

Ivory Soap Experiment

Soap is an amazing combination of chemicals that go through some pretty cool changes when you use it. Think about it. Have you noticed how a bar of soap gets smaller over time? Have you noticed what happens when you use too much of it? The more you use, the more bubbles and lather you produce as the soap mixes with water. What you're seeing is actually a common chemical reaction!

Now, have you ever tried cooking soap? Don't worry! You won't cook it to eat it, but you can get some pretty astounding results when you microwave it. In fact, you can actually grow foam monsters in your microwave with a bar of soap. How cool is that? We're going to find out if all soaps can make foam monsters when you microwave them.

Problem:

Which soap will make the most foam: Dial or Ivory?

Materials:

- 1 bar Ivory soap
- 1 bar Dial soap
- Paper plate
- Microwave
- Knife
- 1 adult lab assistant
- Measuring tape

Procedure:

1. Measure both soaps' length, width, and height.
2. Record the measurements of each.
3. Calculate the volume by multiplying the length, width and height together.
4. With the help of your adult lab assistant, cut the bars of soap into four equal pieces each.
5. Place two of the Ivory pieces on a paper plate.
6. Place the paper plate in the microwave for 2 minutes.
7. Watch what happens to the soap.
8. Remove from the microwave and take the same measurements you made in step 1.
9. Record your results.
10. Repeat steps 1-9 for Dial.



Before Microwaving	Dial	Ivory
Length (l)		
Height (h)		
Width (w)		
Volume = l x w x h		
After Microwaving	Dial	Ivory
Length (l)		
Height (h)		
Width (w)		
Volume = l x w x h		

Results:

You should have discovered that the Ivory soap fluffed up bigger and created more foam than the Dial soap.

How do your results compare? Was your Ivory foam bigger than your Dial as it should have been? How much bigger was your bigger soap?

Why?

During the Ivory soap experiment, the reason that the Ivory swells and creates more foam than the Dial soap is because Ivory is full of more air pockets than Dial is. Notice how the bar of soap itself seems to weigh less than other soaps. Microwaving softens the soap, then heats the water and air inside to expansion, causing the growth you saw.

Digging Deeper

Science is a never-ending learning process. You can take this experiment so far and do so much with it. Try adding water to the resulting foam to see what you get. Try testing different microwaves to see which ones produced results more quickly. You can even test more soap brands to see which one starts to melt first. There are endless ways to extend this experiment. The only thing you need to remember is to record your results!