

CHEM 1451 Lab Week 07 Chemical Reaction Postlab Report

Name: _____ Date: _____

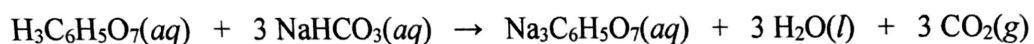
Coach's Name _____

Instructions

Make sure to use the correct number of significant figures and units when you answer questions.

To complete a box titled "Measured", copy your measurement that you made in the previous week. The total points of completing four tables is **12 points**. One point will be deducted for each missing units or incorrect number of significant figures or missing entry or incorrect measurement. Make sure to use "grams" as the units of mass.

The reaction of citric acid and sodium bicarbonate is written as



Part A: Equivalence Amounts

Plastic Cup A Experiment

Measured Mass of NaHCO_3	Measured Mass of $\text{H}_3\text{C}_6\text{H}_5\text{O}_7$	Measured Mass of CO_2^*
1.08g	0.71g	0.56g

*The mass of carbon dioxide is "indirectly" measured and recorded in Box "6" in Data Section for Cup A.

1. Show that the equivalence amount of citric acid for 1.00 g of sodium bicarbonate is 0.76 g. (5 pts)

2. Calculate the theoretical yield of carbon dioxide from 1.00 g of sodium bicarbonate. (5 pts)

3. What is the actual yield in this cup A experiment according to your data? (5 pts)

4. Calculate the percentage yield in the plastic cup A experiment. (5 pts)

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Plastic Cup B Experiment

Measured Mass of NaHCO_3	Measured Mass of $\text{H}_3\text{C}_6\text{H}_5\text{O}_7$	Measured Mass of CO_2^*
1.72g	1.50g	0.83g

*The mass of carbon dioxide is "indirectly" measured and recorded in Box "6" in Data Section for Cup B.

5. Show that the equivalence amount of citric acid for 2.00 g of sodium bicarbonate is 1.52 g. (5 pts)
6. Calculate the theoretical yield of carbon dioxide from 2.00 g of sodium bicarbonate. (5 pts)
7. What is the actual yield in this cup B experiment according to your data? (5 pts)
8. Calculate the percentage yield in the plastic cup B experiment. (5 pts)

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Part B: Limiting Reactants

Plastic Cup C

Measured Mass of NaHCO_3	Measured Mass of $\text{H}_3\text{C}_6\text{H}_5\text{O}_7$	Measured Mass of CO_2^*
1.97g	0.82g	0.53g

*The mass of carbon dioxide is "indirectly" measured and recorded in Box "6" in Data Section for Cup C.

9. Determine which reactant is the limiting reactant in the plastic cup C. Describe your reasoning. (5 pts)

10. Calculate the theoretical yield of carbon dioxide in the plastic cup C. (5 pts)

11. What is the actual yield in this cup C experiment according to your data? (5 pts)

12. Calculate the percentage yield in the plastic cup C experiment. (5 pts)

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Plastic Cup D

Measured Mass of NaHCO_3	Measured Mass of $\text{H}_3\text{C}_6\text{H}_5\text{O}_7$	Measured Mass of CO_2^*
0.95g	1.23g	0.62g

*The mass of carbon dioxide is "indirectly" measured and recorded in Box "6" in Data Section for Cup D.

13. Determine which reactant is the limiting reactant in the plastic cup D. Describe your reasoning. (5 pts)

14. Calculate the theoretical yield of carbon dioxide in the plastic cup D. (5 pts)

15. What is the actual yield in this cup C experiment according to your data? (5 pts)

16. Calculate the percentage yield in the plastic cup D. (5 pts)

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17. Compare the percentage yield for four reactions. Describe the differences and the similarities according to your data. (8 pts)