

## Answer on Question#55457 – Chemistry – Other

### Question:

A sample of gas occupies 135ml at 22.5 degrees Celsius the pressure is 165mm Hg. whats the pressure of the gas sample when its placed in a 252ml flask at a temperature of 0 degrees Celsius?

### Solution:

P – pressure (mm Hg or Pa);

T – temperature (K)

V – volume (L);

V1 = 135 ml = 0.135 L;

V2 = 252 ml = 0.252 L;

T1=22.5 °C = 295.65 K;

T2 = 0 °C = 273.15 K;

P1 = 165 mm Hg = 21998,2 Pa;

P2 - ?

According to the Boyle's law:

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2};$$

$$P_2 = \frac{P_1 V_1 T_2}{T_1 V_2};$$

P2 = 81.67 mm Hg;

**Answer:** 81.67 mm Hg; (108 kPa).