

Copper Caper



QUESTION: What happens in a chemical reaction?

MATERIALS:

- clear container
- nail - 2 (clean)
- paper towels
- pennies - 20
- salt (1 tsp)
- screw (clean)
- vinegar (100 mL)

PROCEDURE:

1. Pour the vinegar into the container and dissolve the salt completely.
2. Dip a penny halfway into the liquid. After 10 seconds remove it. Record what you see.
3. Dump all the pennies into the liquid. After 1 minute, record what you see.
4. After 5 minutes, remove half the pennies from the liquid and place them on a paper towel to dry. Label them "Unrinsed."
5. Remove the remaining pennies from the liquid. Rinse them thoroughly. Once rinsed, place them on another paper towel to dry. Label them "Rinsed."
6. Put a nail and screw into the liquid. Lean the other nail against the side of the container so that only part of it is in the liquid.
7. After 10 minutes, look at the two nails. Record what you see.
8. Look at the screw. Record what you see.
9. After 1 hour, look at the pennies on the towels. Record what you see.

DATA:

ITEM	OBSERVATION
Penny dipped halfway into liquid after 10 seconds	
Pennies in liquid after 1 minute	
Nail and screw in liquid after 10 minutes	
Nail halfway in liquid after 10 minutes	
Unrinsed pennies after 1 hour	
Rinsed pennies after 1 hour	

PS – Activity #5

QUESTIONS:

1. Why did the pennies look dirty before you put them into the vinegar?
2. Why were the pennies clean after being in the liquid?
3. What color did the paper towel under the unrinsed pennies turn? Why?
4. What color did the paper towel under the rinsed pennies turn? Why?
5. The color of the unrinsed pennies is due to copper oxide being formed on the pennies' outer surface. Where did the oxygen that combined with the copper come from?
6. What happened to the nail and screw that were left in the liquid?
7. Why did bubbles come off the steel screw?
8. Where did the copper that coated the screw and nail come from?