

聚氨酯与接枝乙烯基酯树脂互穿网络研究: 自由基共聚 单体的影响

王贵友, 胡春圃

华东理工材料科学与工程研究所

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摘要 通过分子设计技术合成了两种侧链种类和长度可能控制的接枝乙烯基酯树脂(VER),并用它们与聚氨酯(PU)形成了同步互穿网络(SIN)。通过DSC, SEM, TEM, FTIR等考察了接枝VER的共聚单体对VERSIN的形态结构与力学性能的影响。研究表明,用甲基丙烯酸甲酯(MMA)为共聚单体的接枝VER网络中的MMA链段与PU网络中的硬段有较好的相容性,导致这类PU/接枝VERSIN中两个网络间的相容性和互穿程度好于由苯乙烯为共聚单体时合成4SIN。因此,在这两类共聚单体合成的SIN中,由MMA形成的接枝VER网络增强PU网络的效果更为显著。

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Simultaneous interpenetrating networks consisting of polyurethane and graft vinyl ester resin: Effect of different comonomers

Wang Guiyou, Hu Chunpu

Abstract Two types of well-defined graft vinyl ester resins (graft VER) containing butanol or poly (oxypropylene) side chains with a molecular weight of ca. 200 (abbreviated as BO-g-VER and 200-g- VER respectively) were synthesized and characterized. The simultaneous interpenetrating networks (SINs) of graft VER and polyurethane (PU) were prepared. The effect of comonomers of graft VER on the morphology and mechanical property of PU/graft VER SINs was studied using DSC, SEM, TEM and FTIR spectroscopy. The relationship between the morphology and mechanical properties of these SINs was also studied. Because the MMA segments existed in graft VER network were miscible with hard segments of PU network, the compatibility and/or interpenetration of PU/ graft VER SINs prepared from MMA as comonomer were better than those prepared from styrene. Thus, the reinforcement effect of the graft VER network on the PU network was quite different using different comonomers of graft VER. These experimental results could be related well with the morphology of these SINs.

Key words [POLYURETHANE](#) [RESIN](#) [RESIN](#) [NETWORK](#) [POLYMER](#) [FREE RADICAL](#) [POLYMERIZATION](#) [MORPHOLOGY](#) [STRUCTURE](#) [MECHANICAL](#) [PROPERTIES](#) [DIFFERENTIAL](#) [SCANNING](#) [CALORIMETRY](#) [TRANSMISSION](#) [ELECTRON](#) [MICROSCOPY](#) [METHYLPROPENOIC](#) [ACID](#) [ESTER](#)

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