Reaction Speed of Chemical Leavening Agents Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Different chemical leaveners will behave differently when mixed with different liquids because of the leavening agent’s pH, which is a reflection of how acidic or basic it is. During this lab you will test which lab condition are most productive for baking soda and baking powder.

Procedure

1. Set up a 400 mL beaker of water on your hot plate. Heat your water so that it is near boiling.

2. Use the chart below to set up 9 labeled test tubes in a test tube rack.

3. Prepare each test tube with the solid leavening agent. Then one tube at a time, add the liquid and write down the reaction time it took from the reaction beginning to when the reaction was complete. Also write down observations for each tube.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Tube | Leavening Agent | Quantity of Agent (tsp) | Liquid | Quantity of Liquid (mL) |
| 1 | Baking Soda | 1 | Cold water | 15 |
| 2 | Baking Soda | 1 | Hot Water | 15 |
| 3 | Baking Soda | 1 | Cold water- wait - then heat it | 15 |
| 4 | Baking Soda | 1 | Lemon juice | 15 |
| 5 | Baking Soda | ¼ | Cold water | 15 |
| 6 | Baking Soda | ¼ | Hot water | 15 |
| 7 | Baking Powder | 1 | Cold water | 15 |
| 8 | Baking Powder | 1 | Hot water | 15 |
| 9 | Baking Powder | 1 | Cold water- wait- then heat it | 15 |

|  |  |  |
| --- | --- | --- |
| **Tube** | **Reaction Time** | **Observations** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |

1. Which reactions produced little or no reaction? Explain why you think this occurred.

2. Which reaction produced the most immediate and powerful reaction? Explain why you think this happened.

3. Did you see anything go off into the air during the reactions? If so, what did you see?

4. What temperature conditions (cool or hot) are ideal for getting maximum leavening for baking soda? Explain using your lab results