



Colorado Science and Engineering Fair

2024 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Does pH Affect the Rate of Corrosion on Steel

Finalist's Name: Gwendolyn Hohl

School and City: Genoa-Hugo School, Hugo, CO

Sponsor's Name: Lucas Hohl

Category: Chemistry (CHEM)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

My experiment was testing to see if the pH of a liquid would affect the rate in which it corroded. The purpose was to see what liquids could potentially pose a threat to steel. I hypothesized that bases would cause the most destruction to the metal because of the oxygen content that most bases release when dissolved. I tested six different liquids with varying pH levels to see which liquid would have the greatest rate of corrosion on steel. The bases I used were ammonia and bleach. The acids were phosphoric acid, black coffee, and vinegar.

I started the experiment by pouring approximately one cup of each liquid into their respective bowls. I then dipped a one-gram piece of steel wool into the distilled water and held it in the bowl for thirty seconds. Once the thirty seconds was over, I quickly removed the steel wool and put it on a thermometer probe that I then placed in a test tube. I watched and recorded the temperature change every minute for ten minutes, then waited five more minutes to see what the final temperature would be. I repeated this process for each liquid twice and recorded the results.

In the end, the pH had no effect on the rate of corrosion. The liquid that caused the highest amount of corrosion was bleach, a base. In second place was vinegar, an acid. The top two liquids that caused the most corrosion were a base and an acid, my hypothesis was incorrect.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Gwendolyn Hohl

Date: *02/22/2024*

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.