



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Sofia Truong	Project Number J0628
Project Title Corrosion in Motion	
<p style="text-align: center;">Abstract</p> <p>Objectives A recent study showed the global cost of corrosion is estimated at \$2.5 trillion annually. Corrosion affects our lives directly include safety (collapsed bridges), health (contaminated water) and indirectly when producers and suppliers of goods incur corrosion costs which they pass onto consumers. This project tests which metal is the most resistant to corrosion.</p> <p>Methods Aluminum, brass and copper wires , each 12cm in length were soaked in water, saltwater and vinegar. The metals were chosen because they are commonly use and liquids were chosen to get different pH levels. The wires were weighed before and on the last day of the experiment. The wires were observed, photographed and documented for color and general appearance for 21 days.</p> <p>Results My experiment showed that aluminum corroded on average of 8-10 days. Meanwhile, brass showed signs of corrosion on average of 1-3 days and copper on average of 2-5 days. After 21 days , the aluminum wire soaked in vinegar showed the most increase in weight of average of 4.40% increase from original weight. The least amount of increase in weight is copper in vinegar with an average increase of 3.64%.</p> <p>Conclusions My experimental result proved that my hypothesis that aluminum would be the most resistant to corrosion compared to brass and copper was true. Corrosion is the deterioration of a metal and when it happens , an oxide will form on the surface and increase its weight initially. Sometimes, the oxide does not stay on the metal. Patina on copper wire exhibited this when the liquids turned into light greenish color. If I were to expand this project , I would filter the liquids to get more accurate weight measurement.</p>	
Summary Statement My project showed that aluminum when exposed to different pH of liquids is the most resistant to corrosion compared to brass and copper.	
Help Received My mother supervised the experiment and help me put together my board. My father helped me fill up this form	