

Changes in Mudrock Properties due to the Smectite Illite Transformation

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ABSTRACT

Field inspection finds that percentage of smectite drops as a function of depth. Although a lot of researches have been done on mechanism of smectite illite transformation, little work is focused on mechanic effect of illitization.

I want to understand how different degrees of illitization affect mechanic properties of mudrock. I will prepare resedimented GOM_EI material, consolidate it to an effective stress of 5MPa, and hold the temperature at 200 C to cause the transformation. For next step, I will continue loading, compare compression curve with the one that has not been transformed. In addition, mineralogy identification will be required to confirm there is a significant increase in illite percentage.

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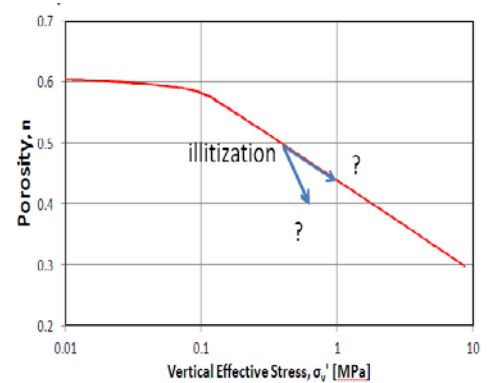


Fig. 1: Compression curve for GOM_EI, (courtesy of Brian Fahy)

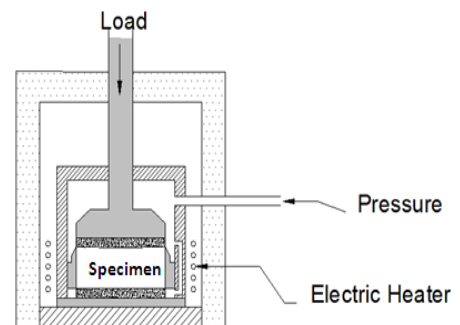


Fig. 2: Conceptual Design for the device, (courtesy of Chunwei Ge)

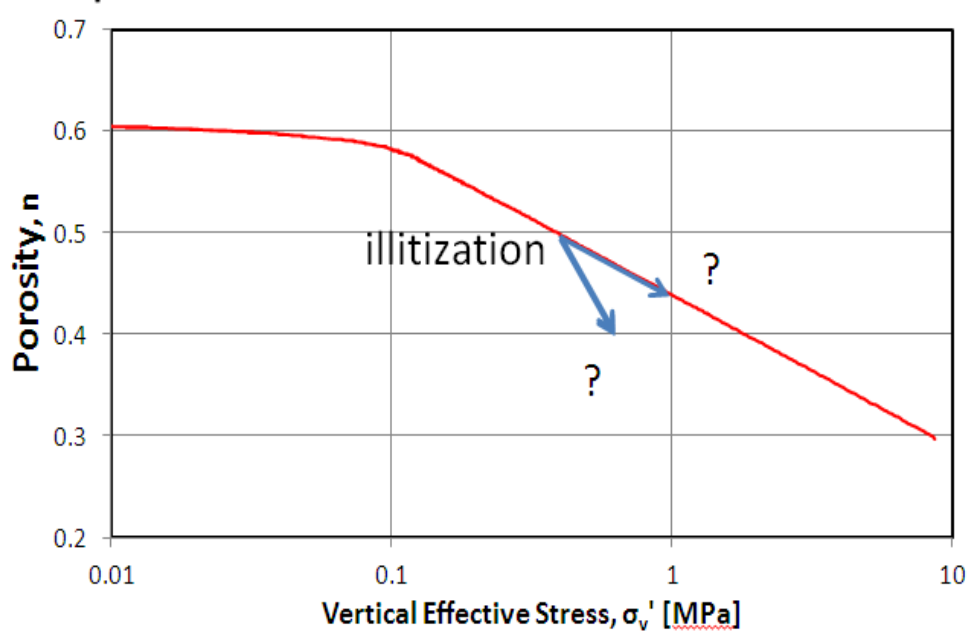


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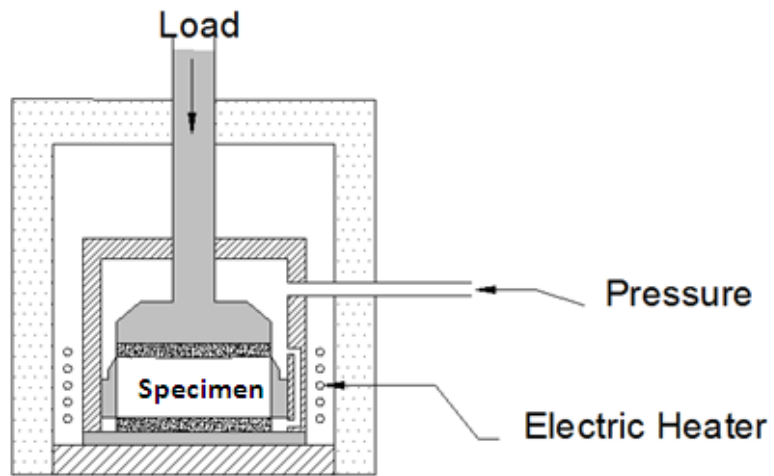


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