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APPLICABILITY STUDY OF THE OEDOMETER TEST TO A SILTY SAND

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Abstract

This paper exposes the applicability study of the oedometer test to an existing silty sand soil, from the city of Braganza, with the purpose to verify the applicability of this test to soils with fines in his composition, in a region with predominance of granite residual soils, considering that the granulometric curve of these soils are substantially different from the granulometric curves of the soils that are usually tested. For this, two types of soils were collected, namely intact samples of a silty sand, and a disturbed soil sample whose grains size distribution curve built into laboratory corresponds to a high plasticity silt. Due to the greater predominance of fines in the high plasticity silt, the mechanical behaviour of this soil, more conditioned by forces of an electrochemical nature, serves as a comparative term to the mechanical behaviour of the undisturbed samples of the silty sand, with a behaviour less dependent on these forces, thus allowing to show applicability of the test to soils with lower percentage of fines, with a more pronounced gravitational behaviour and, therefore, more atypical to the oedometer test. From the results obtained for silty sand, a high value of the immediate settlement was verified after each applied load cycle. Thus this observation, the beginning of the consolidation process demands high accurate recording of the settlement that clearly identify the time that primary consolidation begins. In this way, the implementation of the data acquisition system, allowing the correct reading of the consolidation beginning, minimizing human errors, expands the spectrum of soils existing in the region that can be study by the consolidation problematics point of view.

Keywords

Geotechnical characterization, Oedometer test, Mechanical behavior of soils, Laboratory tests



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