

LAB: Copper Pennies

Background:

Before 1982, pennies were made of pure copper. By 1982, the price of copper had risen so much over the years that pennies now had considerably more than \$.01 worth of copper in them. The US mint then replaced a majority of the copper in pennies with zinc, leaving only a copper coating on the outside of the penny.

Objective:

To determine the percent composition of copper in a post 1982 penny.

Pre Lab Questions:.

1. Write a balanced equation for the reaction of HCl with zinc. Tell what type of reaction this is.
2. Explain why the HCl will react with the zinc but will not react with the copper.
3. Why is it necessary to put notches in the penny?

Materials:

balance	triangular file	
150 mL beaker	100 mL graduated cylinder	post 1982 penny
watch glass	forceps	6M HCl

Precautions:

Safety goggles and aprons must be worn for this lab. Make sure that you reviewed the location of the safety shower/eye wash. Do not pour 6M HCl down the drain, give it to the instructor for proper disposal. Do not permit the acid to come in contact with skin or eyes, it causes severe burns. If you do splash yourself with the acid, flush the area with lots of water immediately.

Procedure:

1. Make sure that the date on your penny is after 1982. Use a triangular file to cut 4 evenly spaced notches on the edges of the penny. Examine the notched penny and record your observations in your notebook.
2. Make sure that the penny is clean and dry. Measure the mass of your empty beaker and measure the mass of the penny inside the beaker with the balance and record it in your notebook.
3. Place the penny in the beaker that has been labeled with your names and period number. Carefully add 15 mL of 6M HCl to the beaker without splashing it.
4. Record everything that you observe after adding the HCl to the penny. Place the beaker in the fume hood and leave it overnight.
5. Following Day: Observe where the penny is in the acid. Carefully lift the penny out of the acid with the forceps and rinse it off with water from the wash bottle.
6. Place the penny on a watch glass and rinse out the beaker. Put the penny back into the beaker and place it in the drying oven to dry.
7. Take the penny and beaker out of the drying oven. When the beaker is cool, measure its mass with the penny still in it. Record the mass in your notebook.

Lab on Thursday and Friday 05/01 - 05/02

“Copper Pennies”

This is a 2 day lab. It must be done on successive days.

Your notebook must have:

Materials and Procedures

Safety Precautions

Answer the Pre Lab Questions

All of the above must be in your notebook before you come in to the lab on Thursday.