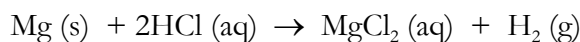
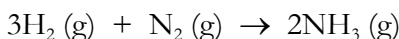


Extra Problems for Chapter 10

1. Convert 25.0 °C into Kelvin.
2. Dry ice has a temperature of 195 K. What is that temperature in degrees Celsius?
3. A balloon contains 149.6 mL of gas at a pressure of 567 torr. If the temperature doesn't change, what is the volume of the gas at a pressure of 981 torr?
4. A flexible container starts with a volume of 16.7 liters at a temperature of 25.0 °C. If the pressure doesn't change, what is the volume if the temperature rises to 150.0 °C?
5. A gas-filled balloon has a volume of 15.6 liters at ground level, where the temperature is 25.0 °C and the pressure is 1.01 atm. It rises to an altitude where the temperature is -12.1 °C, and the pressure is 0.10 atm. What is the volume of the balloon?
6. How many moles of water vapor are present in a 615-mL container at 21.5 °C and 745 torr?
7. What is the volume of 100.0 grams of ammonia (NH₃) at 84.5 °C and a pressure of 869 torr?
8. How many liters of hydrogen are made at 25.0 °C and 1.12 atm when 25.0 grams of magnesium react with excess HCl according to the following equation?

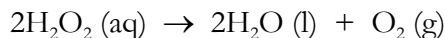


9. A chemist wants to make 6 liters of ammonia according to the following reaction:



How many liters of hydrogen will she need at STP?

10. A balloon is filled with 715 torr of hydrogen gas and 345 torr of nitrogen gas. What is the mole fraction of each gas?
11. A container holds 0.54 moles of argon gas, 0.92 moles of hydrogen gas, and 0.45 moles of nitrogen gas. If the total pressure of the gases is 5.1 atm, what is the partial pressure of each gas?
12. A chemist makes oxygen gas by the decomposition of hydrogen peroxide:



He collects the oxygen over the water in which the reaction is taking place. If he collects 1.45 liters of oxygen at 0.921 atm and 30.0 °C, how many moles of oxygen gas did he make? (You can use the table on page 311 for this.)