INTERACTIVE DEMONSTRATIONS -CHEMICAL EQUATIONS-

Perform the following tasks in groups of four:

I. Predict what would happen upon mixing the following substances. Execute the reaction, and explain your findings.

[Hint: Use your textbook (names and formulas of common ions, and solubility chart) to identify the substances involved. Remember that heat can be a reactant or a product in a chemical process].

(a) Potassium iodide and lead nitrate (solutions)

(b) Sodium metal and water

(c) Potassium nitrate and sodium chloride (solutions)

(d) Sodium chloride and potassium nitrate (solutions)

(e) Sodium hydroxide and hydrochloric acid (solutions)

(f) Calcium oxide and water.

(g) Solid zinc immersed in a copper sulfate solution

(h) Barium hydroxide and ammonium thiocyanate (both in solid state)

Procedure

WEAR SAFETY GOGGLES AND DISPOSABLE GLOVES!

For each reaction (a) through (h) above, proceed as follows:

1. Empty the vial that contains the first chemical listed in a 25mL beaker.
2. Add the contents of the vial containing the second chemical to the same beaker. Note your observations.
3. Stir the two substances together with a glass stirrer.
4. For reaction (h), place the beaker on a small wooden block with a small pool of water between the beaker and the block.
5. Record your observations.

Observations

Identify the type of reaction based on your observations.

The reaction that takes place can be written as:

a. _____

_____

b. _____

_____

c. _____

_____

d. _____

_____

e. _____

_____

f. _____

_____

g. _____

_____

h. _____

_____

Balance the equations. Write net ionic equations wherever is possible. Identify spectator ions.

Problem

How many g of barium thiocyanate will be obtained if you have used 2.0g of barium hydroxide and 2.0g of ammonium thiocyanate? Write similar problems using the reaction(s) that fit(s) this type of question.

Which of the above reactions (a through h) would you use to demonstrate the law of conservation of mass? What other equipment you need to that effect?

Bonus:

The following reaction occurs in aqueous solution:

Potassium permanganate + hydrogen peroxide in acidic medium

You are given a bottle containing crystalline potassium permanganate, a 3% solution hydrogen peroxide, and a dilute solution of sulfuric acid. Propose a way to perform the reaction

1. Write down the reaction in ionic form.
2. Balance the equation using the ion electron method.
3. Propose a yield problem for this process.