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Smart Options For Simultaneous Functionalization and Pigment Coloration of Cellulosic/Wool Blends

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ABSTRACT

The present innovative research work deals with the individual use of chitosan (2.5g/Kg), Aloe vera (10g/Kg), triclosan (10g/Kg), TiO₂-nanoparticles (TiO₂-NP's ,10g/Kg), silicon micro-emulsion (20g/Kg) or a water/oil-repellent agent (40g/Kg) for modifying the pigment print paste to produce functionalized cotton/wool and viscose/wool pigment prints in one step process. The imparted functional properties such as antibacterial, antibacterial/UV-protection, soft-handle or water/oil-repellency together with the change in the printing properties were evaluated. Some of the obtained pigment prints were characterized by Scanning Electron Microscope (SEM), and Energy Dispersive X-rays (EDX) to confirm deposition of certain functional additives on printed fabrics. The wide-range of imparted functional properties together with the depth of the obtained pigment prints were maintained over 80% even after 15 consecutive laundering cycles. The extent of retention in functional and pigment printing properties is influenced by the type of functional additive as well as the kind of substrate.

Keywords

Cellulosic/Wool blends, Functional finishes, Pigment Printing, one step process, Chitosan, Aloe vera, Triclosan, Silicon softener, Water/oil repellent, TiO₂-NP's.

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