

Presented by



CAUSE A CHEMICAL REACTION! FOAM IT UP!

This experiment uses a yeast solution, liquid detergent, and hydrogen peroxide to produce an exciting reaction. The result will send a stream of foam flowing out of the bottle in a way that resembles toothpaste being squeezed out of a tube. Please don't try to brush your teeth with this foam!

INSTRUCTIONS:

1. Place the empty plastic bottle into the center of the empty aluminum cake pan and then put the funnel into the bottle's mouth.
2. Add 3-5 drops of food coloring to the hydrogen peroxide and pour the peroxide through the funnel into the bottle.
3. Remove the funnel and add the dishwashing liquid into the bottle.
4. Pour the yeast mixture into the bottle. A reaction will begin to occur quickly. Touch the bottle to feel if any temperature changes are taking place.



After a minute or two, foam will stream out of the bottle and run into the pan in a steady stream. Touch the foam! It's only soap and water with oxygen bubbles!

The bottle will feel warm to the touch. Why? You've just witnessed an example of an exothermic (heat-producing) reaction.

Hydrogen peroxide, when mixed with a liquid detergent and a catalyst (the yeast), will react, producing foam (oxygen gas) regardless of the amounts being used.

Play with different amounts and varying solutions of hydrogen peroxide to see what impact it has on the amount of foam produced and the strength at which it 'shoots' from the bottle.

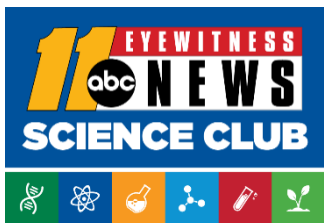
Visit us on www.Facebook.com/abc11scienceclub and share the video or picture of your foam reaction.

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WHAT YOU WILL NEED:

- 16 oz. empty clear plastic bottle
- .675 fluid oz. of hydrogen peroxide 6% solution (we used Salon Care 20 Volume Clear Stabilizer Formula, from a local beauty supply salon)
- .34 fluid ounces of dishwashing liquid
- Food coloring
- 1 oz. package of powdered yeast
- Small funnel
- Aluminum foil pan
- Safety glasses
- Permission!





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INSTRUCTIONS CONTINUED:

9. Remove the added paper towel and push the curds together to start working them into a small ball. This is casein plastic!
10. You can color and shape your plastic. Knead it well before shaping to minimize cracking.
11. Leave your casein plastic to dry for 48 hours.
12. You can paint or color the material once it dries.

Some further exploration you can try:

- Discover how the temperature of the milk impacts how much casein plastic you can produce.
- Modify the quantities of vinegar to see what impact it has on the yield of casein plastic you produce.
- Vinegar is an acid that reacts with the milk. Try this experiment with other acids such as lemon juice, soda pop and tomato juice. Do some acids work better than others?
- Research online to discover what plastics are made from today.

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CASEIN PLASTIC!

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