

Nanocomposites and nanomaterials

Adsorption capacity of polymer materials obtained *in situ* polymerization on the silica gel surface

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Complex formative chemically modified silica are well known as efficient adsorbents are widely used in modern hybrid and combined methods of analytical chemistry, at the development of new treatment technologies. For increase of the adsorption capacity of transition metal ions on the surface of silica is advisable to consolidate macromolecules with complexing groups (polyaniline, polyacrylic acid, polyionenes etc.) [1-2].

Fixing polymers which are capable of complex formation on the surface of silica and other inorganic oxide matrix can be made by adsorption of polymers and formation of chemical bonds with inorganic surfaces.

However, by promising one-step synthesis of complex formative composite materials, which leads to even distribution of active complex formative groups in the polymer immobilized on the surface of the inorganic matrix is direct (in situ) formation of the polymer layer in the presence of particles of inorganic matrix.

In this paper, to form a polymer layer on the surface of silica gel a new monomer – methacroyl(4-aminobenzoic) acid was used and its in situ polymerization on the surface of silica was made. The fact of the process of polymerization and fixing of the polymer to silica were confirmed by IR and NMR- spectroscopy. Immobilized polymer concentration was established using thermographic analysis and mass spectrometry.

1. *Tamaki R., Naka K., Chujo Y. Synthesis of polystyrene/silica gel polymer hybrids by in-situ polymerization method // Pol Bull-1997. -39.- P. 303-310.*