

Abstract Submitted  
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**Flow through porous media with fractal geometry: effect of wettability** D. HERNANDEZ, O. CHAVEZ, R. ZENIT, Universidad Nacional Autonoma de Mexico — We experimentally analyze the behavior of two-phase flow through porous media with a fractal geometry. We are interested in this particular case because it has been shown that many oil wells possess a fractal-type porosity structure. In the laboratory, fractal porous media were prepared considering arrays of glass spheres of different diameters and volumetric proportions. To vary the wettability, which is another factor of great importance for oil extraction, the glass spheres were treated with a hydrophobic coating. By measuring the pressure drop and the flow rate, the relative permeability was determined. Additionally, some flow visualization experiments were conducted. We found that the relative permeability increases as the wettability decreases: air bubbles tend to remain in contact with the glass surfaces, while the fluid tends to avoid them. We also discuss the changes of permeability for fractal and non-fractal porous media.

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