

DBD treatment of diacetate, polyamide, polyester, acrylic and wool fibres and competitive dyeing with different dye classes

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Abstract

In this work we present a study of a DBD plasma treatment of five different fibres (diacetate, polyamide, polyester, acrylic and wool), using a dielectric barrier discharge running with different dosages in air at atmospheric pressure. Based on the results above, the dosage around 600 W.min/m² has been found to produce uniform wettability in tested materials. The experiments were conducted to determine the effects of the DBD treatment on the measured changes in surface wettability, morphology and chemical composition. After DBD plasma treatment, dyeing experiments were carried out in order to evaluate colour strength (K/S) in the samples with and without treatment and high improvement of tintorial properties has been detected in a significant number of the trials.