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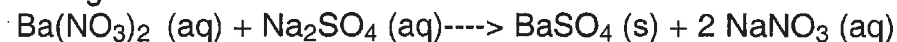
Chemistry 11
STOICHIOMETRY
PERCENT YIELD WORKSHEET

1. 20.0 grams of Bromic acid, HBrO_3 , is reacted with excess HBr :



- a. What is the THEORETICAL YIELD of Br_2 for this reaction?
- b. If 47.3 g of Br_2 is produced, what is the PERCENTAGE YIELD of Br_2 ?

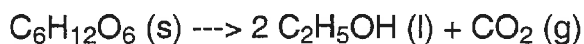
2. For the following reaction:



When 35.0 g of $\text{Ba}(\text{NO}_3)_2$ is reacted with excess Na_2SO_4 , 29.8 g of BaSO_4 is recovered by the chemist.

- a. Calculate the THEORETICAL YIELD of BaSO_4 .
- b. Calculate the PERCENT YIELD of BaSO_4 .

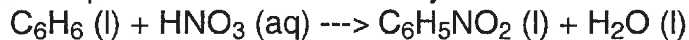
3. Yeast can act on sugar, such as glucose, $\text{C}_6\text{H}_{12}\text{O}_6$, to produce ethyl alcohol, $\text{C}_2\text{H}_5\text{OH}$, and Carbon dioxide.



If 223 g of ethyl alcohol are recovered after 1.63 kg of glucose react, what is the PERCENTAGE YIELD of ethyl alcohol?

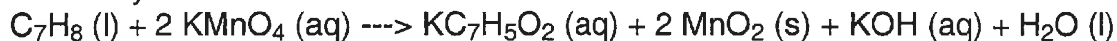
4. Solid Calcium carbonate decomposes into solid Calcium oxide and Carbon dioxide gas. Under certain circumstances this reaction proceeds with a 92.4% yield of Calcium oxide. How many grams of Calcium oxide can the chemist actually obtain if 12.4 g of Calcium carbonate is heated?

5. The following reaction proceeds with a 70.0% yield.



Calculate the mass of $\text{C}_6\text{H}_5\text{NO}_2$ actually obtained if 12.8 g of C_6H_6 reacts with excess HNO_3 .

6. The reaction of toluene, C_7H_8 , with Potassium permanganate, KMnO_4 , gives less than a 100% yield.

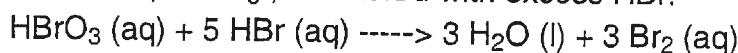


- a. 8.60 g of C_7H_8 is reacted with excess KMnO_4 . What is the THEORETICAL YIELD, in grams, of $\text{KC}_7\text{H}_5\text{O}_2$?
- b. If the Percent Yield is 70.0%, what mass of $\text{KC}_7\text{H}_5\text{O}_2$ can be actually obtained?
- c. What mass of C_7H_8 is needed to produce 13.4 g of $\text{KC}_7\text{H}_5\text{O}_2$ assuming a yield of 60.0%?

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 PERCENT YIELD WORKSHEET**

1. 20.0 grams of Bromic acid, HBrO_3 , is reacted with excess HBr :

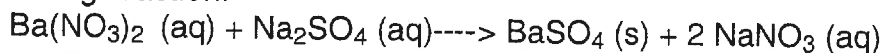


a. What is the THEORETICAL YIELD of Br_2 for this reaction?

b. If 47.3 g of Br_2 is produced, what is the PERCENTAGE YIELD of Br_2 ?

a) 74.4 g Br_2
 b) 63.6% Br_2

2. For the following reaction:



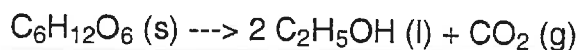
When 35.0 g of $\text{Ba}(\text{NO}_3)_2$ is reacted with excess Na_2SO_4 , 29.8 g of BaSO_4 is recovered by the chemist.

a. Calculate the THEORETICAL YIELD of BaSO_4 .

b. Calculate the PERCENT YIELD of BaSO_4 .

a) 31.3 g BaSO_4
 b) 95.2% BaSO_4

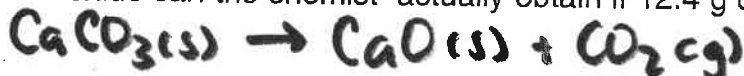
3. Yeast can act on sugar, such as glucose, $\text{C}_6\text{H}_{12}\text{O}_6$, to produce ethyl alcohol, $\text{C}_2\text{H}_5\text{OH}$, and Carbon dioxide.



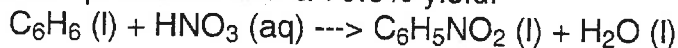
If 223 g of ethyl alcohol are recovered after 1.63 kg of glucose react, what is the PERCENTAGE YIELD of ethyl alcohol?

26.8% ethyl alcohol

4. Solid Calcium carbonate decomposes into solid Calcium oxide and Carbon dioxide gas. Under certain circumstances this reaction proceeds with a 92.4% yield of Calcium oxide. How many grams of Calcium oxide can the chemist actually obtain if 12.4 g of Calcium carbonate is heated?



5. The following reaction proceeds with a 70.0% yield.

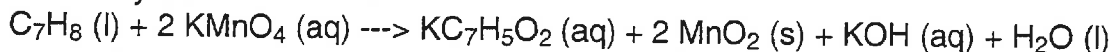


Calculate the mass of $\text{C}_6\text{H}_5\text{NO}_2$ actually obtained if 12.8 g of C_6H_6 reacts with excess HNO_3 .

14 g $\text{C}_6\text{H}_5\text{NO}_2$

6.42 g CaO

6. The reaction of toluene, C_7H_8 , with Potassium permanganate, KMnO_4 , gives less than a 100% yield.



a. 8.60 g of C_7H_8 is reacted with excess KMnO_4 . What is the THEORETICAL YIELD, in grams, of $\text{KC}_7\text{H}_5\text{O}_2$?

b. If the Percent Yield is 70.0%, what mass of $\text{KC}_7\text{H}_5\text{O}_2$ can be actually obtained?

c. What mass of C_7H_8 is needed to produce 13.4 g of $\text{KC}_7\text{H}_5\text{O}_2$ assuming a yield of 60.0%?

a) 15.0 g $\text{KC}_7\text{H}_5\text{O}_2$

b) 10.5 g $\text{KC}_7\text{H}_5\text{O}_2$

c) 12.8 g C_7H_8