Environmental Engineering and Management Journal *September/October 2009, Vol. 8, No.5, 1269-1273*
http://omicron.ch.tuiasi.ro/EEMJ/

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EVALUATION OF PETROLEUM CONTAMINANTS IN SOIL BY FLUORESCENCE SPECTROSCOPY

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Abstract

Preliminary investigation of contaminated soil in the surrounding area of a petroleum tank has been carried out based on fluorescence techniques: excitation emission matrix (EEM) and synchronous fluorescence scan (SFS). A fluorescence fingerprints library containing several EEM and SFS maps for various dilutions of Romanian crude oil in methanol, was used to confirm the identity of the soil contaminant. A calibration curve was created to estimate the contamination level of soil samples. High polyaromatic hydrocarbon concentration in the range of 23 %, v/v was obtained nearby the petroleum tank and a lower one in the range of 0.55 %, v/v at surrounding area.

Key words: contaminated soils, crude oil, fluorescence spectroscopy

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