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EFFECT OF NONIONIC SURFACTANTS ON THE REMOVAL OF PAH FROM CONTAMINATED SOIL

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Abstract

In this study, a soil washing process in the presence of a nonionic surfactant solution of Tween 80 or Triton X-100 was investigated. Sandy soil was contaminated in the laboratory with naphthalene (10 mg/kg and 5000 mg/kg) and anthracene (25 mg/kg and 200 mg/kg), then washed with surfactant solution. A preliminary water washing step showed the performance of water in the removal of the two polycyclic aromatic hydrocarbons (PAH), especially naphthalene. The effect of Tween 80 and Triton X-100 was significant beyond the critical micellar concentration (CMC), where a concentration of 7 or 10CMC showed a great efficiency in removing PAH. Also, the effect of these surfactants was shown remarkably affected by the pH and the ionic strength.

Key words: hydrocarbon, PAH, soil remediation, surfactant

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