

Data and Calculations for Experiment 6

A. Quantitative Determination of Percent Composition

1. When solid KClO_3 is heated above $400\text{ }^\circ\text{C}$, 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?

| | <u>Sample 1</u> | <u>Sample 2</u> |
|---|-----------------|-----------------|
| 4. Mass of crucible and cover | _____ | _____ |
| 5. Mass of crucible, cover and sample | _____ | _____ |
| 6. Mass of crucible, cover and sample after 1 st heating | _____ | _____ |
| 7. Mass of crucible, cover and sample after 2 nd heating | _____ | _____ |
| 8. Mass of crucible, cover and sample after 3 rd heating | _____ | _____ |
| 9. Mass of original sample | _____ | _____ |
| 10. Mass of the residue | _____ | _____ |
| 11. Mass lost upon heating | _____ | _____ |
| 12. Experimental percentage of KCl in the KClO_3 sample. | | |

Sample 1:

Sample 2:

13. Experimental percentage of oxygen in the
- KClO_3
- sample.

Sample 1:

Sample 2:

Name: _____

Section: _____

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

15. Theoretical percentage of KCl in the KClO_3 sample

16. Theoretical percentage of oxygen in the KClO_3 sample

17. Percent error in oxygen determination

Sample 1:

Sample 2:

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.

