

LATIHAN NO 4.

4. CaCO_3 particles are stored in 50-L bag
 Void fraction = 0,30 (liter of void space per liter of total volume)
 Specific gravity of solid $\text{CaCO}_3 = 2,93$

a. Bulk density

$$\begin{aligned} \rho_{\text{bulk}} &= \frac{2,93 \text{ kg CaCO}_3}{\text{L CaCO}_3} \times \frac{0,70 \text{ L CaCO}_3}{\text{L total}} \\ &= 2,05 \text{ kg/L} \end{aligned}$$

b. Weight of filled bags

$$\begin{aligned} W_{\text{bags}} &= \rho_{\text{bulk}} V_g \\ &= 2,05 \text{ kg/L} \times 50 \text{ L} \times 9,8 \text{ m/s}^2 \\ &= 1004,5 \text{ kg m/s}^2 \\ &= 1,00 \times 10^3 \text{ N} \end{aligned}$$

Neglected - the weight of bag

- the air in the filled bag

(Berat kantong dan udara dalam kantong diabaikan)