

CHEMICAL EFFECT ON HYDRO-MECHANICAL BEHAVIOR OF COMPACTED BENTONITE USED AS BUFFER MATERIAL

Speaker

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Abstract

In China, Gaomiaozi (GMZ) bentonite has been selected as the first choice of buffer/backfill material and the Beishan area in Gansu Province has been considered as the most potential repository site for high-level waste (HLW) disposal. Near the repository, the chemical effect on the barrier properties of compacted bentonite might lead to its performance failure threatening the long-term safety of HLW repositories. This presentation focuses on the C-H-M effects on the swelling and compression behavior of compacted GMZ bentonite under different conditions. Salt solutions was prepared to simulate the chemical environment near the repository site. Finally, a constitutive model of compacted GMZ bentonite will be established to describe its behavior considering the C-H-M effect. Based on the model, numerical simulations will be conducted to evaluate the deformation performance of bentonite under the salt solution conditions. The expected results could provide a theoretical basis for design and construction of repository.

Biography

Prof. Yong-Gui CHEN is a professor at College of Civil Engineering, Tongji University, China. He has long-time research experiences on unsaturated soils, geo-environmental engineering and urban engineering geology. He has been awarded 14th Youth Geological Science and Technology Award of China Geological Society, First prize of the Natural Science Award of the Ministry of Education, China (2018) and the National Science Fund for Outstanding Young Scholars (2014), the National Science Fund for Distinguished Young Scholars (2021). He has published over 150 international journal papers and 3 industry standards in his research areas.



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