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Complex formation of MnII with tetra(p-ter-butyl)thiacalix[4] arene acid in aqueous solutions of surfactants and polymers

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Abstract

The formation of manganese(II) complexes with different stereoisomers of tetraacid based on p-tert-butylthiacalix[4]arene in water, in micellar solutions of nonionogenic surfactants, and in polymer solutions was studied. The formation of complexes with different degrees of ligand protonation was revealed by pH-metric titration and nuclear magnetic relaxation. On the basis of experimental data, the composition and stability constants of the solubilized complexes of stereoisomers of thiacalixarene acid with manganese(II) ions were determined using mathematical simulation methods. The manganese thiacalixarene complexes are unstable in solutions, especially upon the addition of calcium cations and in the presence of nitrilotriacetic acid. © 2014 Springer Science+Business Media, Inc.

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Keywords

Complex formation, Manganese(II), Nonionogenic surfactants, Nuclear magnetic relaxation, P-tert-butylthiacalix[4]arene acid, Water-soluble polymers