SCIENTIFIC BASIS OF TARGETED SYNTHESIS OF INORGANIC MULTICOMPONENT SYSTEMS.

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There is now a situation in Kazakhstan in a market economy requires the researchers to develop new competitive technologies of different materials based on the local natural and man-made materials with the use of modern technical features. The analysis of foreign and domestic literature shows that the greatest practical interest are the inorganic phosphorus compounds, due to the diversity of their structures, the relatively low cost of production, ease of transportation, processing and storage. However, the problem of the management and control of individual and multicomponent polymer systems and phosphorus, as well as their targeted synthesis, is still very complex and not fully resolved.

Currently, the synthesis of modified phosphate multicomponent systems, whatever their use is empirically as the fundamental approach to the selection of the modifying components for the preparation of compounds having multifunctional properties is completely missed.

In connection with this the patterns and peculiarities of hydrolytic degradation processes, chelation, inhibition of corrosion with modified condensed phosphates are being studied, depending on various factors, with the use of thermodynamic and quantum-chemical calculations of the electronic structures and the mechanisms of the processes under study.

The idea of the study is to develop the scientific basis and methods of purposeful synthesis of environmentally safety phosphate-modified systems and then applying them as corrosion inhibitors, including in the oil industry.

Practical and scientific significance of the results of research is to solve the most important practical problems in the field of theoretical and applied chemistry. The experimental results will allow to develop a basis of forecasting the composition, properties and production of inorganic materials with multifunctional properties and the further introduction them into the production.

The synthesis of developed polycomposition materials in the future is planned to carry out mainly from raw materials, including off-grade, produced or manufactured in the territory of the Republic of Kazakhstan, as the reserves of phosphate rock with no equal in quality and capacity, Kazakhstan ranks the second place in the world after the U.S., and on volume of mineral reserves - the first among the CIS countries. This will bring the share of Kazakhstan content of production to almost 100%.

The novelty of the proposed work is the selection of the conditions of substances and materials synthesis , and targeted search of their practical use.

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