

POLYESTER TEXTILE SURFACE ACTIVATION FOR ANTIMICROBIAL AGENT SUBMISSION BY USING PLASMA NANOTECHNOLOGY

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Abstract. *In this work is presented the advantages of using plasma nanotechnology for textile surface activation in order to permit Sanitized submission and resistance during the numerous washing cycles. The polyester untreated sample was analyzed by compared with polyester treated sample for observing and analyzing the modification that occurs.*

Keywords: nanotechnology, polyester, sanitized, antimicrobial, textile, surface activation

1. Introduction

Because polyester is a thermoplastic polymer which has low surface energy, poor polarizability and need energy for bonding with additional chemical substance (sanitized), a way for increasing surface energy is to activate the surface by using oxygen plasma technology. Oxygen plasma surface treatment solves this problem by increasing polyester surface energies [1, 2]. For polyester textile surface activation was used oxygen plasma treatment in order produce polymer's surface modification for increasing the hydrophilic character [3, 4].

2. Experimental part and discussions

The experimental part consists in applying oxygen plasma treatment to polyester fabric in order to obtain surface activation. The treatment with sanitized solutions with 0.4 g/L and 0.6 g/L concentrations was applied to the samples treated for minutes in oxygen plasma [5]. For establish the sanitized treatment performance were analyzed by using scanning electron microscope (SEM) in table 1 and by using energy-dispersive X-ray spectroscopy microanalysis (EDAX). In case of untreated polyester, from SEM image (table 1), it was observed polyester fibres without Ag or Ti particles. In EDAX spectre is observed the absence of characteristics peaks for Ti and Ag (figure 1). The other chemical elements (C and O) that present in the spectre are due organics compound from textile fibres (figure 1).

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