化工学报 2010 61 (1): 228-234 ISSN: 0438-1157 CN: 11-1946/TQ

材料化学工程与纳米技术

改性纳米TiO_2对纸张涂料及涂布纸性能的影响

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收稿日期 2009-5-31 修回日期 2009-9-3 网络版发布日期 2010-1-20 接受日期

摘要

研究了改性纳米TiO_2对纸张涂料流变行为和涂布纸性能的影响。研究发现，在同一剪切速率下，随着改性纳米TiO_2用量的增加，纸张涂料的表观黏度逐渐增大，且含改性纳米TiO_2的纸张涂料具有较高的弹性模量和黏性模量，相位角则较低;随着改性纳米TiO_2的用量在0～10%范围内增加，涂布纸的光学性能和印刷适性持续改善，且涂层表面结构的SEM和AFM观察显示，含改性纳米TiO_2的纸张涂层表面具有较优的微观孔隙结构。

关键词

纳米TiO_2 表面改性 纸张涂料 流变行为 涂布纸特性

分类号

Effect of modified nanoTiO_2 on properties of coating and coated paper

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Abstract

The effect of modified nanoTiO_2 on the rheological behavior of paper coating and the properties of coated paper was investigated.The results of rheological behavior experiment showed that at the same shear rate，the more amount of modified nanoTiO_2，the higher the viscosity of paper coating.It was also proved that the dynamic elastic storage modulus and viscid loss modulus of paper coating containing modified nanoTiO_2 were higher than those of paper coating containing unmodified nanoTiO_2，while the phase angle was lower.Furthermore，the results of SEM and AFM showed that the better microscopic pore structure of coating surface could be built when modified nanoTiO_2 was added into paper coating.In addition，with the increase of modified nanoTiO_2 amount in the coated paper，the optical properties and printability of coated paper can be persistently improved.

Key words

nanoTiO_2 surface modification paper coating rheological behavior coated paper

DOI:

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