Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_

“Plop, Plop, Fizz, Fizz” . . . Factors Affecting Rates of Reactions

Alka-Seltzer in water produces carbon dioxide. It is the same reaction as vinegar and baking soda (sodium bicarbonate) because the Alka-Seltzer has a chemical in it that makes water acidic like vinegar. When the reaction occurs in a closed container, which in this lab is a film canister, the gas pressure builds up until the lid “pops.” The faster the chemical reaction, the faster the carbon dioxide gas pressure builds up, and the shorter the time until the lid pops. In other words, if two reactions in film canisters are compared, the one that pops in the shortest time is the one with the fastest rate of reaction.

 Problem: What factors affect the time of (and the rate of) a chemical reaction?

 Hypothesis : (complete sentence below):

 If alka seltzer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will cause the Alka-Seltzer react faster.

Variables:

Options of Variables to test: tap water, cold water, warm water, salt water, acidic water ( diluted vinegar)

Control group \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Constants: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Materials:

Film canister timer

Graduated cylinder beaker

Alka seltzer tablet

 Design and Conduct Experiment : answer these questions regarding your experimental design:

1. Will you use a whole tablet of half tablet of alka seltzer?
2. How will you measure how quickly it dissolves?
3. How much water will be used in the film canister?
4. Will this amount be the same in all of the test?

Create a data table to record your results:

|  |  |
| --- | --- |
| Variables | Dissolve time |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Graph results using Excel:

Draw Conclusion: use conclusion template