World Academy of Science, Engineering and Technology
International Journal of Materials and Textile Engineering
Vol:10, No:03, 2016

Multifunctional Coating of Nylon Using Nano-Si, Nano-Ti and SiO2-TiO2 Nancomposite :Properties of Colorimetric and Flammability

Authors : E. Fereydouni, Laleh Maleknia , M. E. Olya

Abstract : The present research, nylon fabric dyed by pressure method with nano-Si, nano-Ti particles and SiO2-TiO2 nancomposite. The influence of the amount of Si, Ti and SiO2-TiO2 on the performance of nylon fabric was investigated by the use of Fourier transform infrared spectrophotometer (FTIR), horizontal flammability apparatus (HFA), scanning electron microscope (SEM), electron dispersive X-ray spectroscope (EDX), water contact angle tester (WCA) and CIE LAB colorimetric system. The possible interactions between particles and nylon fiber were elucidated by the FTIR spectroscopy. Results indicated that the stabilized nanoparticles and nanocomposite enhances flame retardancy of nylon fabrics. Also, the prominet features of nanoparticles and nanocomposite treatment can note increase of adsorption and fixation of dye.

Keywords : nano-Si, nano- Ti, SiO2-TiO2 nancomposite, nylon fabric, flame retardant nylon
Conference Title : ICTE 2016 : International Conference on Textile Engineering
Conference Location : Miami, United States
Conference Dates : March 24-25, 2016