

Santos, J. G., Soares, G. M. B., Hrdina, R., Oliveira-Campos, A. M. F. and R Gomes, J. I. N. (2009), A study on the spectral changes of reactive textile dyes and their implications for online control of dyeing processes. *Coloration Technology*, 125: 8–13. doi: 10.1111/j.1478-4408.2008.00169.x

Abstract

Evidence is presented that confirms the colour changes of a widely used trichromatic mixture of bifunctional reactive dyes (Levafix CA) under alkaline conditions, showing that they occur slowly and throughout the dyeing time, and not instantly after alkali addition to the dyebath. Thus, it is impossible to determine the specific absorptivity of the dyes at each moment of the dyeing process. An investigation into the relationship of the type of reactive group to the dye and the visible spectral changes over time was undertaken. Model reactive dyes were studied. The samples collected from the simulated dyebaths were monitored online using an automated system and their absorption on the whole of the visible spectrum was measured. The studies of dyes that included halo-s-triazinyl groups revealed the existence of hypochromic shifts in the spectra of the dyes in the presence of an electrolyte (sodium chloride or sodium sulphate) and bathochromic and hyperchromic shifts, when evaluated in the presence of alkaline agents. However, the vinylsulphonyl derivatives present a more stable spectral profile. The use of buffer solution at pH 5 was an efficient method to stabilise the absorption profile of Levafix CA trichromatic samples.