



Adsorption and stabilization of phenol by modified local clay

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Phenol is a common pollutant and was listed by US Environmental Protection Agency (EPA) among the priority pollutants. The classical methods employed for phenol removal are either not cost effective or limited in their large-scale applications like the biological and thermal decomposition methods. In this study, the adsorption of phenol by a type of clay that is extracted from a local soil called Khoweldi is described. The X-Ray diffraction revealed that the clay under study is mainly muscovite. The study showed that the local clay could be used as matrix for long-term storage of organic pollutants. Phenol adsorption isotherms conducted on natural and modified clay with Hexadecyltrimethylammonium (HDTMA) revealed that HDTMA enhanced the adsorption capacity of the clay for phenol. To prevent the migration of the adsorbed pollutants into the environment, encapsulation of the modified clay by organosilane was found to be very effective.

Key Words: Phenol, Adsorption, Clay, Encapsulation.