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EFFECTS OF MOISTURE ON LIME-STABILIZED LATERITIC SOIL

J.A. IGE & S.O. AJAMU

Department of Civil Engineering, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

ABSTRACT

This study investigated effect of moisture content on the lime stabilized lateritic soil in Oyo-West Local Government, South-Western Area, Nigeria to determine the suitability and lime stabilization requirements of selected lateritic soil samples as pavement construction material.

The soil samples material were collected from the borrow pits within the area and subjected to laboratory tests such as California Bearing Ratio Test (CBR), Unconfined Compressive Strength (UCS), compaction test, Atterberg's Limit Test and sieve analysis in accordance with the British Standard BS1377 (1990) while the stabilization test were performed in accordance with BS1924(1990).

The grain-size analysis showed the percentage sieve No. 200 of 41.4%, this indicates low clay content sample. The liquid limit and Plastic Index values range from 9.5 and 70% and 3 and 32% respectively. Also, the Maximum Dry Density (MDD) ranges from 1.78 and 2.10 g/cm^3 and Optimum Moisture Content (OMC) 9 and 18%. The soaked and unsoaked CBR values ranges from 30 and 50% and 52 and 70%. The Unconfined Compressive Strength (UCS) increased from 146.75 and 605.75kN/m^3 for the lime-stabilized soil.

In conclusion samples with lime additive cured for 6 days with water absorption rate reduced from 51.94 to 50.41% under the same condition. The lime treatment of lateritic soils is however a remedial measure to improve the strength of soil material for road construction works n water-logged areas.

KEYWORDS: Moisture Content, Lateritic Soil and Stabilization