

$$\textcircled{2} \quad W_{\text{sat}} = 54.50 \text{ g} \\ W_{\text{dry}} = 51.05 \text{ g}$$

$$V_{\text{water}} = 1.66 \text{ ml} \\ V_0 = 23.7 \text{ cm}^3$$

$$\rho_{\text{oil}} = 0.87 \text{ g/cm}^3$$

$$\rho_{\text{grain}} = 2.7 \text{ g/cm}^3$$

$$\textcircled{a} \quad V_s = \frac{W_{\text{dry}}}{\rho_{\text{grain}}} \Rightarrow V_s = 18.9 \text{ cm}^3$$

$$V_p = V_0 - V_s$$

$$V_p = 4.8 \text{ cm}^3$$

$$\phi = \frac{V_p}{V_s} \Rightarrow \boxed{\phi = 20.2\%}$$

$$\textcircled{b} \quad S_w = \frac{V_w}{V_p} = \frac{1.66}{4.8} \Rightarrow \boxed{S_w = 34.6\%}$$

$$\textcircled{c} \quad W_{\text{sat}} - W_{\text{dry}} = W_o + W_w \\ 54.5 - 51.05 = V_o(0.87) + (1)(1.66)$$

$$V_o = 2.06 \text{ cm}^3$$

$$S_o = \frac{V_o}{V_p} \Rightarrow \boxed{S_o = 42.9\%}$$

$$S_g = 1 - S_w - S_o \Rightarrow \boxed{S_g = 22.5\%}$$