

EXPERIMENTAL METHOD FOR TESTING THIXOTROPIC PROPERTIES OF SOILS

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There is currently no widely used method to detect thixotropic characteristics of soil, mainly due to the complexity of soil behaviour under varying conditions. Disturbing the thixotropic structure can change the plasticity conditions and, in extreme cases, cause liquefaction. Dynamic actions, such as vibrations from vehicles, conveyor belts, or heavy machinery, as well as pile driving and drilling, can stress the soil and increase the risk of plasticization, potentially leading to unexpected settlements or foundation shifts, causing delays and additional costs in construction projects.

Work has been undertaken to construct a device for unequivocally confirm or exclude thixotropic properties of the soil. Samples of soil was prepared in such a way as to replicate its natural density and moisture content. The new methodology aims to enable the measurement of the degree of liquefaction after the sample is subjected to vibrations.

The expected result is the development of an apparatus to study thixotropic soils in conditions similar to natural ones, aiming to ensure consistency between laboratory results.

A methodology for simultaneously determining thixotropic soil properties is still lacking, but the development of an device to induce soil liquefaction makes this goal more attainable.