

Variation of Three Phase Relative Permeability in Fractured Reservoirs in Relation with Time

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Measurements of three phases relative permeability at reservoir condition is time consuming and expensive, however it is necessary for improving the oil recovery. During measurement of this parameter in carbonate rock plugs; with unsteady state method it was observed that the displacement time affects the curvature of relative permeability with long time displacement, the curvature will become linear and with short time displacement more curvature is in directed in fracture medium. These experiments show that mass transfer between phases has the main role in changing the curvatures. with high speed displacement liquids are adhere on the solid surface and the gas is passing from narrower trajectory, then relative permeability is reduced .In low speed displacement mass transfer phenomena effects the swelling and this cause increase in liquid mobility on the solid surface .Also, the pathway of passing gas is increased and relative permeability is increased by the time.