高分子学报 2006 (2): 320-324 ISSN: 1000-3304 CN: 11-1857/O6

论文

纳米碳/聚甲基丙烯酸甲酯复合材料的研究

刘春艳，金兆国，章文贡

福建师范大学化学与材料学院高分子研究所; 福建师范大学化学与材料学院高分子研究所 福州

收稿日期 2004-11-18 修回日期 2005-6-3 网络版发布日期 接受日期

摘要 采用脉冲激光轰击浸于流动液相中固体靶的方法, 直接连续制备了纳米碳/PMMA的乙酸乙酯溶液, 经浇膜法得到了纳米碳/聚甲基丙烯酸甲酯复合材料. 光谱分析表明复合体系中存在某种作用, 导致该复合材料的玻璃化转变温度明显下降. 透射电镜结果表明纳米碳可与聚甲基丙烯酸甲酯形成核/壳结构, 使得纳米碳均匀分散于聚合物基体中. 热分析结果表明纳米碳的加入对聚甲基丙烯酸甲酯的热分解性能没有显著影响.

关键词 脉冲激光轰击 纳米碳 聚甲基丙烯酸甲酯 复合材料

分类号

NANO CARBON-POLY(METHYL METHACRYLATE) COMPOSITE MATERIALS

LIU Chunyan,JIN Zhaoguo,ZHANG Wengong

Institute of Polymer Science; College of Chemistry & Materials Science; Fujian Normal University; Fuzhou 350007

Abstract Nano carbon / poly(methyl methacrylate)sols were prepared by a method of pulsed laser ablation at the interface of target submerged in flowing liquid(PLA—IT / SFL),and the corresponding composite films were prepared by solution-casting. Spectrum studies indicated that there existed interaction between nano carbon particles and the PMMA matrix. which was consistent with the decrease in glass transition temperature of the composites with carbon content. TEM images revealed that a carbon encapsulated core / shell structure was formed in the composites,which could ensure good dispersion of carbon nanopartieles within PMMA matrix. The heat decomposition of the composites was less infiuenced by the introduction of nano carbon.

Key words Pulsed laser ablation Nano carbon Poly（methyl methacrylate） Composite materials

DOI:

通讯作者 章文贡