

材料化学工程与纳米技术

## EA-MA共聚乳液处理木质素与PVC的共混

刘飞跃, 许林利, 郑秋闾, 许凯, 陈鸣才

中国科学院广州化学研究所;中国科学院研究生院

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摘要

用丙烯酸乙酯(EA)-马来酸酐(MA)共聚乳液对木质素进行处理后与聚氯乙烯进行共混,并考察了共混物的流变性能、热稳定性和力学性能,同时用扫描电子显微镜观察了共混试样的低温脆断表面形貌。在聚氯乙烯中添加木质素后,其流变性能的变化表现为最小扭矩和塑化峰扭矩大幅升高,同时塑化时间大幅缩短;对热稳定性的影响为后期分解速率降低,达到最大分解速率时的温度升高,最大分解速率变小。EA-MA共聚物对共混试样的作用主要体现在力学性能方面,用固重相对于木质素为1%的共聚乳液处理的木质素,共混后具有最佳的力学性能。共混试样低温脆断表面的扫描电子显微图片表明,用EA-MA共聚乳液对木质素进行处理,可以大大改善其与聚氯乙烯之间的相容性。

关键词

[聚氯乙烯](#) [木质素](#) [共混](#) [聚丙烯酸酯](#) [乳液](#)

分类号

## Blends of PVC and lignin treated with emulsion of ethyl acrylate-maleic anhydride copolymer

LIU Feiyue, XU Linli, ZHENG Qiukai, XU Kai, CHEN Mingcai

### Abstract

Lignin was treated with emulsion of ethyl acrylate (EA)-maleic anhydride (MA) copolymer, then blended with poly(vinyl chloride)(PVC).The rheological property, thermal stability and mechanical performance of the blends were investigated.When PVC is blended with lignin, the torque obviously increases in the first part of the rheological profile, while the equilibrium torque and process stability are not visibly distinguished from PVC without lignin, and the thermal stability is better than PVC without lignin.There is little change in rheological property or thermal stability of the blends when lignin is treated with emulsion of EA-MA copolymer, but the mechanical performance increases obviously.The best mechanical performance was found when lignin was treated with 1%(mass) of the copolymer emulsion, where the impact strength of the blend is 37.7% higher than that of the PVC control, while the tensile strength was not found visible change.Micrographs of the blend samples fractured at low temperature obtained by SEM illustrated a better compatibility between PVC and the lignin treated with the copolymer emulsion.

### Key words

[poly \(vinyl chloride\)](#) [lignin](#) [blend](#) [polyacrylate](#) [emulsion](#)

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