

Name
Effective Antacid Relief Analysis

PRE LAB DISCUSSION

The stomach produces hydrochloric acid to begin the chemical breakdown [digestion] of the food that you eat. Although this acid is quite strong, (about 2 M), the stomach has a thick mucus lining that protects the stomach tissue itself from being digested by the acid. When the stomach is too full or when you have swallowed air, the acid will be forced up out of the stomach into the unprotected esophagus. The acid will react with the unprotected tissue and cause a burning sensation commonly known as "heart burn".

There are a number of over-the-counter medications called "antacids". These are **not** chemical bases. If they were bases and you used them regularly or took them in large doses, they would raise the pH of your blood.

This condition, called alkalosis, would result in kidney damage. The brands of antacids sold in the drug store contain insoluble compounds that acids will react with, resulting in the acid being consumed in the reaction. The most common ingredient used is calcium carbonate [CaCO_3], also known as limestone. This limestone is ground to a powder, mixed with a starch paste, and formed into a tablet. Often flavoring and coloring is added to make the tablet more attractive. Other tablets contain insoluble hydroxides that will react with hydrochloric acid.

There are also newer types of antacids that are taken before eating. These consist of a hormone [chemical messenger] that reduces the amount of acid produced by the stomach. This is not the type of antacid that we will evaluate in this lab.

OBJECTIVE

To determine the amount of acid neutralized by each brand of antacid tablet.

CHEMICALS/EQUIPMENT:

Beaker [100 or 250 ml] Buret, ring stand, test tube clamp, stirring rod, mortar & pestle, 0.5 M hydrochloric acid, pH meter Vernier Probs, several brands of antacid tablets such as TUMS, ROLAIDS, MAALOX etc.

PROCEDURE

1. Record the names and amounts of the active ingredients contained in each brand of antacid. This information is found on the container.
2. In the area provided sketch out how you determine to determine the answer to our objective?

Sketch out a procedure here.

Data table:

Create a data table here?

Technical questions?

1. Did you encounter any issues with the lab?
2. Did you have to change or alter your procedure in any way to account for these issues?
3. How did you determine the end point of the neutralization?
4. Which antacid was the best?