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## **Geochemical Barrier for Accumulation of Ions of Hard, Toxic and Radioactive Metals**

Enterprises of metallurgical, chemical, oil, wood processing, pulp industries, military and defense branches, domestic waste treatment facilities, etc. aggressively pollute our environment. Therefore, solving problems of environmental protection from industrial emissions, and toxic and radioactive waste disposal is urgent.

The model of geochemical barrier on the basis of mineral raw material which can be used to prevent contamination of ground, soil and underground waters by hard toxic and radioactive metals within zones of their accumulation and migration could solve this problem.

On the way of migration of technogenic contaminated flows geochemical barrier with multilayer isolation made of mould box and clay in the form of trench is created. It can be also used to localize the pollution focus in the form of the basin in supposed place of disposal of toxic waste.

Barrier modeling is based on the study of sorption and diffusive balances. Given geochemical barrier will serve as a reliable screen for contaminants during a long period of maintenance. Thus, the decontamination cost of territories neighboring industrial enterprises is reduced.

Open surface of supposed construction is not the source of aerosol pollution by the hard toxic and radioactive metals. Metal desorption is also impossible under the action of soil solutions as sorption has irreversible character in conditions of given ecosystems. So, extra consumer funds of given product will not be required to utilize worked-out geochemical barrier.

The use of natural mineral raw materials doesn't require expenses on engaging highly qualified specialists to maintain and control given object, collection and utilization of worked-out material during a long period of time. Given product doesn't cause secondary environment pollution.

Modeling, installation, maintenance and service of geochemical barrier are based on the study of sorption and diffusion of polluted substances. Total limit time value of geochemical barrier maintenance while using experimental data concerning sorption capability of the mould box and clay in static and experimental conditions is determined by the thickness of geochemical barrier layers,  $m$ ; concentration of polluted component within liquid phase of waste,  $g/m^3$ ; sorption clay and mould box capacity concerning polluted component,  $g/m^3$ , etc.

Analyzing advantages of given product it can be assumed that it will take the important place in the market among the systems of environment contamination and protection.