

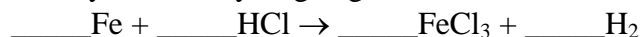
Gas Stoichiometry Practice Problems

Name: _____

Pd: _____ Date: _____

Assume all gases are at STP unless stated otherwise.

Example: How many liters of hydrogen gas can be formed from 5.58 grams of iron?



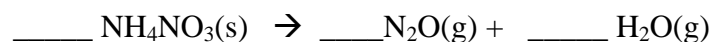
1. What volume of oxygen is needed to react with solid sulfur to form 3.5 L SO₂?



2. How many liters of propane gas (C₃H₈) will undergo complete combustion with 34.0L of oxygen gas?
Equation:

Calculation:

3. Ammonium nitrate is a common ingredient in chemical fertilizers. Use the reaction shown to calculate the mass of solid ammonium nitrate that must be used to obtain 0.100 L of dinitrogen monoxide gas at STP.



4. Calcium carbonate forms limestone, one of the most common rocks on Earth. It also forms stalactites, stalagmites, and many other types of formations found in caves. When calcium carbonate is heated, it decomposes to form solid calcium oxide and carbon dioxide gas.

How many liters of carbon dioxide will be produced at STP if 2.38 g of calcium carbonate reacts completely?

Equation:

Calculation:

5. When iron rusts, it undergoes a reaction with oxygen to form iron(III) oxide.
Calculate the volume of oxygen gas at STP that is required to completely react with 52.0 g of iron.

Equation:

Calculation:

6. Solid potassium metal will react with Cl₂ gas to form ionic potassium chloride. How many liters of Cl₂ gas are needed to completely react with 204 g of potassium at STP?

Equation:

Calculation:

Bonus Problem:

7. Determine how many moles of water vapor will be produced at 1.00 atm and 200° C by the complete combustion of 10.5 L of methane gas (CH₄).



Ans: (IRO + 2) 9.70 6.80 0.357 58.44 0 .533 3.5 11.5 15.6 0.541

Unit: L L L L L g mol