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Date: _____ Per: _____

Mr. Leal
Chemistry/Honors - 11/12/2012

Stoich WS 2: Mass – Mass

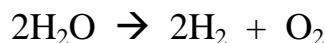
To solve Mass- Mass Stoichiometry problems, you should follow this approach:

- ½) Relax
- 1) Always start with a balanced equation. Label the mass given as A_1 and the mass of the substance to find as B_1 .
 - 2) The first Conversion Factor changes Mass of A_1 to Moles of A_1 by using the **Molar Mass**.
 - 3) The second Conversion Factor is the **Mole Ratio** made by using the **Coefficients** from the balanced equation to convert Moles of A_1 to Moles of B_1 .
 - a. Set the Mole Ratio like this:

- 4) The third Conversion Factor converts the new Moles B_1 into Mass B_1 using the molar mass.

Example:

How many grams of Oxygen gas are created by the electrolysis of 15.000 grams water in the following equation:



½ = Relax

- 1) = Check to balance the equation. Yes it is balanced. Now put an A_1 on top of the mass given (the water) and a B_1 on the mass of the substance to find.
- 2) *Now convert the mass of A_1 into moles of A_1 :*

$$15.000 \text{ grams H}_2\text{O} \times \text{_____} = 0.83333 \text{ mol H}_2\text{O}$$

- 3) *Set up the mole ratio of B_1 / A_1 and multiply.*

$$0.83333 \text{ mol H}_2\text{O} \times \frac{1 \text{ mol O}_2}{2 \text{ mol H}_2\text{O}}$$

Multiply the mole ratio by 0.83333 mol H_2O to get 0.41667 mol O_2

- 4) *Convert 0.41667 mol O_2 into grams*

$$0.41667 \text{ mol O}_2 \times 32 \text{ grams / mol O}_2 = \mathbf{13.333 \text{ grams O}_2}$$

All together =

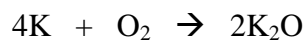
$$15.000 \text{ grams H}_2\text{O} \times \text{_____} \times \text{_____} \times \text{_____} = 13.333 \text{ grams O}_2$$

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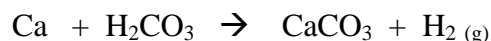
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- 1) Calculate the mass of Potassium Oxide produced from 8.50 grams Potassium that is reacted with excess Oxygen gas according to the following equation:



- 2) Calculate the mass of Calcium needed to produce 10.5 grams Calcium Carbonate according to the following equation:



- 3) Calculate the mass of each product if you started with 5.965 g $\text{C}_6\text{H}_{12}\text{O}_6$ according to the following equation:



(Hint: remember step 1 of the 4 ½ step method)

- 4) Calculate the mass of each product if you started with 10.25 moles of Sn according to the following equation:

