Nonionic surfactant enhanced flushing of contaminated sands by chlorinated solvents in one dimensional column

양중석, 백기태[1], 권태순[2], 양지원[3,*]
한국과학기술연구원; [1]금오공과대학교; [2]철도기술연구원; [3]KAIST
(jwyang@kaist.ac.kr*)

The surfactant flushing in the sand columns was performed with octylphenol ethoxylated (TX series) nonionic surfactants. The removal of TCE by TX surfactants was affected by the surfactant hydrophobicity and surfactant of high HLB number caused the mobilization of TCE. In case of PCE, the solubilization was a main removal mechanism for all tested surfactants. When NAPL was multiple components consisted of TCE and PCE, the solubilization of NAPL was influenced by mass transfer limitation. If the desired removal process of NAPL is solubilization, there is an option as results of column experiments. One thing is the introducing of high HLB surfactant in first stage. After that, the lower HLB surfactant is injected. At that time surfactant molecules are partitioned between water and NAPL, the effect of hydrophobic surfactant is minimized.