Relative Phase Mobility

A property characterising agility of the fluid α-phase under pressure gradient with account of relative permeability and dynamic fluid viscosity:

(1) $$M_{r\alpha}(s) = \frac{M}{k_{air}} = \frac{k_{r\alpha}}{\mu_\alpha}$$

where

$k_{r\alpha}(s)$	relative formation permeability to fluid α-phase
μ_α	dynamic viscosity of fluid α-phase
M	phase mobility
k_{air}	absolute permeability to air
$s = \{s_\alpha\}$	reservoir saturation $\sum_\alpha s_\alpha = 1$

In most popular case of a 3-phase fluid model this will be:

$s = \{s_w, s_o, s_g\}$	$s_w + s_o + s_g = 1$
$M_{ro} = \frac{k_{ro}}{\mu_o}$	relative oil mobility
$M_{rg} = \frac{k_{rg}}{\mu_g}$	relative gas mobility
$M_{rw} = \frac{k_{rw}}{\mu_w}$	relative water mobility

See also

Physics / Fluid Dynamics / Percolation

Petroleum Industry / Upstream / Subsurface E&P Disciplines / Field Study & Modelling

[Petrophysics] [Basic reservoir properties] [Permeability] [Absolute permeability] [Relative permeability] [Wettability] [Phase mobility] [Relative phase mobilities]