

Soap Clouds

The Incredible Expanding Soap Trick

Ivory Soap... it's the soap that floats. But why? You will uncover the secret behind this floating sensation by cooking the whole bar of soap in the microwave. That's right... the microwave oven! You won't believe your eyes as the soap begins to grow and expand.

Materials:

- Bar of Ivory soap
- Various bars of another brands of soap
- Deep bowl of water (or a plastic tub)
- Paper towel
- Microwave oven (*Exercise caution when using the microwave.*)

Procedure:

1. Fill the bowl with water.
2. Drop the bars of soap in the bowl of water. Notice how all of the bars of soap sink except for the Ivory brand soap. *Why?*
3. Remove the Ivory soap from the water and break it in half to see if there are any pockets of air hiding in the middle of the bar. (*By the way, there are no pockets of air! Hmmm?*)
4. Place the bar of Ivory soap in the middle of a piece of paper towel and place the whole thing in the center of the microwave oven.
5. Cook the bar of soap on HIGH for 2 minutes. Don't take your eyes off the bar of soap as it begins to expand and erupt into beautiful puffy clouds. Be careful not to over cook your soap soufflé.
6. Allow the soap to cool for a minute or so before touching it. Amazing... it's puffy but rigid.

Discussion:

Why does the soap expand in the microwave? The secret is actually a demonstration of Charles' Law. When the soap is heated, the molecules of air in the soap move faster causing them to move far away from each other. This causes the soap to puff up and expand to an enormous size. Charles' Law states that as the temperature of a gas increases so does its volume. Other brands of soap without whipped air tend to heat up and melt in the microwave.