

Biological preparation IXII-BX for remediation of petroleum contaminated soils

Description: Creation of modern biotechnological production on biological preparations delivery capable to effectively clear soil from petroleum contamination is planned. Production technique of preparations is wasteless, doesn't provide for use of unprofitable and expensive raw stock and materials. It is based on achievements of the biotechnological science and provides use of highly productive strains of soil microorganisms – oil-decomposers of own selection. Oil-oxidizing microorganisms are isolated from oil contaminated soils of Apsheron Peninsula various deposits (Azerbaijan). Matched microb associations are capable to stable functioning on oil products and carry out purposeful utilization of various oil fractions, including heavy grades.

At testing preparations graduations for such criteria, as concentration of oil contamination, oil composition, level of soil biological activity and type of substratum were accepted. Depending on oil composition of various deposits the optimum composition of active hydrocarbonoxidizing microorganisms strains was selected. They are obtained by a method of classic analytical selection of microorganisms isolated from soils. Biological products are nontoxic, noncarcinogenic and do not possess cumulative properties.

Innovative aspect and main advantages: For the first time technology of biological preparations manufacture on the basis of highly productive strains of soil microorganisms of own selection and the method of contaminated areas remediation have been developed taking into account ecological-climatic factors characteristic for Azerbaijan and the countries which take place on the same geographic streak, selective screening and application of hydrocarbonoxidizing cultures preparation as active material according to hydrocarbon composition of oils polluting soils of various territories distinguish the given work from previous activities.

Areas of Application: The biological preparation can be applied as an effective agent on oil spill remediation in the oil-producing and oil-refining industries. It can be interesting for Oil Pipeline Administration of the State Oil Company of the Azerbaijan Republic, BTC Company, the Ministry of Ecology and Natural Resources, and also for the countries through territories of which the pipeline

is laid, including the countries of former Soviet Union. The preparation can be interesting for oil companies, firms selling oil spill bioremediation agents.

Stage of Development: Efficiency of new biological preparations directed towards consumption of oils isolated from various deposits of Apsheron has been tested in the laboratory conditions. Destruction degree of separated fractions and oil isolated from contaminated soils makes accordingly 60-80 % and 55-60 %. On the basis of preliminary experiences results the process chart of various Apsheron oil deposits soils remediation is worked out.

Photos/Pictures:



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