

Purification of soil contaminated with petroleum pollutants with an in-situ method

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An in-situ method purification of soil, strongly contaminated with petroleum hydrocarbons, comprises of a stage introduction of the process, which enables gradual decrease in pollutants content. The process consists of the following stages: initial terrain reclamation by removal of petroleum substances from deeper layers with the use of a drainage-outflow system; basic bioremediation stimulated by bioaeration (oxygen providing by soil aeration); modification of soil reaction by lime (pH=7.5) and biogenic substances dosage as a mineral fertilizer (C:N:P=100:10:1) in order to cause activation of autochthonous microflora; bioaugmentation by inoculation with biopreparations (density $1 \cdot 10^9$ jtk/cm³) prepared on the basis of isolated, selected and multiplied non-pathogenic indigenous microorganisms. The purification process is monitored with the use of chromatographic, physico-chemical, microbiological and toxicological analyses. Purification of soil contaminated with petroleum pollutants with an in-situ method has been applied in 11 areas chosen in an oil plant situated in south-east Poland.



before purification



after purification

During the period of 3 years, the decrease in pollutants amount has been observed to a standard level of soil and ground quality. The purified terrains have been accepted as forest areas.