

Spectral-luminescence and magnetic relaxation properties of lanthanide-p-sulfonatocalix[4]arenes in aqueous solution of surfactants

Rusakova N., Kost S., Mustafina A., Amirov R., Zairov R., Solovieva S., Antipin I., Konovalov A., Korovin Y.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The influence of nonionogenic, anionic and cationic surfactants on the magnetic relaxation and luminescence properties of gadolinium(III), terbium(III), and dysprosium(III) complexes with p-sulfonatocalix[4]arene (TCAS) was studied. It was shown that the presence of both neutral and anionic surfactant does not influence the magnetic relaxation properties of GdTCAS as well as on the luminescence intensity of the TbTCAS and DyTCAS complexes. The presence of cationic surfactant at the concentration less than critical micellar concentration led to the formation of associates with stoichiometric composition with the Tb (Dy, Gd) TCAS complexes. These associates are characterized by more intensive luminescence, as compared to the initial TbTCAS and DyTCAS complexes. © 2008 Springer Science+Business Media, Inc.

<http://dx.doi.org/10.1007/s11172-008-0088-6>

Keywords

Lanthanides, Luminescence, Magnetic relaxation properties, P-sulfonatocalix[4]arene, Surfactants