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STUDIES ON DIESEL OIL SPILLS REMOVAL FROM WATER SURFACE USING PEAT. PROCESS MODELLING AND OPTIMIZATION

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Abstract

Two main objectives were performed in this paper. The first objective aims to characterize the peat from physical, chemical and microbiological point of view. The second goal deals with applying of peat for Diesel oil spill removal from surface water. For this reason, the optimization of the sorption process was performed in order to improve the decontamination efficiency. The empirical model was established to express the correlation between decontamination efficiency and the process variables influencing the process, i.e. the height of sorbent column, immersion time and initial volumetric content of oil in water. Based on the mathematical model the optimal conditions of the experiment were determined by means of *GRADIENT* method. A good concordance between the optimal solution and the experimental response in this point was found. The dependence between the decontamination efficiency and the experimental variables were illustrated in 3D diagrams.

Keywords: oil spill, sorbent, mathematical modeling, experimental optimization

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