Report

Name_____
Section _____
Unknown #_____

DATA (masses in grams)	Trial 1	Trial 2
1. Wt. crucible, cover, and sample	_____	_____
2. Wt. crucible, and cover	_____	_____
3. Wt. sample	_____	_____
4. Wt. crucible, cover, and residue after 1st heating	_____	_____
5. Wt. crucible, cover, and residue after 2nd heating	_____	_____
6. Wt. crucible, cover, and residue after 3rd heating (if needed)	_____	_____
7. Wt. crucible, cover, and sample (from line 1)	_____	_____
8. Wt. crucible, cover, and residue after last heating	_____	_____
9. Wt. loss on heating	_____	_____
l0. Calculated % $SrCl_2 \cdot 6H_2O$	_____	_____

Equation for the decomposition:

CALCULATIONS (YOU MUST SHOW YOUR METHOD; THE NUMBER OF SIGNIFICANT FIGURES IN YOUR ANSWER MUST BE CORRECT)

True Value* _____
Absolute Error _____
Percent Error _____

*Obtain from instructor

Questions **Name_____**

l. Write the formula of each compound given below. Look up in the "Handbook of Chemistry and Physics" the decomposition temperature. See Appendix IV in the lab manual (e-version) for the products of the decompositions. DO NOT MAKE UP FORMULAS FOR PRODUCTS: Check the text. Write BALANCED formula equations for the decompositions.

(a) silver oxide

(b) lead dioxide

(c) calcium carbonate

(d) sodium nitrate

(e) ammonium dichromate

(f) potassium chlorate

2. A student does this experiment without heating the crucible and cover before the initial weighing. If moisture is present in the empty crucible is the found percentage of $SrCl_2 \cdot 6H_2O$ too high, too low, or unchanged? Give reasons for your choice. Assume all of the other steps in the procedure were done correctly.

3. One sample of unknown mixture is prepared by adding baking soda, $NaHCO_3$, as the "inert" ingredient to be mixed with $SrCl_2 \cdot 6H_2O$. What will happen? (Look up "sodium carbonate, hydrogen" in handbook) Will the calculated $\%SrCl_2 \cdot 6H_2O$ be too high, too low, or unchanged? Give reasons for your choice. Assume the experimental procedure is followed correctly.

Problems **Name**_____

(YOU MUST SHOW YOUR METHOD OF SOLUTION. THE NUMBER OF SIGNIFICANT FIGURES IN YOUR ANSWER MUST BE CORRECT)

l. A pure sample of hydrated cobalt (II) chloride weighing 2.854 g is heated to a constant mass of l.558 g. Calculate the formula of the hydrated salt.

_____

2. A mixture is 45.0 % NaCl and 55.0 % $BaCl_2 \cdot 2H_2O$. If 4.l65 g of this mixture is heated until all of the hydrate is decomposed what mass of solid residue will be left?

_____

Problems **Name**_____

3. An ore contains 3.50 % ZnS. How many pounds of zinc are in 880. pounds of the ore? Use pound formula masss and pound moles to solve the problem.

_____

4. A sample contains a mixture of magnesium carbonate and sand (an inert material). If 5.00 g of sample loses l.00 g upon heating calculate the % magnesium carbonate in the sample.

_____

5. Unknowns are prepared using Epsom salts, $MgSO_4 \cdot 7H_2O$ and NaCl. Calculate the percent $MgSO_4 \cdot 7H_2O$ in a sample from the following data:

   mass crucible and sample: 54.886 g

   mass crucible: 5l.624 g

   sample mass: _____

   mass of crucible and residue: 53.909 g

   mass crucible and residue (2nd heating): 53.666 g

   mass crucible and residue (3rd heating): 53.66l g

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