# Bubble-Point Pressure Correlations: Standing, Glasø, Marhoun and More

Bubble-point pressure of a crude oil from solution GOR, gas and oil gravity and temperature by five black-oil correlations, for comparison.

## Input parameters

Unit system: SI

| Parameter | Value | Unit |
|---|---|---|
| Solution gas-oil ratio at the bubble point | 650.00 | scf/STB |
| Gas gravity (air = 1) | 0.80000 | |
| Oil gravity | 35.000 | |
| Reservoir temperature | 200.00 | °F |
| Separator pressure (for Vasquez–Beggs) | 114.70 | psi |
| Separator temperature | 70.000 | °F |

## Calculated results

| Parameter | Value | Unit |
|---|---|---|
| Standing | 2,603.1 | psi |
| Vasquez–Beggs | 2,889.4 | psi |
| Glasø | 2,943.0 | psi |
| Marhoun | 2,768.3 | psi |
| Petrosky–Farshad | 2,982.8 | psi |
| Gas gravity corrected to 100 psig separator | 0.80000 | |

**Notes for this case**

- The comparison on six crudes: Standing 7.4 % (3.5 % with separator gas gravity), Vasquez–Beggs 4.5 %, Glasø 5.0 %, Marhoun 7.3 %, Petrosky–Farshad 6.7 % average error. Non-hydrocarbon gases raise the bubble point; these correlations ignore them.

## Formula and method

$$p_b = 18.2\left[\left(\frac{R_s}{\gamma_g}\right)^{0.83} 10^{a} - 1.4\right], \quad \log p_b = 1.7669 + 1.7447\log p_b^{*} - 0.30218(\log p_b^{*})^2, \quad p_b = a R_s^{b}\gamma_g^{c}\gamma_o^{d}T^{e}$$

### Variables

| | | |
|---|---|---|
| $R_s$ | Solution gas-oil ratio at the bubble point | m³/m³ |
| $\gamma_g$ | Gas gravity (air = 1) | - |
| $API$ | Oil gravity | - |
| $T$ | Reservoir temperature | K |
| $p_{sep}$ | Separator pressure (for Vasquez–Beggs) | Pa |
| $T_{sep}$ | Separator temperature | K |
| $p_{b,Standing}$ | Standing | Pa |
| $p_{b,VB}$ | Vasquez–Beggs | Pa |
| $p_{b,Glaso}$ | Glasø | Pa |
| $p_{b,Marhoun}$ | Marhoun | Pa |
| $p_{b,PF}$ | Petrosky–Farshad | Pa |
| $\gamma_{gs}$ | Gas gravity corrected to 100 psig separator | - |

### Method and standards

Black-oil bubble-point correlations (psia, °F, °R).

### Assumptions and limits

- Black oils; no significant non-hydrocarbons.

## Report details

| | |
|---|---|
| Report reference | FCC-N5V6-6Q9P (the same inputs always give the same reference) |
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| Calculator | Bubble-Point Pressure Correlations: Standing, Glasø, Marhoun and More |
| Method last reviewed | 17 November 2026 |
| Software release | FireCAD Calc, release of 22 November 2026 |
| Release checks | 4 reference cases of this calculator, computed independently, are checked on every release |

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

### This calculator online

https://calc.firecad.com/chemical/oil-gas/bubble-point-pressure-correlations

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.