

Task

Using the ideal gas equation, a balloon contains 1.82 mol of oxygen gas at 303K and a pressure of 452 Torr. What is the volume in L of the balloon?

Solution

- 1) The ideal gas equation: $pV = nRT$;
- 2) Transfer task data into convenient values :
 $P = 452 \text{ Torr} = 0,595 \text{ atm}$; $R = 0,082 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}}$; $n = 1,82 \text{ mol}$; $T = 303 \text{ K}$;
- 3) $V = \frac{nRT}{p} = \frac{1,82 \cdot 0,082 \cdot 303}{0,595} = 76 \text{ (L)}$

Answer

The volume of the balloon is $V = 76 \text{ (L)}$.

Answer provided by www.AssignmentExpert.com