

材料化学工程与纳米技术

聚对苯二甲酸乙二醇酯/聚丙烯不相容共混体系的结构流变学

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摘要 通过熔融共混制备了不相容的聚对苯二甲酸乙二醇酯 (PET) /聚丙烯 (PP) 复合体系, 研究了复合体系的结构流变学。结果表明, PET/PP共混体系的不相容相形态显著影响其稳态和动态流变行为。当PP组分为分散相时, 复合体系表现出动态形状松弛; 当两组分呈多种相形态共存时, 复合体系表现出强烈的低频区弹性响应; 而当PET组分为分散相时, 复合体系的剪切敏感性则相对较小。在较高剪切应力作用下, 分散相液滴的凝聚是影响体系流变行为的控制因素, 而在较低的剪切应力作用下, 液滴的破碎则成为控制因素。

关键词 [聚对苯二甲酸乙二醇酯](#) [聚丙烯](#) [相容性](#) [相形态](#) [结构流变学](#)

分类号

Structural rheology of immiscible PET/PP blend

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Abstract

The immiscible poly (ethylene terephthalate) (PET) /polypropylene (PP) blend was prepared by melt mixing and its structural rheology was studied. The results showed that the immiscible morphology influenced both the dynamic and steady-state rheological behavior of PET/PP blend. The blend with dispersed PP domain/PET matrix morphology showed a dynamic shape relaxation, while that with dispersed PET domain/PP matrix morphology only showed a small sensitivity to shear action. For the blend with complicated phase structure, the low-frequency elastic response could be observed clearly. Moreover, the agglomeration of the dispersed drops was the dominant factor affecting the rheological behavior under a higher shear field, while the break-up of drops became the dominant one under a lower shear field.

Key words [poly \(ethylene terephthalate\)](#) [polypropylene](#) [miscibility](#) [phase morphology](#) [structural rheology](#)

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