

Chemical and Physical Changes

Problem: Are the following changes chemical or physical?

Procedure:

1. **Heating a wooden splint.** Obtain a wood splint and break it into small pieces. Place several pieces in a large test tube. Using a test tube holder, heat the test tube strongly over a laboratory burner for several minutes. Record your observations.
2. **NaCl and water.** Place a spatula of sodium chloride in 2 to 3 ml of distilled water. Mix and place two drops of the resulting solution on a glass slide. Using forceps, place the slide on a hot plate or forth over a low flame. After to liquid has evaporated and the slide has cooled, examine the residue with a magnifying glass. Compare the residue to a fresh sample of NaCl. Record your observations.
3. **Heating copper.** Clean and dry a crucible. To dry heat strongly for 2 to 3 minutes. (**caution: hot glass**) Obtain a small amount of copper turnings. Roll them into a ball about 2. cm in diameter and place in the crucible. Measure the mass of the crucible and copper. Heat the metal in the crucible over o hot flame for five minutes, cool, and remeasure the mass. Record your observations.
4. **Combining solutions.** Obtain 3 clean small test tubes and mix the following solutions:
 - a. To 5 drops of iron(III) chloride, FeCl_3 , solution add 1 to 3 drops of potassium thiocyanate, KSCN, solution. Observe and record your observations.
 - b. To 5 drops of FeCl_3 solution add 1 to 2 drops of silver nitrate, AgNO_3 , solution. Observe and record your observations.

☞ *The contents of each test tube should to rinsed into a special container designed by your teacher.*

5. **Crushing chalk.**
 - a. Using a mortar and pestle, grind a small piece of chalk into a powder. Record your observations.
 - b. Add 10 drops of hydrochloric acid, HCl, to the chalk powder. Record your observations.

Data:

#	Exercise	Type of Change	Observations
1			
2			
3			
4a			
4b			
5a			
5b			

Questions:

1. What are some signs (things that you saw, smelled etc.) that a chemical change occurred?
2. How do you know that each of these is a chemical change?

Food spoils

A foaming antacid fizzes in water

A ring of scum forms around your bathtub

A firecracker explodes