

A bulb contains 1.250 g of He at a temperature of 16.50 °C and a pressure of 760.0 torr. Determine the volume.

$$T = 16.5 \text{ }^{\circ}\text{C} + 273 = 289.5\text{K}$$

$$P = 760.0 \text{ torr} = 101325 \text{ Pa}$$

$$P*V = m*R*T/M(\text{He})$$

$$V = m*R*T/(M(\text{He})*P)$$

$$V = (1.250\text{g} * 8.31\text{J/mol} * \text{K} * 289.5\text{K}) / (4\text{g/mol} * 101325\text{Pa}) = 0.0074 \text{ m}^3 = 7.4 \text{ L}$$

Answer provided by www.AssignmentExpert.com