed by scanning and transmission electron microscope methods. The structures were determined by IR spectra, X-ray diffraction analysis and TG-DTA. These results show that reverse micelle is an effective method for preparing organic-inorganic nanocomposites.

Key words [expanded graphite](#) [methyl methacrylate](#) [nanocomposite](#) [reverse micelle](#)

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