

## Interaction between nickel(II) and anions of short-chain dialkyl dithiophosphoric acids in aqueous surfactant solutions

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### Abstract

Spectrophotometry was used to study the complexation of nickel(II) with anions L- of diisopropyl and dibutyl dithiophosphoric acids in water and aqueous solutions of nonionic surfactant, Triton X-100 (T). Weak bis-complexes [NiL<sub>2</sub>], whose formation are stimulated by the addition of nonionic surfactant, were found in water. Within the framework of simple model including equilibria of the formation of micelle-bound complexes {[NiL<sub>2</sub>]T} and ligand associates {LT<sub>2</sub> - }, the values of log K = 3.87 ± 0.01 and 1.3 ± 0.3 for diisopropyl dithiophosphoric acid anions and log K = 5.47 ± 0.03 and 2.8 ± 0.2 for dibutyl dithiophosphoric acid anions, respectively, were calculated. The obtained results showed that the stability of associates of hydrophobic anions of dialkyl dithiophosphates and their nickel bis-complexes with nonionic micelles increases with the length of ligand chain.

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