

MiSP Chemical Reactions Worksheet #1 L3

Name _____

Date _____

Observing Substances in a Bag

Problem:

What occurs when you mix baking soda (sodium bicarbonate), calcium chloride, and phenol red solution?

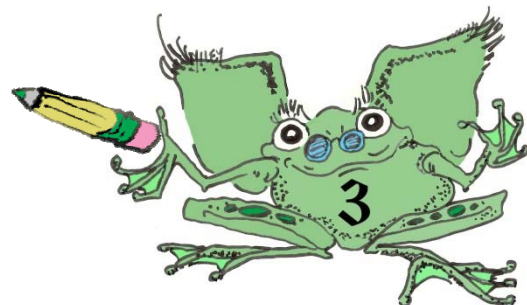
Materials:

- Ziplock bags – one-quart (1 L) size – one per group
- Baking soda (sodium bicarbonate)
- Calcium chloride
- Plastic spoon – one for the baking soda and one for the calcium chloride
- Plastic stir sticks – one for the baking soda and one for the calcium chloride – to level teaspoon measurements
- Phenol red indicator solution or red cabbage juice
- Medicine cups – one per group
- Graduated cylinders – one per group

Safety notes: GOGGLES SHOULD BE WORN. All precautions for safe handling of chemicals should be followed.

Procedures:

1. Get a ziplock bag and open it.
2. Observe the three chemicals to be used in the experiment. Write descriptions of each.
 - a. Baking soda –
 - b. Calcium chloride –
 - c. Phenol red solution –



3. Add one level measuring spoon of baking soda to the bag.
4. Add two level measuring spoons of calcium chloride to the bag.
5. Put 10 ml of phenol red solution into the medicine cup.
6. Carefully place the medicine cup in the bottom of the bag (standing upright).
7. Being careful not to spill the phenol red solution, squeeze the air out of the bag and seal it.
8. Tip the medicine cup of phenol red and let it mix with the other two chemicals.

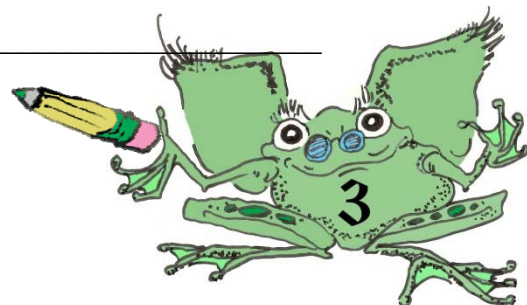
Observations:

Observe what happens. Write down your observations.

Questions:

1. What evidence is there that there was a chemical reaction?

2. Is the reaction (are the reactions) exothermic or endothermic?



Questions for Further Investigation:

1. What chemicals caused the heat?

2. The gas produced is carbon dioxide. Are all three substances necessary to produce the carbon dioxide?

3. Why does the phenol red change to orange or even red after the bag is opened?

