

Beggs-Robinson (1975) oil viscosity correlations

Dead oil viscosity	od	cp	p > p _b	$\mu_{od}(T) = 10^X - 1, \quad X = 10^Z T^{c_3}, \quad Z = c_1 + c_2 \gamma_{API}$ $c_1 = 3.0324, \quad c_2 = -0.02023, \quad c_3 = -1.163$
Saturated oil viscosity	o	cp	dead	$\mu_{ob}(R_s) = A \cdot (\mu_{od})^B, \quad A = c_1 \cdot (R_s + c_2)^{c_3}, \quad B = c_4 \cdot (R_s + c_5)^{c_6}$ $c_1 = 10.715, \quad c_2 = 100, \quad c_3 = -0.515, \quad c_4 = 5.44, \quad c_5 = 150, \quad c_6 = -0.338$

where

T	°F	Fluid temperature
γ_o	frac	Oil specific gravity
γ_{API}	°API	Oil API gravity
μ_{od}	cp	Dead oil viscosity
R_s	scf/stb	Solution Gas Oil Ratio

See Also

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References

Beggs, H.D., and J.R. Robinson. "Estimating the Viscosity of Crude Oil Systems." J Pet Technol 27 (1975): 1140–1141. doi: <https://doi.org/10.2118/5434-PA>