

# **Numerical modelling of the behaviour of a chemically stabilised soft soil considering the effect of curing time.**

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## **ABSTRACT**

The ability of the Modified Cam Clay (MCC) model combined with the Von Mises (VM) model and considering the effect of curing time on the enhancement of the mechanical properties of a chemically stabilised material is examined to simulate the behaviour of an embankment built on a soft soil reinforced with deep mixing columns.

Based on the results of undrained compressive strength (UCS) tests carried out with samples of chemically stabilised soil for different curing times (from 28 days to 360 days) [1], the evolution of the strength and stiffness over time is well replicated by a power function.

Initially, the MCC/VM models associated with the effect of curing time are validated by CIU triaxial tests, for a curing times of 28 and 90 days [1].

Finally, the behaviour of an embankment built on a soft soil reinforced with deep mixing columns is predicted based on the models/law validated previously. The results show that the effect of curing time improves the efficiency of this ground improvement technique; therefore the effect of curing time should be considered in the analysis of deep mixing columns in order to improve the numerical results.

A 2-D finite element code with several constitutive models, upgraded at the University of Coimbra and capable of carrying out elastoplastic analyses with coupled consolidation and creep, is used in these analyses [2, 3].

## **REFERENCES**

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