# Standing (1942) oil correlations @model

Oil correlations based on California oil samples.

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

where

| Location | | California |
|---|---|---|
| $p$ | psia | Fluid pressure |
| $T$ | °F | Initial formation temperature |
| $\gamma_{API}$ | °API | Oil API gravity |
| $\gamma_o$ | frac | Oil specific gravity |
| $\gamma_g$ | 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