

Name: _____

Date: _____ Core: _____

Soapy Expansion

Before the dawn of liquid soaps when people were washing their hands or their dishes if their bar of soap dropped in the water what would happen? In a full sink of water the soap usually sank. This was a problem for consumers; would you want to reach in a tub of dirty water while you were trying to get clean? One soap company accidentally solved this problem by over mixing a batch and without trying they made soap that floats! The over mixing made soap with air bubbles trapped in the bars of soap which allowed it to float.

Which company accidentally invented floating soap this? We're going to test some brands of soap to find out. There are three brands of soap we will test. There are two ways to do this, we can place the soap in water and see if it floats or we can microwave it. When you microwave something it causes trapped air to expand as it heats up. The soap with the most air in it will expand rapidly to a huge size as the air bubbles trapped in it expand and push the sides of the bar outward. So let's microwave some soap!

Directions: Identify this experiment's independent variable, dependent variable, and at least two things you must control (one control is provided for you).

Independent Variable: _____

Dependent Variable: _____

Controls:

1. For each sample the time microwaved will be _____ (less than 90 seconds)
2. _____
3. _____

After identifying the variables and controls above place all three soap samples on one paper plate make observations about each and measure the widest part of each soap sample.

Record your data in the table below

| Soap Sample | Observations | Greatest Width Before Microwaving |
|-------------|--------------|-----------------------------------|
| | | |
| | | |
| | | |

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Once you have recorded the width of each soap sample before microwaving bring your plate over to the microwave and microwave your samples. Once they are done bring your plate back to your table and record your observations and the width of each soap sample after microwaving.

| Soap Sample | Observations | Greatest Width After Microwaving |
|-------------|--------------|----------------------------------|
| | | |
| | | |
| | | |

Conclusion:

The soap sample that had the most air mixed into the soap was _____.

Summary and Analysis:

1. Draw a bar graph showing the change in width for each soap sample. Be sure to correctly label your graph with the independent variable on the y-axis and the dependent variable on the x-axis.

2. We determined that the sample of _____ contained the most air because....