

Copper Plating Nails

Materials

20-30 dull pennies	1 100 to 150 ml beaker
50 ml white vinegar (dilute acetic acid)	1-2 clean steel nails
8g salt (NaCl)	paper towels

Lab 1 Shiny Clean Pennies

Pour the salt and vinegar into the beaker.

Stir until the salt dissolves.

Dip a penny halfway into the liquid and hold it there for 10-20 seconds. Remove the penny from the liquid. What do you see?

Dump the rest of the pennies into the liquid. The cleaning action will be visible for several seconds. Leave the pennies in the liquid for 5 minutes.

Lab 2 Verdigris!

1) Note: You want to keep the liquid you used to clean the pennies, so don't dump it down the drain!

2) After the 5 minutes required for 'Shiny Clean Pennies', take half of the pennies out of the liquid and place them on a paper towel to dry.

3) Remove the rest of the pennies and rinse them well under running water. Place these pennies on a second paper towel to dry.

4) Allow about an hour to pass and take a look at the pennies you have placed on the paper towels. Write labels on your paper towels so you will know which towel has the rinsed pennies.

5) While you are waiting for the pennies to do their thing on the paper towels, use the salt and vinegar solution to make 'Copper Plated Nails'.

Copper Plated Nails

1) Place a nail or screw so that it is half in and half out of the solution you used to clean the pennies. If you have a second nail/screw, you can let it sit completely immersed in the solution.

2) Do you see bubbles rising from the nail or the threads of the screw?

3) Allow 10 minutes to pass and then take a look at the nail/screw. Is it two different colors? If not, return the nail to its position and check it again after an hour.