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**INTERACTION OF PHOSPHATES WITH BRICK CLAY PARTICLES
FOR WATER AND WASTEWATER TREATMENT**

A PROJECT REPORT PRESENTED BY

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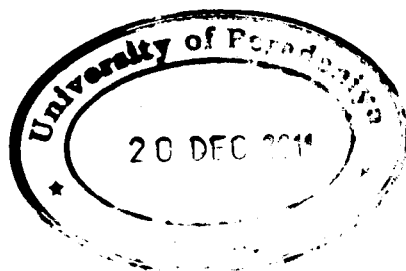
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INTERACTION OF PHOSPHATES WITH BRICK CLAY PARTICLES FOR WATER AND WASTEWATER TREATMENT

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Brick clay particles, among many naturally available substances, show a significantly high removal of metal ions, anions and organic molecules due to the availability of active sites. Interaction of chemical species with brick clay particles, and hence the extent of adsorption, depends on environmental conditions such as different sources and different locations in the pit. Consequently, pre-treatment and chemical modification methods could affect the efficiency of the removal process.

This report summarizes the results of carefully controlled experiments, performed under different experimental conditions, for the investigation of the interaction of brick clay particles, and fired at different temperatures with phosphate ions. Variation of stirring time and settling time on the extent of sorption of phosphate ions reveals that 10 min stirring and 60 min settling would be optimum. Among many firing temperatures, brick clay fired at the temperature range of 400 °C to 600 °C provides the most efficient sorption of phosphate ions. At this temperature, it is expected that organic matter present in brick clay would have decomposed exposing more sites for adsorption. Further, change in the pH of solution media affects the extent of sorption, and hence control of pH is necessary, unless the phosphate solutions have neutral pH at which adsorption is maximum. Further, concentration dependent experiments conducted at ambient temperature and pH in aqueous medium indicate that the Freundlich adsorption model, which promotes the multilayer adsorption, is obeyed by the phosphate-brick particle system.