

Initial pore compressibility

Pore compressibility at initial field formation pressure p_i .

It can be assessed from laboratory stress tests on [cores](#).

There is also a number of popular correlations on [initial formation porosity](#) ϕ_i summarized in the table below:

Correlation	Name /Author	Scope
(1) $c_\phi = 2.71 \cdot \phi_i^{-0.415} \cdot 10^{-7} \text{ kpa}^{-1}$	Hall	Consolidated sandstone under typical formation pressure
(2) $c_\phi = 1.45 \cdot \exp [4.026 - 23.07 \phi_i + 44.28 \phi_i^2] \cdot 10^{-7} \text{ kpa}^{-1}$	Newman	Consolidated limestone , $0.02 < \phi_i < 0.33$
(3) $c_\phi = 1.45 \cdot \exp [5.118 - 32.26 \phi_i + 63.98 \phi_i^2] \cdot 10^{-7} \text{ kpa}^{-1}$	Newman	Consolidated sandstone , $0.02 < \phi_i < 0.33$
(4) $c_\phi = 1.45 \cdot \exp [34.012 \cdot (\phi_i - 0.2)] \cdot 10^{-7} \text{ kpa}^{-1}$	Newman	Unconsolidated sandstone , $0.2 < \phi_i < 0.5$

See Also

[Petroleum Industry](#) / [Upstream](#) / [Subsurface E&P Disciplines](#) / [Petrophysics](#) / [Geomechanical Rock Modelling](#)

Reference

[John P. Spivey and W. John Lee, Applied Well Test Interpretation, SPE Textbook Series Vol. 13, 2013](#)