

Chemistry – Unit 9B Worksheet 2

1. What volume does 16.0 g of O₂ occupy at STP?
2. A mixture contains 5.00 g each of O₂, N₂, CO₂, and Ne gas. Calculate the volume of this mixture at STP
3. A 250 mL flask of hydrogen gas is collected at 763 mm and 35°C by displacement of water from the flask. The vapor pressure of water at 35°C is 42.2 mmHg. How many moles of hydrogen gas are in the flask?
4. When calcium carbonate is heated strongly, carbon dioxide gas is evolved.
$$\text{CaCO}_3(\text{s}) \longrightarrow \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$$

If 4.74 g of calcium carbonate is heated, what volume of CO₂ (g) would be produced when collected at STP?

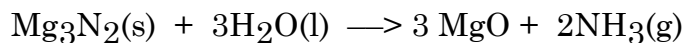
5. Zinc metal reacts vigorously with chlorine gas to form zinc chloride. What volume of chlorine gas at 25°C and 1.00 atm is required to react completely with 1.13 g of zinc?

6. Consider the following reaction:



What mass of P₄ will completely react with 2.50 L of hydrogen gas, at 0°C and 1.50 atm pressure?

7. If water is added to magnesium nitride, ammonia gas is produced when the mixture is heated.



If 10.3 g of magnesium nitride is treated with water, what volume of ammonia gas would be collected at 20°C and 0.989 atm?

8. Nitrogen gas and hydrogen gas combine to produce ammonia gas (NH₃). What volume of hydrogen gas at 25°C and 735 mm is required for the complete reaction of 10.0g of nitrogen?