

# EFFECTS OF LIME ON THE INTRINSIC SWELLING AND SHRINKAGE OF CLAY SOILS FROM SUDAN

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**ABSTRACT:** This paper presents the results of laboratory testing program carried out on expansive soil samples from different areas in Sudan, to study the effects of the addition of hydrated lime on their intrinsic swelling and shrinkage. The effects of adding different percentages of lime, in increments, on plasticity linear shrinkage and free swell were studied for three highly plastic clays, of known mineralogical composition, from the eastern, central and southern Sudan. The engineering properties of these soils significantly improved with addition of lime, i.e. swelling and shrinkage decreased with increase in lime content. The effective lime content was found to be greater than 2%. Two percent (2%) lime was added to fifteen other clay samples obtained from different locations in Sudan. The addition of this effective lime content caused liquid limit to drop by 10% to 16% and plasticity index to drop by 40% to 50% of the untreated values. The free swell and linear shrinkage showed remarkable decrease on addition of the effective lime content. The mineralogical composition of the clays seemed to affect the response to lime addition.

*Keywords:* Swelling clays; Lime Stabilization; Linear Shrinkage; Free Swell

