

Suitability of eggshell stabilized lateritic soil as subgrade material for road construction

Abstract

Eggshell powder has not been used as a stabilizing material in most parts of the world. However, it could be a replacement for other types of stabilization. This study is aimed at determining the geotechnical properties of eggshell stabilized lateritic soil with a view to determining its suitability as stabilizing agent for lateritic soil. Laboratory tests were carried out on eggshell stabilized lateritic soil and Cement stabilized lateritic soil in line with BS 1377 (1990). Cement stabilized lateritic soil served as control experiment. The results of Atterberg limits, California Bearing Ratio and compaction tests indicate that eggshell-stabilized lateritic soil at 8% have similar engineering properties with Cement-stabilized lateritic soil at 2%. Though from this study, eggshell powder mixed with lateritic soil has been found to possess low binding properties, it can be used to significantly improve the strength of soil to be used as a subgrade where very high performance is not necessary. It could serve as a fair replacement for use as stabilizers for subgrade but not for base and subbase. The capacity as a stabilizer does not meet the minimum requirement for use as base and subbase materials for road construction.