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Ozone Treatment in Textile Industry

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Abstract : The fact that ozone gas has color bleaching properties has made the use of ozone gas widespread in the textile sector as well as in many other sectors. Ozone gas, which is a strong oxidative agent on the fabric, causes the paint on the fabric to wear off and lighten its color with an aged appearance. Within the scope of this thesis, parameters affecting the bleaching properties of ozone gas on reactive dyed knitted fabric, which is rare in the literature, were investigated. Ozone concentration, time, and pH values were analyzed with the Box Behnken experimental design method, and optimum conditions were determined. After the experiments, wear and opacity values were measured with the help of a spectrophotometer. With the help of the Design Expert program, the graphics related to the data were prepared and interpreted with Box Behnken and ANOVA. These experiments on reactive dyed knitted fabric were tested on these parameters, and the spectrophotometric values of the fabric and optimum parameters in abrasion and opacity were revealed.

Keywords : ozone, reactive dye, bleaching, textile, garment wash, sustainability, washing, Box–Behnken, experimental design
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