

ANSWERS

Grams, moles.

Chemistry: <http://genest.weebly.com>

Stop in for help every day at lunch and Tues & Thurs after school!



Justin Czupponer & Sarah Outen, first modern crossing of the Aleutian Islands by kayak

Name _____

Period _____

1. Find the number of grams of O_2 which are needed to produce 20.0 g of P_2O_5 at STP, according to this balanced equation:



20.0 g P_2O_5	$\frac{1 \text{ mol } P_2O_5}{141.94 \text{ g } P_2O_5}$	$\frac{5 \text{ mol } O_2}{2 \text{ mol } P_2O_5}$	$\frac{32.00 \text{ grams } O_2}{1 \text{ mol } O_2}$	=	11.3 11.3 grams O_2
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~~You may use the molar masses you found in the previous problems.~~

2. For the same reaction described in the previous problem, find the number of grams of O_2 which are needed to produce 9.34×10^{-4} g of P_2O_5 at STP

$$9.34 \times 10^{-4} \text{ g } P_2O_5 \times \left(\frac{1 \text{ mol } P_2O_5}{141.94 \text{ g } P_2O_5} \right) \times \left(\frac{5 \text{ mol } O_2}{2 \text{ mol } P_2O_5} \right) \times \left(\frac{32 \text{ gram } O_2}{1 \text{ mol } O_2} \right) = 5.2 \times 10^{-4} \text{ grams}$$

3. For the same reaction described in the previous problem, find the number of grams of P_4 which are needed to react with 5.35×10^5 g of O_2 at STP

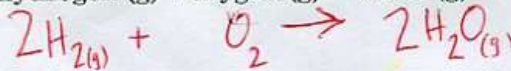
$$5.35 \times 10^5 \text{ g } O_2 \times \left(\frac{1 \text{ mol } O_2}{32.00 \text{ grams } O_2} \right) \times \left(\frac{1 \text{ mol } P_4}{5 \text{ mol } O_2} \right) \times \left(\frac{123.9 \text{ grams } P_4}{1 \text{ mol } P_4} \right) = 414000 \text{ grams } P_4$$

4. Rewrite these as symbolic, balanced equations:

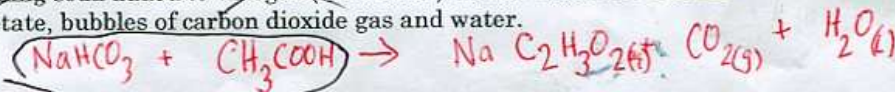
a. sodium iodide (aq) + potassium nitrate (aq) \rightarrow potassium iodide (s) + sodium nitrate (aq)



b. hydrogen (g) + oxygen (g) \rightarrow water (g)



c. Baking soda added to vinegar (acetic acid) makes dissolved sodium acetate, bubbles of carbon dioxide gas and water.



4c
SKIP

A N S W E R S

5. For this balanced reaction, calculate the following



a. If 0.446 moles of oxygen gas react, how many moles of C_6H_6 will react?

$$0.446 \text{ mol O}_2 \times \left(\frac{2 \text{ mol C}_6\text{H}_6}{15 \text{ mol O}_2} \right) = 0.0595 \text{ mol C}_6\text{H}_6$$

just one step necessary!

b. If 3.44×10^3 moles of carbon dioxide form, how many moles of C_6H_6 reacted?

$$3.44 \times 10^3 \text{ mol CO}_2 \times \left(\frac{2 \text{ mol C}_6\text{H}_6}{12 \text{ mol CO}_2} \right) = 5730 \text{ mol}$$

c. If 0.094 moles of oxygen gas react, how many moles of carbon dioxide will form?

$$0.094 \text{ mol O}_2 \times \left(\frac{12 \text{ mol CO}_2}{15 \text{ mol O}_2} \right) = 0.075 \text{ mol CO}_2$$

6. For this balanced reaction, calculate the following



a. If 0.746 moles of water react, how many moles of CaH_2 will react?

$$0.746 \text{ mol H}_2\text{O} \times \left(\frac{1 \text{ mol CaH}_2}{2 \text{ mol H}_2\text{O}} \right) = 0.373 \text{ mol CaH}_2$$

b. If 7.40×10^{-3} moles of calcium hydroxide form, how many moles of H_2O reacted?

$$7.40 \times 10^{-3} \text{ mol Ca(OH)}_2 \times \left(\frac{2 \text{ mol H}_2\text{O}}{1 \text{ mol Ca(OH)}_2} \right) = 1.48 \times 10^{-2} \text{ mol H}_2\text{O}$$

c. If 9.94 moles of calcium hydride react, how many moles of hydrogen gas will form?

$$9.94 \text{ mol CaH}_2 \times \left(\frac{2 \text{ mol H}_2}{1 \text{ mol CaH}_2} \right) = 19.9 \text{ mol H}_2$$

8. (Just for fun) Email to me the name of a woman that you would like to see in one of our worksheets this month for women's history month.