

Standing (1942) oil correlations @model

Oil correlations based on California oil samples.

Bubble point pressure	p _b	psia		$p_b = c_1 \cdot \left[\left(\frac{R_{sb}}{\gamma_g} \right)^{c_2} 10^{-X} + c_3 \right], \quad X = c_4 \gamma_{API} + c_5 T$ $c_1 = 18.2, \ c_2 = 0.83, \ c_3 = -1.4, \ c_4 = 0.0125, \ c_5 = -0.00091$
Saturated gas solubility	R _s	scf/stb	p p _b	$R_s(p, T) = \gamma_g \cdot \left[(c_1 + c_2 p) \cdot 10^X \right]^{c_3}, \quad X = c_4 \gamma_{API} + c_5 T$ $c_1 = 1.4, \ c_2 = 1/18.2, \ c_3 = 1.2048, \ c_4 = 0.0125, \ c_5 = -0.00091$
Saturated oil formation volume factor	B _o	bbl/stb	p p _b	$B_o(p, T) = c_1 + c_2 \cdot \left[R_s(p, T) \left(\frac{\gamma_g}{\gamma_o} \right)^{c_4} + c_3 T \right]^{c_5}$ $c_1 = 0.972, \ c_2 = 1.47 \cdot 10^{-4}, \ c_3 = 1.25, \ c_4 = 0.5, \ c_5 = 1.175$

where

Location		California
p	psia	Fluid pressure
T	°F	Initial formation temperature
γ _{API}	°API	Oil API gravity
γ _o	frac	Oil specific gravity
γ _g	frac	Gas specific gravity

See Also

Petroleum Industry / Upstream / Petroleum Engineering / Subsurface E&P Disciplines / Reservoir Engineering (RE) / PVT correlations / Oil correlations

References

Standing, Marshall B., and Donald L. Katz. "Density of Natural Gases." Trans. 146 (1942): 140–149, doi.org/10.2118/942140-G

