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研究论文

纳米复合氟改性丙烯酸树脂超疏水自清洁涂层的制备

季金苟[1], 杨 斌[1], 夏之宁[1], 蒋兴良[2], 舒立春[2]

1.重庆大学化学化工学院 重庆 400044
2.重庆大学电气工程学院 重庆 400044

摘要: 用自由基共聚法制备氟改性丙烯酸树脂的无规共聚物并对其进行了表征, 研究了合成工艺条件对涂层表面疏水性的影响。结果表明, 采用粒子填充法将纳米SiO2、TiO2与氟改性丙烯酸树脂共混后制备的超疏水自清洁涂层, 水在其表面的接触角达160 °以上, 滚动角小于5°, 具有超疏水性。涂层对其表层覆盖的污物具有一定的自清洁作用。扫描电子显微镜和原子力显微镜对涂层表面观察结果表明, 涂层表面具有类似荷叶表面的微米-纳米双微观结构。

关键词: 材料合成与加工工艺 涂层 氟改性 纳米 超疏水 自清洁

Preparation of Super-Hydrophobic and Self-Cleaning Coating of Nano-Composite Fluoropolyacrylate

JI Jingou[1], YANG Bin[1], XIA Zhining[1], JIANG Xingliang[2], SHU Lichun[2]

1.College of Chemistry and Chemical Engineering, Chongqing Uinversity, Chongqing 400044
2.College of Electric Engineering,Chongqing Uinversity, Chongqing 400044

Abstract: The fluoropolyacrylate was prepared by the free radical copolymerization. The influence of process conditions on hydrophobicity of the coating was investigated. The super-hydrophobic and selfcleaning coating was prepared by particle-filling process. The results show that the contact angle of the coating is above 160? and rolling angle is less than 5?. This coating also has self-cleaning effect on the pollutants. The coating surface processes natural lotus-like micro- and nano-hierarchical structure.

Keywords: synthesizing and processing techniques coating fluorine modified nanometer superhydrophobic self-cleaning

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通讯作者: 季金苟

作者简介:

通讯作者E-mail: 725_tiger@sina.com

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