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PERFORMANCE EVALUATION OF MERCERIZED COTTON FABRIC TREATED WITH BENZOPHENONE-2

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ABSTRACT

An explorative study was conducted to determine the optimal application procedure of Benzophenone-2 on mercerized cotton fabric as a UV filter. Its effect on fabric's appearance, physical properties, mechanical properties and comfort properties were also studied. To achieve optimum protection, influence of pre-treatment pH, treatment time, treatment temperature and treatment concentration were analysed. The analysis was done on the basis of Ultraviolet protection factor (UPF). The results showed that the pH of 10, temperature of 75^0C, time duration of 35 minutes and concentration of 2% were optimal for cotton fabric's treatment with Benzophenone-2. Effect of consecutive launderings on UV treated fabric was also studied. The treatment caused slight yellowing of the cotton fabric. UV absorber treated samples were subsequently tested for any significant change in physical, comfort or mechanical properties of the treated fabric. At 5% level of significance data obtained for physical properties showed no significant changes except for increased fabric weight and decreased crease recovery angle. The results of mechanical properties were found to be non significant at 5 % level of significance for tensile strength but significant increase in percent elongation was observed in warp direction. SEM and FTIR analysis of control and treated fabric was also considered.

KEYWORDS: *Air Permeability, Benzophenone-2, UV Absorber, UV Protection, UPF, Whiteness Index*

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