

ABSTRACT

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Title of diploma thesis: **Interaction of Tensides and Organic Dyes in Solutions II**

This diploma work is devoted to examination of the aqueous solutions of surfactants and organic dyes in the solution of Britton–Robinson buffer by two spectral methods: UV-VIS absorption spectrophotometry and fluorescence spectroscopy. There are two different dye-surfactant systems investigated: neutral red with sodium lauryl sulfate and phenol red with hexadecyl-trimethyl-ammonium bromide. The possible interactions were observed in the several surfactant concentration levels of the solutions with increased dye concentration. The task of my work was investigation of changes in dye spectra as a consequence of the dye-surfactant interaction and determination of the possible origin of the spectra changes.

The results showed that absorption spectra of solutions containing neutral red itself differ sharply from those taken for solutions of neutral red and the tenside. The different character of the spectra is observable from the concentration of the tenside $6 \cdot 10^{-5}$ mol/l. Two types of dye-tenside associate are probably formed. The associate absorbing lower energy is denoted as to be formed by tenside and the neutral red molecule ionized by two protons.

On the contrary phenol red does not exhibit extensive changes in absorption spectra. Slight hypochromic shift at around 559 nm is observed only. The shift is ascribed to ion-pair formation. Analogous results are found in fluorescence spectra, where only slight changes are registered after the tenside is added.

Keywords: UV-VIS absorption spectrophotometry; Fluorescence spectroscopy, Neutral red; Phenol red; Surfactants; Interaction of tensides and dyes