

Most corrosion resistant metal project.

Introduction

For many purposes, metals have been studied to determine which one is most corrosion resistant. As from a fence for a yard that needs to resist raining days, to bio implants that need to resist the chemical attack of body fluids.

Corrosion is what happens to metals when they are exposed to water and oxygen in the environment. When iron or steel corrodes, the iron forms reddish brown colored oxides and hydroxides: what we commonly name it rust.

Rusting of iron is an electrochemical process, where iron atoms loses electrons (oxidation process) and water molecules break down into oxygen and hydroxide (reduction process).

Then, the hydroxide ions react with the oxidized iron and then dissolved oxygen in the water to form iron oxide.

Objectives

- Investigate different uses of metals and the importance of the corrosion resistant rate.
- Examine of consequences when a low corrosion metal has been used at an application that requires more corrosion resistance.
- Measure the corrosion rate of different metals when exposed to fresh salt water.
- Determine which metal would be the most corrosion resistant.

Terms and concepts that will be covered

To do this project, you should do research that enables you to understand the following terms and concepts:

- rust,
- corrosion,
- copper,
- iron,
- steel,
- stainless steel,
- aluminum,
- zinc,
- electrochemistry,
- oxidation,
- reduction.

References

- http://www.sciencebuddies.org/science-fair-projects/project_ideas/MatSci_p018.shtml#summary
- <https://www.youtube.com/watch?v=Ujlx1JOxuPE>
- <https://www.youtube.com/watch?v=73Sa3Za9W6I>