



Examination of the Wavelength Dependence of K/S Values for Samples Dyed in a Two-Component System

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The constant K/S represents the relationship between the concentration of the color and its emission value, where K is the absorption constant for a certain wavelength and S is the vertical regulation constant also for a certain wavelength (only for the material, depending on the coloring of textiles, leather or paper). As early as 1931. Kubelka and Munk came to the mathematical dependence of these quantities (K and S) as well the quantity G, which is the absorption measure of color for a certain wavelength, as well as the proportionality constant B depending on the color, as well as the concentration of the color (C). In this test, polyester knit fabric (100% PES) was used as a substrate. Dyeing of polyester knit fabric was carried out by the exhaustion process at elevated temperature and under pressure (HT process). The dyeing fleet consists of a certain amount of TERASIL ROT W - 4BS and TERASIL GELB 4G disperse paints. For concentrations of 1.00% sample (1) and 4.00% for sample (2). When obtaining measurement results, the metric program "Super MATCH 6 supplement" was used, in which spectrophotometry is used as an instrumental method. As a relatively new spectrophotometric technique, reflectometry is included, which is used to monitor the fabric dyeing process.¹ Measurements and processing of the results showed that sample (1) has a maximum K/S value of 17.31 and sample (2) has of 25.56 at a wavelength of 460 nm. The results of this research show that the staining matrix provides the possibility of a quick and accurate calculation of the K/S constant for the tested samples.

Keywords: polyester knitwear, dispersed colors, reflection spectrophotometry

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References:

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