

Rusty Nail Experiment



Introduction

Rusting is a type of metal damage that is common in metal objects and materials we use. Since rusting damages the metal, protection from rust is often necessary. Galvanization is a method to coat metal surfaces with a protective zinc layer to prevent corrosion.

This experiment will study the rusting of steel nails not protected by galvanization.

You will need:

- Adult Supervision
- Steel Nails (ungalvanized)
- 6-8 Plastic Cups
- Cola Pop
- Lemon Juice
- Cooking Oil
- Water



Optional: Salt Water or Diluted Detergent

Instructions

Put a nail into each plastic cup, and add in each cup each liquid (cola, water, etc...) to about one-quarter level.

Write down on paper your observations of the nails at the start, and over the coming days. Which liquids causes the nail to rust quicker? What do you think the reason is?

Clean-up/Disposal

Carefully pour the liquids into a kitchen sink, and dispose the cup containing possibly rusty and sharp nails into the trash.

Optional Follow-up Experiment

With the liquid that causes the fastest rusting, repeat the experiment with two plastic cups of that liquid, only this time have one cup with an ungalvanized nail and one with a galvanized nail.

Which nail starts to rust first? What do you think the reason is?



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