
CHEMISTRY

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STUDYING OF INFLUENCE OF KIND SOLVENT ON STRUCTURE AND PHASE COMPOSITION OF NANOSIZED TiO₂

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The technology of the synthesis of TiO₂ nanoparticles by sol-gel method was developed. The synthesis of TiO₂ nanoparticles using different solvents was performed. As solvents were used monohydric alcohols (1-butanol, isopropanol, benzyl alcohol) and diols (ethylene glycol, diethylene glycol). Studies of the structure and composition of the nanoparticles obtained using X-ray diffraction and IR spectroscopy were made. Particle size of the obtained samples was measured using photon correlation spectroscopy. According to the results of the data, the influence of these parameters from the nature of the solvent used was determined.

Keywords: TiO₂ nanoparticles, alcoholic medium, the sol-gel method, X-ray diffraction, infrared spectroscopy, photon correlation spectroscopy.

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STUDY OF ACRIDINE DERIVATIVES BY ELECTROCHEMICAL METHODS

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Electrochemical behavior of acridine and its derivatives has been studied by cyclic and differential pulse voltammetry. It is shown that the reduction process in acetonitrile proceeds stepwise in two stages with the consequent formation of the radical-anion and dianion. Reduction of 9-chloracridine proceeds in four partially reversible stages with the formation of charged acridine dimer. All studied compounds underwent irreversible oxidation into unstable radical-cation and dication.

Keywords: electrochemical properties of acridine derivatives, cyclic and differential pulse voltammetry.

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INFLUENCE OF SURFACTANTS ON THE REACTION OF ORGANIC LIGAND WITH METAL SURFACE IN HYDROCARBONS

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The effect dodecyl sulfate sodium (SDS) on complexation reaction zero-valent copper bis-2-one-benzylideneaniline hydrocarbons. The critical concentration of the transition from the molecular SDS solution to a solution containing surfactant micelles (CMC1) and transition associated with a change in the symmetry of these units (CMC2). Revealed an extreme increase in speed at the critical micelle concentration (CMC) in the hydrocarbon and deceleration process to micellar areas.

Keywords: hydrocarbons, complexation rate, micelles, CMC, surface tension, viscosity.

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