



Chemical and Physical Changes

Lab #7

Observation is the basis for all of science. We must constantly watch for changes when we perform laboratory experiments. Changes in color and temperature are indications that a chemical change has taken place. The formation of a gas or an odor may also indicate that a chemical change has occurred. During this lab you will perform several experimental trials. Some of these trials will result in chemical changes that you will observe. Others may result in no reaction at all. Remember, just because we combine two chemicals does not mean that a reaction must occur.

Materials:

Balance	Ammonium chloride	1 M Acetic acid solution
Test tubes	Sodium bicarbonate	0.05 M Sodium hydroxide solution
Test tube rack	Calcium carbonate	Iodine solution
100 mL beaker	Calcium chloride	Phenolphthalein solution
Graduated cylinder	Soluble starch	0.1 M Sodium bisulfite solution
Goggles	1 M Barium chloride solution	0.1 M Potassium iodate solution
Rubber Stopper	1 M Sodium sulfate solution	

Procedure:

You will be combining a number of chemicals. After each combination, record your observations.

Combine 2 g of ammonium chloride and 15 mL of water in a test tube. Place the stopper on the test tube and shake it vigorously for about 30 seconds. Hold the bottom of the test tube and record any changes.

Combine 2 g of calcium chloride and 15 mL of water in a test tube and place the stopper on the test tube. Shake the test tube vigorously for 30 seconds. Hold the bottom of the test tube and record any changes.

Combine 2 g of sodium bicarbonate and 15 mL of acetic acid in a test tube. Record your observations.

Combine 2 g of calcium carbonate and 15 mL of acetic acid in a test tube and observe any changes.

Combine 10 mL of sodium hydroxide solution and 2 drops of phenolphthalein solution in a test tube and record the results.

Combine 10 mL of acetic acid and 2 drops of phenolphthalein in a test tube and observe any changes.

Combine 20 mL of sodium bisulfite solution and 20 mL of potassium iodate solution in a 100 mL beaker and record your results.

Combine 2 g of starch, 10 mL of water and 3 drops of iodine solution in a test tube and observe.

Combine 20 mL of barium chloride solution and 20 mL sodium sulfate solution in 100 mL beaker and record your results.

Results:

Using the observations you recorded, predict what would happen if you reacted the following (Hint: Look for similarities in the names of the chemicals):

- a) Magnesium carbonate + acetic acid _____
- b) barium iodide + sodium sulfate _____
- c) hydrochloric acid + phenolphthalein _____
- d) barium chloride + lithium sulfate _____
- e) ammonium hydroxide + phenolphthalein _____
- f) sodium carbonate + acetic acid _____
- g) sodium bicarbonate + hydrochloric acid _____