|  |  |  |
| --- | --- | --- |
| Approach | Wetting phase | Non-wetting phase |
| Purcell  (1949) |  |  |
| Burdine  (1953) |  |  |
| Parameters | : Tortuosity ratio of the wetting phase  : minimum wetting phase saturation from the capillary pressure curve () | : Tortuosity ratio of the non-wetting phase  : minimum non-wetting phase saturation from the capillary pressure curve () |

**Relative permeability models from capillary model**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Corey (1954) | Brooks-Corey (1966) | Modified Brooks-Corey Power-Law | Li & Horne (2001)  Universal/generalized |
|  |  |  |  |  |
| Purcell |  |  |  |  |
| Burdine | and |  |  |  |
| Parameters | : constant  : connate water  : residual oil | : entry pressure  : pore size distribution index  for Brooks-Corey model reduces to the Corey model | and : Corey exponents for wetting and non-wetting phases | : capillary pressure at residual oil saturation  : fractal dimension which is a representation of the heterogeneity of rock |
| Scaling Factors | Drainage: Imbibition: | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Skjaeveland (1998) | | | |
|  | |  | | |  |
| Burdine |  | **Water wet** | **Oil wet** | **Mixed wet** |  |
| **Drainage** |  |  |  |  |
| **Imbibition** |  |  |  |
| Parameters | , and : positive constants  : negative constant  : residual (connate) water  : residual oil  , and : tortuosity exponents. Burdine estimated a tortuosity exponent of 2.0 from experimental data.  For primary drainage and primary imbibition | | | |  |

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