

Wiggins IPR @ model

A specific IPR model:

$$(1) \frac{q_O}{q_{O,\max}} = 1 - \sum_{k=1}^N a_k \left(\frac{p_{wf}}{p_r} \right)^k, \quad \{p_b > p_r > p_{wf}\}, \quad \sum_{k=1}^N a_k = 1, \quad \{0 < a_k < 1\}_{k=1..N}$$

where

$q = q_O$	surface production rate of rate
q_{\max}	Absolute Open Flow (AOF) for oil
p_{wf}	bottom-hole pressure (BHP)
p_r	drainarea formation pressure
p_b	bubble-point pressure
$\{0 < a_k < 1\}_{k=1..N}$	model parameters

This is a generalisation of [Vogel](#) model and reduces to [Vogel](#) model for $a_1 = 0.2$, $a_2 = 0.8$, $\{a_k = 0 \mid \forall k > 2\}$.

See also

[Petroleum Industry / Upstream / Production / Subsurface Production / Subsurface E&P Disciplines / Field Study & Modelling / Production Analysis / Productivity Diagnostics / Inflow Performance Relation \(IPR\)](#)

[[Vogel IPR @model](#)] [[Richardson and Shaw IPR @ model](#)] [[Wiggins IPR @ model](#)] [[LIT IPR @ model](#)] [[PADE IPR @ model](#)]

References

- [Wiggins, M. L., Russell, J. E., & Jennings, J. W. \(1996, December 1\). Analytical Development Of Vogel-Type Inflow Performance Relationships. Society of Petroleum Engineers. doi:10.2118/23580-PA](#)
- [Vogel, J. V. \(1968, January 1\). Inflow Performance Relationships for Solution-Gas Drive Wells. Society of Petroleum Engineers. doi:10.2118/1476-PA](#)
- [Archer, R. A., Del Castillo, Y., & Blasingame, T. A. \(2003, January 1\). New Perspectives on Vogel Type IPR Models for Gas Condensate and Solution-Gas Drive Systems. Society of Petroleum Engineers. doi:10.2118/80907-MS](#)
- [Seidle, J. P., & Erickson, D. J. \(1993, January 1\). Use of Vogel's Inflow Performance Relation for Coal Wells. Society of Petroleum Engineers. doi:10.2118/26201-MS](#)