

Non Sibi High School

Andover's Chem 550/580: Advanced Chemistry

Chapter 4, Review Quiz 1

1

Balance the equation $\text{N}_2\text{O}_5 \rightarrow \text{NO}_2 + \text{O}_2$ using the smallest possible whole-number coefficients.

2

The density of CS_2 is 1.26 g/mL. Given the unbalanced equation $\text{CS}_2 + \text{O}_2 \rightarrow \text{CO}_2 + \text{SO}_2$, how many liters of CS_2 must react to produce 4.2×10^3 g of SO_2 ?

3

Given the unbalanced equation $\text{CaCO}_3 + \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2 + \text{CO}_2 + \text{H}_2\text{O}$, if 16.8 grams of CaCO_3 is mixed with 11.0 grams of $\text{HC}_2\text{H}_3\text{O}_2$:

- Which is the limiting reagent and what maximum mass of CO_2 can form?
- What mass of the excess reagent remains when the reaction is complete?

4

Given the unbalanced equation $\text{Pb}(\text{NO}_3)_2 + \text{KI} \rightarrow \text{PbI}_2 + \text{KNO}_3$, if 4.1 grams of KI react with an excess of $\text{Pb}(\text{NO}_3)_2$ and then 4.9 grams of PbI_2 are actually collected, what is the percent yield of the reaction?

5

A 2.85 gram sample of a solid mixture contains MgH_2 as well as unreactive material. When added to water, only the MgH_2 in the mixture reacts to produce 0.0575 grams of H_2 according to the unbalanced equation $\text{MgH}_2 + \text{H}_2\text{O} \rightarrow \text{Mg}(\text{OH})_2 + \text{H}_2$. What is the percent by mass of MgH_2 in the mixture?



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Contact: kcardozo@andover.edu