

The review of the results of master, Ph.D. and Doctorates research in the area of nanotechnologies, nanomaterials, housing and communal services and joint economic spheres

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REVIEW OF THE RESULTS OF PH.D. THESES IN THE AREA OF NANOTECHNOLOGIES AND NANOMATERIALS. Part 1

To popularize scientific achievements the main results of Russian and foreign scientists' research are published in the form of abstract.

The result of the research «Nanomodified sulphurous binders for construction materials of general and special purpose» is the new methodological principles for development nanomodified sulphurous binders which are based on the consistent decomposition of quality criteria system of such materials, identification of elementary controlling receipt and technological factors through classification properties by phenomena, processes and components, scientific justification of material components choice, and then definition of experiment and statistic dependencies of influence of controlling factors on the material properties and performance of multicriterion optimization of receipt and technology for production of the material.

The decomposition of quality criteria system of nanomodified sulphurous binders is based on the data about the possible application areas (chemically resistant concretes, capsulating of high toxic and radioactive wastes, seal of joints in chemically resistant coatings, etc.) and requirements of GOST 4.200-78 «Quality criteria system for products. Construction. Basic regulations».

Decomposition of a property (or a set of the properties) by phenomena, processes and phases with identification of elementary factors is the base for identi-

fication of and ranking of controlling receipt and technological factors. Dispersed phase of nanomodified sulphurous binders has been grounded. It was shown that it's necessary to consider the possibility of formation of sulfide in the structure of obtained material and perform selection of raw mix taking into account the properties of forming sulfides and operation conditions of these construction materials and structures (first of all such as humidity, temperature and presence of any aggressive environments).

The specialists may be also interested in the research by Khuzin A.F. «Cement composites with additives of multilayer carbon nanotubes», Eliseeva N.N. «Foam concretes of non-autoclave hardening on the basis of nanosize additive», Burnasheva A.I. «High rich polyvinylchloride construction materials based of nanomodified wood flour», Zakharychev E.A. «Development of polymer composite materials based on epoxy binder and functionalized carbon nanotubes», Vasilieva O.V. «Production and research of physical and chemical properties of nanosize system nickel-copper» et al.

Key words: nanomodified sulphurous binders, construction materials, chemically stable concretes, carbon nanotubes, nanosize additives, nanosize system.

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