



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title The Most Effective Antacid	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Several antacids were tested in this experiment to determine the pH range in which they show buffer activity. Since the desired maximum or minimum hydrogen ion concentration may differ for various clinical conditions, the minimum pH attained, the speed of neutralization, the buffer capacity, and the length of activity at any desired pH value were studied. Four commercial antacids: Tums, Rolaids, Alka-Seltzer, and Zantac- were considered and used as variables in this project. Through this project, we tried to find the fastest reacting antacid which could help soothe the stomach the quickest.</p> <p>Methods/Materials Beakers, Graduated Cylinders, Glass Stirring Rod, Electronic Scale/Analytical Balancer, Hydrochloric Acid, DI Water, Antacid Tablets, Burette, Weigh Boats, Mortar and Pestle, Ring Stand, Burette Clamp, Funnel, Magnetic Stir Bar, Universal Indicator, pH Indicator, pH Meter, pH Recorder, Clamp for pH Meter</p> <p>Clean all glassware, make solution of antacids in water, set aside, dilute HCl and pour into the burette, slowly stir the antacid water solution with a magnetic stirring machine, slowly titrate the solution and record the pH. Repeat</p> <p>Results In the end, we found that Zantac was the best antacid and that our initial hypothesis was wrong. We had first guessed Alka-Seltzer because from previous knowledge, we knew that it rapidly dissolves in water. However, we were wrong and we chose Zantac to be the fastest because it had the quickest drop in pH and took the least amount of acid to have a change of 2 in the pH levels.</p> <p>Conclusions/Discussion This concept is not only applied towards the use of antacids to help reduce the pain in the stomach due to acidity, but also help us further understand and solve problems arisen due to ocean acidification. Through our experiment, we found out that over the counter antacid products such as Tums and Rolaids, both are made mostly of calcium carbonate. Calcium plays a major role in helping stop heartburn and acidity by tightening the valve that keeps stomach acid in its place. Therefore, if it forms of calcium can help in neutralizing acids, then calcite (a constituent of limestone) should be able to help the ocean. It is the most stable form of calcium carbonate and it could possibly neutralize emission-based acids in the atmosphere/oceans and can cool the planet. Oyster shells are made from calcium carbonate, so they act an antacid pill for the ocean.</p>	
Summary Statement We created an experiment which depicted the fastest reacting antacid out of the four most commonly used, over the counter tablets.#	
Help Received We received help from our marine biology teacher, Ms. Camacho and our chemistry teachers, Mr. Monge and Mr. Paris. This project was completed in the school's science laboratory.	