REVIEW FOR LAB TEST 2

Experiment 8

- Discussion (p. 67-69)
- Identify the solute and solvent components in a solution mixture.
- Know factors on rate of dissolving of a solute.
- Know/define the terms: solute, solvent, solubility, saturated solution, unsaturated solution, miscible and immiscible
- Be able to calculate the mass % of a solute in solution (See p. 69, No. 3 and lab report).

1. What is the mass percent of $CaCl_2$ in a solution containing 20.5 grams of $CaCl_2$ and 235.5 grams of water?
2. What is the mass percent of Na_2CO_3 in a solution containing 5.0 grams of Na_2CO_3 and 110.0 grams of water?

Experiment 9

- Be able to determine the percentage composition of a substance (such as oxygen) in a compound (theoretically & experimentally) and calculate the % error of your determination.
- Understand and apply (not simply memorize) formulas (p. 77-78)
- Problems similar to those in lab report
- Know the decomposition reaction for potassium chlorate

Experiment 10

- Discussion (p. 83-85)
- Be able to recognize double-displacement reactions.
- Know the three classes of substances formed in double-displacement reactions.
- Be able to use Solubility Table (Appendix 5, p. 324) to predict whether a precipitate will form when two ionic compounds are mixed together in aqueous solution.
- Recognize neutralization reactions (Acid + base) and reactions when gas forms (CO_2 and SO_2)

Experiment 11

- Discussion (p. 89-90)
- Be able to recognize single-displacement reactions.
- Given experimental data, be able to determine the activities of certain elements toward one another (very similar to what was done in lab report).

Experiment 12

- Know the terms acid and base
- Know how to recognize acids and bases
- Know the reactions of acids and bases completed in the lab

Practice Problems

3. An empty evaporating dish is weighed. An aqueous NaCl solution is placed in the dish, which is then weighed again, and the solution is heated over a steam bath until all water has been removed from the solution. A final weight of the dish is obtained. The following data are collected:

Mass of empty evaporating dish:	30.3760 g.
Mass of evaporating dish and NaCl solution:	38.1305 g.
Mass of evaporating dish and NaCl (after evap.):	32.5957 g.

Mass of solution	grams
Mass of salt	grams
Mass of water	grams
Percentage of salt in the solution	%
Grams of salt in 100 g of water	grams

4. An empty evaporating dish is weighed. An aqueous sugar solution is placed in the dish, which is then weighed again, and the solution is heated over a steam bath until all water has been removed from the solution. A final weight of the dish is obtained. The following data are collected:

Mass of empty evaporating dish:	28.7566 g.
Mass of evaporating dish and sugar solution:	42.0011 g.
Mass of evaporating dish and sugar (after evap.):	32.1511 g.

Mass of solution	grams
Mass of sugar	grams
Mass of water	grams
Percentage of sugar in the solution	%

5. A sample of calcium carbonate ($CaCO_3$) is heated in a crucible for several minutes, producing CO_2 gas and leaving a CaO solid residue in the crucible, according to the equation:

$$CaCO_3 \longrightarrow CaO + CO_2$$

The following data was collected for the experiment.

Mass of empty crucible:	21.9987 g
Mass of crucible and original sample:	24.1220 g
Mass of crucible and residue:	23.1887 g

Mass of calcium carbonate sample	grams
Mass of calcium oxide residue	grams
Mass of carbon dioxide lost	grams
Percentage calcium oxide in the sample, experimental	%
Percentage carbon dioxide in the sample, experimental	%
Percentage calcium oxide, theoretical	%
Percentage carbon dioxide, theoretical	%
Percentage error	%

6. A sample of sodium chlorate ($NaClO_3$) is heated in a crucible for several minutes, producing oxygen gas and leaving an NaCl solid residue in the crucible, according to the equation:

$$2\ NaClO_3 \longrightarrow 2\ NaCl + 3\ O_2$$

The following data was collected for the experiment.

Mass of empty crucible:	22.2212 g
Mass of crucible and original sample:	24.0505 g
Mass of crucible and residue:	23.2260 g

Mass of sodium chlorate sample	grams
Mass of sodium chloride residue	grams
Mass of oxygen lost	grams
Percentage sodium chloride in the sample, experimental	%
Percentage oxygen in the sample, experimental	%
Percentage sodium chloride, theoretical	%
Percentage oxygen, theoretical	%
Percentage error	%