**Fact #1: Partial Pressures add up to total pressure**

**Remember:**

**Units**

**Pressure will change if conditions change, in which case you can use the combined gas law.**

1. A 250 mL sample of oxygen is collected over water at 25° C and 760.0 torr pressure. What is the pressure of the dry gas alone? (Vapor pressure of water at 25° C = 23.8 torr)

2. A metal tank contains three gases: oxygen, helium, and nitrogen. If the partial pressures of the three gases in the tank are 35 atm of O2, 5 atm of N2, and 25 atm of He, what is the total pressure inside of the tank?

3. Two flasks are connected with a stopcock. The first flask has a volume of 5 L and contains nitrogen gas at a pressure a pressure of 0.75 atm. The second flask has a volume of 8 L and contains oxygen gas at a pressure of 1.25 atm. When the stopcock between the flasks is opened and the gases are free to mix, what will the pressure be in the resulting mixture?

4. Blast furnaces give off many unpleasant and unhealthy gases. If the total air pressure is 0.99 atm, the partial pressure of carbon dioxide is 0.05 atm, and the partial pressure of hydrogen sulfide is 0.02 atm, what is the partial pressure of the remaining air?

5. 790 torr of gas is collected over water at 25 degrees Celsius. (Vapor pressure of water is 23.12 torr at 25 degrees Celsius). What is the partial pressure of the gas collected?

6. A 250. mL sample of O2 is collected over H2O at 25oC and 760.0 mm Hg pressure. What is the pressure of the dry gas alone? (Vapor pressure of water at 25oC = 23.8 mm Hg)

**Fact #2: The mole fraction is equal to the pressure fraction for a particular gas in a mixture**

1. A mixture of 2.00 moles of H2, 3.00 moles of NH3, 4.00 moles of CO2 and 5.00 moles of N2 exerts a total pressure of 800. torr. What is the partial pressure of each gas?

2. The partial pressure of F2 is 300. torr in a mixture of gases where the total pressure is 1.00 atm. What is the mole fraction of F2?

3. What’s the partial pressure of carbon dioxide in a container that holds 5 moles of carbon dioxide, 3 moles of nitrogen, and 1 mole of hydrogen and has a total pressure of 1.05 atm?

4. A mixture of 2 moles of hydrogen gas, 3 moles of ammonia gas, 4 moles of carbon dioxide, and 5 moles of nitrogen exerts a total pressure of 800 torr. What is the partial pressure of each gas?

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