

## **The effect of temperature on the engineering properties of oil-contaminated sands**

Aiban S.A.

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**Abstract:** The utilization of oil-contaminated soils in construction necessitates the determination of their engineering properties. This investigation was undertaken to evaluate the effect of temperature on the strength, permeability, and compressibility of an oil-contaminated sand obtained from eastern Saudi Arabia. The sand was artificially contaminated with different grades and percentages of crude oil. The compaction and California Bearing Ratio (CBR) characteristics of the resulting mixes were evaluated. Samples were prepared at different densities and permeability, and conventional triaxial and oedometer tests were performed at different temperatures. The oedometer and triaxial setups have been modified to enable testing at controlled different temperatures. Test results show that the modified permeameter/oedometer and triaxial setups gave reliable and consistent results. In addition, the experimental results clearly show the effect of moisture content and testing temperature on the engineering properties of oil-contaminated sands. This paper will present the experimental procedure and test results related to the compaction characteristics, CBR, triaxial testing, and compressibility of the oil-contaminated sand. © 1998 Elsevier Science Ltd.