

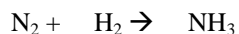
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Chemistry

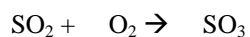
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Other Stoichiometry Problems

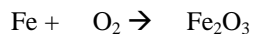
1. Nitrogen gas reacts with hydrogen gas to form gaseous ammonia, NH_3 . If you are given 45.5 liters of hydrogen and excess nitrogen, how many liters of ammonia can you produce?



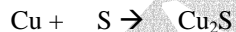
2. Sulfur dioxide, SO_2 , gas reacts with oxygen gas to form sulfur trioxide, SO_3 , gas. How many liters of oxygen are needed to produce 18.9 liters of sulfur trioxide?



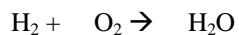
3. Solid iron reacts with oxygen gas to form solid iron(III) oxide. How many liters of oxygen gas are needed to produce 84.0 grams of solid iron(III) oxide?



4. Solid copper reacts with solid sulfur to produce solid cuprous sulfide. How many molecules of cuprous sulfide can you produce from 630 grams of copper and excess sulfur.



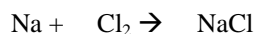
5. Hydrogen gas reacts with oxygen gas to form water vapor. How many liters of hydrogen gas are needed to produce 88 liters of water vapor?



6. Solid calcium carbide, CaC_2 , reacts with liquid water to produce acetylene, C_2H_2 , gas and aqueous calcium hydroxide. If you are given 400. grams of calcium carbide, how many liters of acetylene gas can you produce?



7. Solid sodium reacts with chlorine gas to produce solid sodium chloride. If you are given 7.5×10^{23} molecules of sodium, how many grams of sodium chloride can you produce?



8. Solid tin reacts with hydrogen fluoride gas to form solid tin(II) fluoride and hydrogen gas. How many grams of tin are needed to produce 9.4 liters of hydrogen gas?



9. Solid calcium carbonate decomposes to form solid calcium oxide and carbon dioxide, CO_2 , gas. If you have 900. grams of calcium carbonate, how many molecules of carbon dioxide gas can you produce?



10. Calculate the amount of liters of both water vapor and carbon dioxide gas produced in the complete combustion of 12.5 gallons of octane, C_8H_{18} , the main ingredient in gasoline. 1 gallon of gasoline = 3.785 liquid liters of gasoline, the density of gasoline is 0.777 g/mL.

