Name: _____ Section: _____

Data and Calculations for Experiment 7

A. Quantitative Determination of Percent Composition

1. When solid $KClO_3$ is heated above 400 °C, it decomposes to solid potassium chloride and elemental oxygen gas. Write the balanced equation for the decomposition of $KClO_3$ solid.

2. What is the remaining residue in the crucible after heating?

3. What substance is lost during the heating?

Be sure to record all numerical values to the correct significant figures and include units!

4. Mass of crucible and cover _____
5. Mass of crucible, cover and sample _____
6. Mass of crucible, cover and sample after heating _____
7. Mass of original sample _____
8. Mass of the residue _____
9. Mass lost upon heating _____

10. Experimental percentage of KCl in the $KClO_3$ sample.

11. Experimental percentage of oxygen in the $KClO_3$ sample.

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12. Using the atomic masses from the periodic table, solve for the molar mass of $KClO_3$.

_____

13. Theoretical percentage of KCl in the $KClO_3$ sample _____

14. Theoretical percentage of oxygen in the $KClO_3$ sample _____

15. Percent error in oxygen determination

B. Qualitative Examination of the Residue

1. Record what you observed when $AgNO_3$ solution was added to the following:
    i. KCl

    ii. $KClO_3$

    iii. Residue

2. What does the evidence lead you to believe about the residue?

3. Does the evidence from the $AgNO_3$ test prove conclusively (without a doubt) that the residue is KCl? Explain.