STOICHIOMETRY: PERCENT YIELD NOTES

Ketzbook's Stoichiometry Tricks Video

Vocabulary:

- _____ _____- The maximum amount of product you can make with what you have.

- _____ _____-The amount of product that is actually made and collected.

- _____ _____- Tells you how well your reaction actually worked.

Percent Yield Set up:

$$\overline{\qquad\qquad\qquad} \qquad X \qquad = Percent\ Yield$$

Steps for Calculating Percent Yield:

1. Solve for the theoretical yield by following the steps for grams to grams conversions:
   a) Balance the equation.
   b) Convert grams A given in the problem to moles of A by dividing by the molar(molecular) mass of A from the periodic table.
   c) Determine the mole to mole ratio between A and B.
   d) Convert moles of B to the mass of B by multiplying the molecular mass of B.
   e) Multiply across, divide bottom.
2. Divide the theoretical yield from the actual provided in the question.
3. Multiply by 100 to get the percentage.

Problem:

In the lab, 10.0 g of $KClO_3$ were carefully decomposed, and 3.41 g of O_2 gas were collected.

What are the theoretical, actual, and percent yields of the reaction?

1. Balance reaction:

   $2KlO_3 \rightarrow 2KCl + 3O_2$

2. Mass of A(KlO_3) given:

3. Molar mass of A(KlO_3):

4. Mole to mole ratio of A and B:

5. Molar Mass of B(O_2):

6. Use the given information to solve for theoretical yield: =

7. Solve for the percent yield:

X   and   =

_____

If your actual yield is greater than your theoretical, what could that suggest?

K20
L•E•A•R•N