KGD Hydraulic Fracture @model

Synonym: KGD Hydraulic Fracture @model = Kristianovich-Geertsma-de Klerk

Fracture half-length	(1) $X_f = 0.539 \left(\frac{q^3 E'}{\mu h_f^3} \right)^{1/5} t^{2/3}$
Fracture width at well site	(2) $w_{f0} = 32.36 \left(\frac{q^3 \mu}{E' h_f^3} \right)^{1/6} t^{1/3}$
Average fracture width	(3) $\bar{w}_f = \frac{\pi}{5} w_{f0}$
Net pressure at the wellbore	(4) $p_{\text{net}} = 1.09 \left(E'^2 \mu \right)^{1/3} t^{-1/3}$

where

$t = Q(t)/q$	injection time
q	injection rate
$Q(t)$	cumulative injection over time t
h_f	fracture height
$E' = \frac{E}{1-\nu^2}$	plain stress
E	Young modulus
ν	Poisson ratio
μ	fluid viscosity

See Also

Petroleum Industry / Upstream / Well / Well-Reservoir Contact (WRC) / Hydraulic fracture / Hydraulic Fracture @model

[PKN Hydraulic Fracture @model]

Reference

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