Name _____ Period _____ Date _____

Chemical Vs. Physical Changes

Introduction: When you shower, cook food, color your hair, perm your hair, eat food, and exercise you perform chemical reactions. Chemical reactions are also performed in chemistry laboratories in order to better our lives (i.e., shampoo is made in a chemical laboratory, food is enriched in a chemistry laboratory, many fabrics are made or dyed in a lab, etc). You also perform a number of physical changes in your everyday life (cut your hair, fold paper, freeze ice, tear your shirt, etc). In this lab you are to follow the directions and determine if a chemical reaction (change) or a physical change occurred.

Pre-Lab Questions: Completely read the lab and then return to this section to answer these questions.

1. Name two general lab safety precautions.

2. What specific safety precautions do you need to keep in mind when doing **THIS** lab?

Procedure:

*Warning: Hydrochloric acid, HCl, and sodium hydroxide, NaOH, can cause chemical burns. Rinse with **water only for 20 minutes** if you feel burning or itching.*

The steps below do not have to be completed in the order written.

A. Place a few pieces (about 3 – 5) of magnesium metal in a test tube. (You can touch magnesium with your hands.) Add a pipette squirt of HCL (hydrochloric acid) to the test tube. Record your observations below. Empty this test tube into **ACID-BASE** waste container.
B. Add one pipette squirts of $CuCl_2$ (or $CuSO_4$) to a test tube. Add about one pipette squirt of NaOH to the test tube. Record observations below. Empty this test tube ***COPPER*** *waste* container.
C. Add about one pipette squirt saturated NaOH to a clean test tube. Add about one pipette squirt water drop-wise to the test tube. Record observations below. **Save your test tube to use in the next reaction.**
D. To the same test tube, add two drops of phenolphthalein. Swirl your test tube. Record your observations below. **Save your test tube to use in the next reaction**
E. To the same test tube, add hydrochloric acid until you see a color change. Pour into the **ACID-BASE** waste.
F. Watch as your instructor shows you the last change.
G. Wash all glassware, your lab area, and your hands with soap and water.

	Observations (Describe **ONLY** what you see, feel, smell, or hear. Be specific.)	Chemical or Physical Change?
A		
B		
C		
D		
E		
F		

Label as a physical (P) or chemical (C) change.

____1. The volume changed from 10 ml to 100 ml

____2. My pink shirt turned white when bleach spilled on it.

____3. My paper ripped in half.

____4. I folded my paper.

____5. I lit a Bunsen burner.

____6. After being the fridge for 3 weeks, the milk developed a terrible smell.

____7. Ice forms on the roads in winter.

____8. I mixed two chemicals and it became very, very cold.

____9. Light was produced when two chemicals were mixed.

____10. Bubbles formed when I mixed magnesium and hydrochloric acid.

____11. Bubbles formed when I put a pot of water on the stove.

____12. I exercised and lost 5 pounds.

Label as a physical (P) or chemical (C) property.

____13. Silver tarnishes (turns black) when it comes in contact with hydrogen sulfide in the air.

____14. Ice melts at O°C.

____15. Milk will spoil if left on the counter for a week.

____16. Perfume has a nice smell.

____17. Glass is fragile.

____18. Neon does not react with any other element.

____19. My eyes are brown.

____20. Salt is soluble in water.

____21. Perfume irritates my eyes.

____22. Aluminum is malleable (can be flattened into sheets).

____23. Wood can burn.

____24. Gasoline is flammable.

____25. Hydrogen has a density of .0899 g/L.

____26. Water freezes in winter to form ice.

____27. Grapes aren't toxic.

____28. Water boils at 100°C.

____29. The sweater is soft and warm.

____30. Glass cannot be cut easily.