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## 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  $[\text{NiL}_2]$ , 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  $\{[\text{NiL}_2]\text{T}\}$  and ligand associates  $\{\text{LT}_2 - \}$ , the values of  $\log K = 3.87 \pm 0.01$  and  $1.3 \pm 0.3$  for diisopropyl dithiophosphoric acid anions and  $\log K = 5.47 \pm 0.03$  and  $2.8 \pm 0.2$  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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