

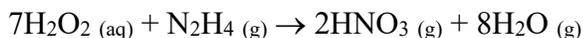
Chemistry Module 12 Homework

Assignment #2

- State Dalton's law of partial pressures.
- Two steel containers of equal volume contain two different gases at the same temperature. The first holds 2.5 moles of N_2 gas and the second holds 2.5 moles of CO_2 gas. Would the pressure in the containers be the same or different? If it is different, which container has the higher pressure?
- A metal cylinder contains 1 mole of helium gas at STP. What will be the pressure in the cylinder if another mole of gas is added to the cylinder, but the temperature and volume do not change?
- The temperature of a beaker of isopropyl alcohol is lowered from $40^\circ C$ to $25^\circ C$. Did the alcohol's vapor pressure increase, decrease, or stay the same?
- A chemist collects carbon dioxide over water at $28.0^\circ C$. If the gas in the collection vessel has a pressure of 812 torr, what is the pressure of carbon dioxide in the vessel? Use Table 12.1.
- A steel cylinder is filled with 5.00 atm of nitrogen, 3.00 atm of oxygen, and 2.0 atm of argon. What is the total pressure in the cylinder? What is the mole fraction of each gas?
- A 15.0 gram gas mixture contains N_2 and CO_2 . There are 4.0 grams of N_2 in the mixture, and the total pressure of the mixture is 3.00 atm. Find the partial pressures of each gas. Make a table to help you find the answer.

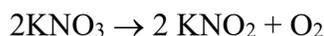
	Grams	Moles	Mole Fraction	Partial Pressure
N_2				
CO_2				
Total				

- The mixture of gases released from a factory's smokestack is collected and analyzed. If the mixture is found to contain 18.0 g of SO_2 gas, 14.5 g of NO gas, and 3.0 g of SO_3 gas. The total pressure of the gas is 780 torr. Find the mole fraction and partial pressure of each gas. (Make a table.)
- What is the volume of 20.0 g of fluorine gas at 1.00 atm and $28.0^\circ C$?
- Calculate the number of liters occupied at STP by:
 - 1.5 mol N_2
 - 0.72 g H_2
 - 0.350 mol O_2
- What pressure will be exerted by 0.450 mol of helium gas at $25^\circ C$ if it is contained in a vessel with a volume of 650 cm^3 ?
- One common rocket engine uses the following reaction:



If the rocket engine contains 225.00 grams of H_2O_2 and an excess of N_2H_4 , what volume of water vapor will be produced when the rocket fires up to a temperature of $550^\circ C$ and a pressure of 1.4 atm?

- In the laboratory, oxygen gas is produced by heating potassium nitrate.



At STP, how many liters of O_2 could be produced from 37.0 g KNO_3 ?