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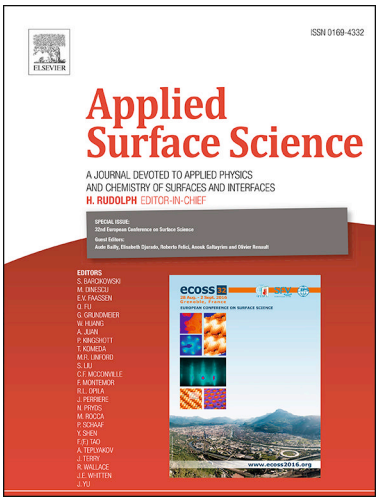

Full Length Article

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A New Approach For Durable Multifunctional Coating of PET Fabric

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Abstract

This new approach aims to impart durable multifunctional properties to polyester fabric surface via pre-modification with sodium hydroxide followed by subsequent coating with proper active ingredients such as SiO_2, TiO_2, ZnO and ZrO_2 nanoparticles using gelatin as a green binding agent. The obtained results signify that the enhancement in the imparted functional properties like antibacterial, UV- blocking, self–cleaning capability and softness properties is governed by type of binding agent, i.e. gelatin > polyacrylate as well as kind of included metal oxide nanoparticles (MO-NPs) into the coating paste. FTIR, SEM and EDS analysis confirm the surface modification and functionalization of PET fabric surface. The obtained multifunctional coatings exhibit a remarkable washing durability even after 15 washing cycles.

Keywords: Polyester; Surface modification; Post-coating with MO-NPs; Green binder; Durable multifunctional coating.

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