

Mama = Fritos Yordana Widharmo

NIM = 10521035

q. Diketahui = $V_0 = 50 \text{ L}$

$$f_{\text{void}} = 0,30$$

$$SG \text{ CaCO}_3 = 2,93$$

$$f_x = \frac{V_x}{V}$$

Ditanyakan = a. bulk density (b)

b. berat konton yang terisi penuh (w)

Jawab =

$$a. b_x = \frac{m_x}{V}$$

$$= \frac{P_x \cdot V_x}{V}$$

$$= P_x \cdot f_x$$

$$= SG \cdot \text{Pefrens} \cdot f_x$$

$$x = \text{CaCO}_3$$

$$SG \text{ CaCO}_3 = 2,93$$

Karena udara merupakan gas bisa diabaikan

$$V_{\text{mixture}} = V_{\text{void}} + V_{\text{CaCO}_3}$$

$$f_{CaCO_3} = \frac{V_{CaCO_3}}{V} = \frac{V - V_{void}}{V} = 1 - f_{void}$$

$$\begin{aligned} b_{CaCO_3} &= 2,93 \cdot 1 \text{ kg/L} \cdot (1 - 0,37) \\ &= 2,051 \text{ kg/L} \\ &= 2,1 \text{ kg/L} \end{aligned}$$

$$b. w = g \cdot m = 9,8 \text{ m/s}^2$$

$$W = 9,8 \frac{\text{m}}{\text{s}^2} \cdot M_{CaCO_3}$$

$$= 9,8 \frac{\text{m}}{\text{s}^2} \cdot b_{CaCO_3} \cdot V_0$$

$$= 9,8 \frac{\text{m}}{\text{s}^2} \cdot 2,1 \frac{\text{kg}}{\text{L}} \cdot 50 \text{ L}$$

$$W = 1,0 \text{ kN} //$$