

## Effects of an Added Foaming Agent on Hydro-Mechanical Properties of Soil

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**Abstract :** Earth pressure balance (EPB) tunnel boring machines are designed for digging in different types of soil, especially clay soils. This operation requires the treatment of soil by lubricants to facilitate the procedure of excavation. A possible use of this soil is limited by the effect of treatment on the hydro-mechanical properties of the soil. This work aims to study the effect of a foaming agent on the hydro-mechanical properties of clay soil. The injection of the foam agent in the soil leads to create a soil matrix in which they are incorporated gas bubbles. The state of the foam in the soil is scalable thanks to the degradation of the gas bubbles in the soil.

**Keywords :** EPB, clay soils, foam agent, hydro-mechanical properties, degradation

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