

Porosity and Permeability

Porosity: is a measure of the void spaces in a material

Permeability: a measure of the ability of a material (such as rocks) to transmit fluids

Porosity and permeability are related properties of any rock or loose sediment. Both are related to the number, size, and connections of openings in the rock. More specifically, porosity of a rock is a measure of its ability to hold a fluid. Mathematically, it is the open space in a rock divided by the total rock volume (solid and space). Permeability is a measure of the ease of flow of a fluid through a porous solid. A rock may be extremely porous, but if the pores are not connected, it will have no permeability. Likewise, a rock may have a few continuous cracks which allow ease of fluid flow, but when porosity is calculated, the rock doesn't seem very porous.

Louisiana subsurface sediments consist mostly of gravel, sand and clay. Clay is the most porous sediment but is the least permeable. Clay usually acts as an aquitard, impeding the flow of water. Gravel and sand are both porous and permeable, making them good aquifer materials. Gravel has the highest permeability.

