

Introduction

US pennies changed in 1982. Before 1982, pennies were made of solid copper. The government discovered that because the value of copper metal had increased, some people had decided they could make money by “buying” pennies (for 1 cent each) and then melting them down and selling the copper to a metal dealer for more money than the original pennies cost them. So the US government decided to lower the value of the metal that the penny was made out of. After 1982, pennies were (and still are) made of zinc (a far less valuable metal) and coated with copper.

PreLAD – Read the Procedure and Processing the Data section.

Procedure

- A. Shine up two pennies using the steel wool. One penny must be POST-82, and one penny must be PRE-82.
- B. Obtain a metal file and vigorously rub the edge (not the face) of both of the pennies as shown in the picture above. Do you detect any color (other than copper-color) on either penny? Make a note with a conclusion in the observation box below
- C. Rub all the copper off the edge of the POST-82 penny so that the zinc is completely exposed.
- D. Measure the mass of each individual penny after sanding them. Be sure and brush off any dust before weighing.
- E. STOP put on goggles, come and get your beaker with acid from the teacher.
- F. Label the beaker with your initials. Put your pennies into the beaker of acid.
- G. Make observations and conclusions from the observations. After finishing your observations, place the beaker on the class tray on the center lab bench.
- H. After leaving the penny in the acid overnight on the class tray, pour off most of the remaining liquid into the sink. Rinse tap water into the beaker to wash off the remaining pennies. After washing, pick the pennies out of the fresh water and place them onto a paper towel. Dry off pennies by patting them with a tissue.
- I. Since the POST-82 penny is more delicate, be sure it is dry by dunking it into the acetone, then waving in the air to dry.
- J. Measure the mass of each individual penny (after being in the acid solution, and after drying off).



	mass (g) after filing the edge, before acid	mass (g) after reaction with acid	% copper	% zinc
PRE '82 Penny				
POST '82 Penny				
Observations	Filing edge: observation & conclusion? Dropping in HCl, evidence of chemical reaction?			

Processing the Data

1. Calculate the percentage of copper in the POST-82 penny and record in the table above.
 - (Remember that % is just part out of total.)
2. Since you just calculated the part of the POST-82 penny that is copper, what percentage of that penny is zinc? Record in the table above

