***Year 9 Chemical Science***

Evaluating Antacids – Science Inquiry

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Antacids contain a base that neutralises some of the excess hydrochloric acid in your stomach.

**Aim:** To evaluate how effective different antacids are at reducing acidity

***🖎 State the variables in this experiment:***

**Independent variable:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Dependent variable:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Controlled variables:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Materials:**

* 0.01M hydrochloric acid solution
* Test tubes
* Measuring cylinder
* Liquid universal indicator or pH meter
* Different antacid tablets
* Mortar and pestle

**Procedure:**

1. Measure 10mL of hydrochloric acid solution and pour into a test tube.
2. Measure the pH of the solution by putting a couple of drops of the universal indicator in it.
3. Record your observations and pH in the results table as the control.
4. Measure 10mL of hydrochloric acid solution and pour into a different test tube
5. Measure the pH of the solution by putting a couple of drops of the universal indicator in it.
6. Crush half of the first antacid tablet in the mortar and pestle, add it to the test tube containing the acid solution and shake gently to mix.
7. Record your observations and pH in the results table.
8. Repeat steps 4 - 7 for the other two antacid tablets
9. Rinse all test tubes containing the antacid tablets and repeat steps 4 - 8 for the other tablet halves.

**Results:**

***🖎 Complete the following Results table:***

**pH of Antacid Tablet Reactions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Name of tablet | Control | Antacid Tablet 1 | | Antacid Tablet 2 | | Antacid Tablet 3 | |
|  | |  | |  | |
| Trial 1 | Trial 2 | Trial 1 | Trial 2 | Trial 1 | Trial 2 |
| Colour of universal indicator |  |  |  |  |  |  |  |
| pH of solution |  |  |  |  |  |  |  |

***🖎* Discussion:**

Name the acid that is in your stomach

Analyse your results and determine which antacid tablet was most effective

List two possible sources of error in this experiment

Explain in detail how you could reduce one of the sources of error you identified above if you were going to conduct the experiment again