

Influence of DBD plasma modification in the dyeing process of polyamide

Souto, A.P; Oliveira, F.R; Fernandes, M.; Carneiro, N.

Abstract

In this work, a study of the dyeing of polyamide fabrics after surface modification by dielectric barrier discharge (DBD) plasma treatment was performed. Physical and chemical properties of the textile substrate were characterized before and after plasmatic modification, showing important changes in water contact angle, hydrophilicity, chemical surface composition and morphology. Dyeing properties with direct dyes were evaluated by means of dyebath exhaustion, color strength and washing fastness tests, demonstrating that plasma treated fabrics can achieve excellent dye uptake, high rate of dyeing and good uniformity, good fastness levels, meaning a great challenge and opportunity for industrial application.