ABSTRACT

Clays are naturally occuring soils consisting of fine sized particles which are less than 0.002 mm. The three basic minerals found in clayey soils are Kaolinite,Illite and Montmorillonite and the two non clayey minerals usually present are quartz and feldspar.Because of the plastic nature of clayey soils,clays are well suited in ceramic industry although in general they are considered as problematic soils by foundation engineers particularly in designing safe structures.

In the present investigation,an attempt has been made to examine the nature of reaction products formed in locally used clays of Malaysia which are used in the ceramic industry for the manufacture of ceramic tiles,before and after treatment with lime in different concentrations. The improvement in the plasticity characteristics of the soil has been verified by indices tests.

The beneficial changes that occured in the soil has been attributed to the formation of cementation compounds and these compounds have been identified by using X-Ray Diffraction Technique(XRD). Test results indicated that there is improvement in strength. The microstructural changes confirmed these findings and were studied using Scanning Electron Microscopy (SEM) studies. The test results indicated later show that there is an overall improvement in the structure of the soil system due to the formation of new cementation compounds.