

AP Chemistry Lab Handout 01 "Per Cent Copper in a Penny"

Your Name: _____ Lab Partners: _____

Purpose: To determine the percent composition of copper in a penny.

| | | |
|-----------------|-----------------|-----------------------|
| Materials: | 150 mL beaker | 6 M Hydrochloric Acid |
| distilled water | post-1982 penny | tweezers |
| balance | masking tape | steel wool |
| triangular file | goggles | |

Procedure:

1. Obtain a 150 mL beaker and label it with your name.
2. Obtain a post-1982 penny and lightly clean it with steel wool.
3. Using a triangular file, scrape off the copper coating in two sections of the edge of the penny, 180° apart. You should be able to see the shiny zinc interior.
4. Find the mass of the penny to the nearest 0.001 g and record.
5. Place the penny in your beaker and add 40 mL of 6 M HCl.
6. Place the beaker in a safe location for 24 to 48 hours.
7. Leaving the penny in the beaker, pour the HCl into the sink with running water. Pour some water in the beaker to flush out the black flakes. Dump any remaining water down the drain.
8. Pour about 40 mL of distilled water into your beaker.
9. Place the beaker in a safe location for 24 to 48 hours.
10. Remove the penny from the beaker and place on a paper towel.
11. Let dry for 24 to 48 hours.
12. Determine the final mass to the nearest 0.001 g and record.

Results:

Description of the reaction between the penny and the HCl:

Data:

| | |
|------------------------|--|
| initial mass of penny: | |
| final mass of penny: | |
| percent by mass of Cu: | |

Calculations:

Average value of the percent by mass of Cu from class:

Percent error of your value and class value. Use the value of 2.381% as the accepted value.

Error Analysis: Explain what improvements you would make in this procedure to minimize your percent error.

Conclusion: Including: The balanced chemical reaction for this lab and the type of reaction.