



California State University of Bakersfield, Department of Chemistry

Taco Sauce Penny Cleaner



Standard:

MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

Introduction:

It's one of those things you hear about but wonder if it is true. Can you use taco sauce to clean the tarnish off of a penny? Believe it or not, taco sauce does a great job of cleaning pennies, but how does it work? Which ingredients in the taco sauce are really doing the cleaning? Eight year old Jack Spangler, tackled these questions as part of his science fair project and made a surprising discovery.

Materials:

- Dirty pennies (try to collect tarnished pennies that all look the same)
- Taco sauce (mild sauce from taco bell works well)
- Vinegar
- Tomato paste
- Salt
- Water
- Small plates
- Masking tape or sticky note

Safety:

- Always have an adult with you to help you during your experiment.
- Always wear eye protection and gloves when doing chemistry experiments

Procedure:

1. Let's start by proving that taco sauce does a good job of cleaning pennies. Place several tarnished pennies on a plate and cover them with taco sauce. Use your fingers to smear the taco sauce all over the surface of the pennies. Remember to wash your hands... and don't lick your fingers (pennies are really dirty and some taco sauces are really spicy!).
2. Allow the taco sauce to sit on the pennies for at least two minutes.
3. Rinse the pennies in the sink and look at the difference between the top side of the pennies that touched the taco sauce and the bottom side. It's myth.. taco sauce does the trick.

So, which ingredients are responsible for the cleaning power of taco sauce? Let's find out...

1. Place two or three equally tarnished pennies on each of four plates. Use masking tape or a sticky note to mark each plate with the ingredient you are testing (vinegar, tomato paste, salt, and water).
2. Cover the pennies with the various ingredients and allow them to sit for at least two minutes.
3. Rinse the pennies from each test plate with water which ingredient cleaned the pennies the best?

Data and Observations:

What did you see? Anything you were not expecting? Something really awesome? Describe it here.

Questions:

Which ingredients worked the best?

Did a combination of ingredients work better than individual ingredients?

Did different types of taco sauce work better or worse?

References:

1. Stevesplangler.com, <http://www.stevespanglerscience.com/experiment/the-cleaning-power-of-taco-sauce-bright-shiny-pennies>. (accessed July 19, 2012).