



CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

Name(s) Ashley C. Jones	Project Number S1812
Project Title Does the pH Level of a Liquid Affect the Solubility of Aleve?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Will the liquid that I take with Aleve affect the time for it to dissipate? Does it matter whether it is a tablet or gel? The purpose of this experiment is to determine if varying levels of pH will affect the solubility of Aleve. Additional investigation will be conducted to determine whether the form of Aleve - tablet or gel capsules - respond differently to the varying levels of pH.</p> <p>Methods/Materials The materials used were 8 Plastic Test Tubes (60mL each); 3.0 Bottles of Aquafina Purified Drinking Water; 900 mL Clorox+ Bleach (splash-less); 900 mL ReaLemon 100% lemon juice; 48 pH strips; 2 Stopwatches; 24 Aleve Tablets (220 mg); 24 Aleve Smooth Gels (220 mg); and 1 Measuring Cup. Varying amounts of water and acid (lemon juice), or base (bleach), were placed in different test tubes and carefully measured until the desired pH was reached. The pH level of each tube and the corresponding amounts of acid or base added were recorded. Afterwards, either an Aleve tablet or gel capsule was placed in a test tube at each pH. Starting times were taken at the moment the Aleve contacted the liquid. Final times were recorded once each tablet or gel was completely dissolved, as evidenced by the fact that no more bubbles were produced. There were three trials conducted for both tablets and gels at each level of pH.</p> <p>Results The results showed that in a base, smooth gel capsules dissolved considerably faster than the tablets. When an acid was used, the smooth gels consistently melted away before the tablets, but with no significant difference in time. Interestingly though, the tubes containing the lowest pH of acid, and conversely, the highest pH of base, were the last to dissolve in each of the trials.</p> <p>Conclusions/Discussion This project set out to answer two simple questions. Does the pH level of a liquid affect the solubility of Aleve? Is there a difference between tablets and gels? The hypothesis stated that a lower pH level for an acid, and a higher pH level for a base, would cause Aleve to dissolve quicker. Upon conclusion, it was proven that with a base, in fact, the lower the pH level (and therefore the weaker the base), the faster the Aleve would dissolve. This is contrary to the original hypothesis. But, the final results did support the fact that the gel capsules would dissolve more rapidly than the tablets.</p>	
Summary Statement This project tested the affect of pH levels on the time it would take Aleve to dissolve, and if there is a difference between tablets and gels in their reaction to pH.	
Help Received My mother helped me by insuring the accuracy of the liquid measurements and pH readings, and my father provided time and money to gather the materials needed for this project. My Biology teacher, Ms. Jennifer Davis, provided her time and support throughout the entire project.	