Answer on Question #68935 Physics / Other

What the density of the O_3 of respect oxygen in the situation of same temperature and pressure?

Solution:

From the equation of state for perfect gas

$$PV = \frac{m}{M}RT$$

the density of gas is given by

$$\rho = \frac{m}{V} = \frac{PM}{RT}.$$

So, in the situation of same temperature and pressure

$$\frac{\rho(O_3)}{\rho(O)} = \frac{M(O_3)}{M(O)} = \frac{3\times16}{16} = 3.$$

Thus the density of the O_3 of respect oxygen in the situation of same temperature and pressure is three times larger.

Answers: three times larger.