

# **Assessment Of The Behaviour Of Soil Structure In Double-Porosity Kaolin Media Using Light Transmission Visualization (LTV) Method**

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## **ABSTRACT**

Double-porosity is a phenomenon that occurs naturally and can be found in many subsurface media such as rock aquifers, agricultural topsoils and compacted soils. These media have different pore size characteristics that result in different hydraulic properties. Two approaches were used to create the double-porosity soil structure using kaolin clay to be tested in migration of contaminant experiments using light transmission visualization (LTV) method. Aggregated kaolin and sintered clayey spheres mixture were used as the media for the first and second test, respectively. The observation shows that the first approach is not viable for a saturated-porous medium because kaolin particles have disintegrated and turned into emulsion. In contrast, uniform kaolin particles that remain strong and solid have been produced using the second approach. In conclusion, the LTV method is viable to monitor the behaviour of fluids in porous media under different conditions.

## **KEYWORDS:**

Clayey spheres, Double-porosity, Light transmission visualization, Porous media, Soil structure

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