

Dalton's Law of Partial Pressures

65. A container holds three gases: oxygen, carbon dioxide, and helium. The partial pressures of the three gases are 2.00 atm, 3.00 atm, and 4.00 atm, respectively. What is the total pressure inside the container?

66. A container with two gases, helium and argon, is 30.0% by volume helium. Calculate the partial pressure of helium and argon if the total pressure inside the container is 4.00 atm.

67. If 60.0 L of nitrogen is collected over water at 40.0 °C when the atmospheric pressure is 760.0 mm Hg, what is the partial pressure of the nitrogen?

68. 80.0 liters of oxygen is collected over water at 50.0 °C. The atmospheric pressure in the room is 96.00 kPa. What is the partial pressure of the oxygen?

69. A tank contains 480.0 grams of oxygen and 80.00 grams of helium at a total pressure of 7.00 atmospheres. Calculate the following.

- How many moles of O₂ are in the tank?
- How many moles of He are in the tank?
- Total moles of gas in tank.
- Mole fraction of O₂.
- Mole fraction of He.
- Partial pressure of O₂.
- Partial pressure of He.

70. A tank contains 5.00 moles of O₂, 3.00 moles of neon, 6.00 moles of H₂S, and 4.00 moles of argon at a total pressure of 1620.0 mm Hg. Complete the following table

	O ₂	Ne	H ₂ S	Ar	Total
Moles					18.00
Mole fraction					1
Pressure fraction					1
Partial Pressure					1620.0

93. 690.0 mL of oxygen are collected over water at 26.0 °C and a total pressure of 725.0 mm of mercury. What is the volume of dry oxygen at 52.0 °C and 800.0 mm pressure?

94. 400.0 mL of hydrogen are collected over water at 18.0 °C and a total pressure of 740.0 mm of mercury.

- What is the partial pressure of H₂?
- What is the partial pressure of H₂O?
- What is the volume of DRY hydrogen at STP?

100. A sample of oxygen collected over water when the atmospheric pressure was 1.002 atm and the room temperature, 25.5 °C occupied 105.8 mL. What would be the volume of this dry gas at standard conditions?

Ideal Gas Law

104. How many moles of gas are contained in 890.0 mL at 21.0 °C and 750.0 mm Hg pressure?
105. 1.09 g of H₂ is contained in a 2.00 L container at 20.0 °C. What is the pressure in this container in mm Hg?
106. Calculate the volume 3.00 moles of a gas will occupy at 24.0 °C and 762.4 mm Hg.
107. What volume will 20.0 g of Argon occupy at STP?
113. What volume would 32.0 g of NO₂ gas occupy at 3.12 atm and 18.0 °C?
118. Determine the number of grams of carbon dioxide in a 450.6 mL tank at 1.80 atm and minus 50.5 °C. Determine the number of grams of oxygen that the same container will contain under the same temperature and pressure.
125. 96.0 g. of a gas occupies 48.0 L at 700.0 mm Hg and 20.0 °C. What is its molecular weight?
128. At STP 0.250 liter of an unknown gas has a mass of 1.00 gram. Calculate its molar mass.
134. A 50.00 liter tank at minus 15.00 °C contains 14.00 grams of helium gas and 10.00 grams of nitrogen gas.
- Determine the moles of helium gas in the tank.
 - Determine the moles of nitrogen gas in the tank.
 - Determine the mole fraction of helium gas in the tank.
 - Determine the mole fraction of nitrogen gas in the tank.
 - Determine the partial pressure of helium gas in the tank.
 - Determine the partial pressure of nitrogen gas in the tank.
 - Determine the total pressure of the mixture in the tank.
 - Determine the volume that the mixture will occupy at STP.