

Bulk Density

Total density of the rock and saturating fluids:

$$\rho_b = \frac{m_t}{V_t}$$

where m_t – total mass of rock element, V_t – total volume occupied by the rock element m_t .

The bulk density ρ_B is measured in $\left[10^3 \cdot \frac{\text{kg}}{\text{m}^3}\right] = \left[\frac{\text{g}}{\text{cc}}\right]$.

$$\begin{aligned} (1) \quad \rho_B &= \phi_e \rho_f + V_{sh} \rho_{sh} + V_m \rho_m = \phi_e \rho_f + V_{sh} \rho_{sh} + (1 - \phi_e - V_{sh}) \rho_m \\ (2) \quad \rho_f &= s_{xo} \rho_{mf} + (1 - s_{xo})(s_w \rho_w + s_o \rho_o + s_g \rho_g) \\ (3) \quad \rho_m &= \sum_i V_{mi} \rho_{mi} \end{aligned}$$

See also

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