



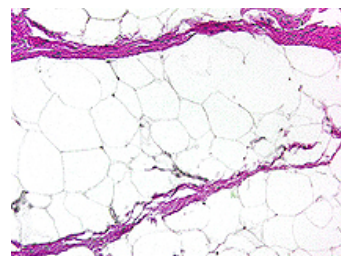
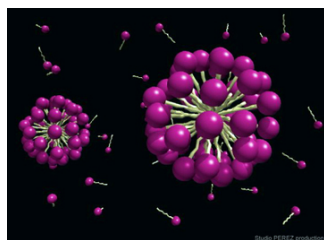
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Milk Color Explosions

Introduction:

Not only is milk good for you but it is also the key ingredient for making a colorful explosion!!! How you ask?? The fat in milk reacts with the compounds in dish soap to create an explosion of colors with food coloring. The key component of this experiment is a molecule known as a micelle. Micelles are molecules that are clumped together that spread out fat in milk when soap is added. Because milk is mostly composed of water, the micelles in the soap will break water bonds. As chemists we get to explore and observed our questions and hypotheses.

Through the movement of the colors in food dye, we are going to observe what will happen to the fat in milk when soap is added. Get ready to be amazed!!! Explosions are going to happen but not the ones you are thinking about. ;)



Materials:

- 3 Different Types of Milk (ex. Nonfat, 2%, and Half&Half)
- Dishwashing Soap
- Cotton Swabs
- Plastic Plates
- Liquid Food Color (4 Different Colors)

Safety:

- Remember, don't drink the milk after the experiment is done!!
- Be careful not to drop any color dye on you or your clothes!!

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Procedure:

1. Pour $\frac{1}{2}$ of milk of choice onto the plate.
2. Squeeze a drop or two of your colors of choice into the center of the plate with milk. (As many colors as you like!)
3. Take a cotton swab and dip it into the dishwashing soap.
4. Dip the soap covered cotton swab and dip it into the center of the milk that has the colors in it.
5. Watch the magic color explode!!! Observe which milk makes the colors explode faster and longer!

Data and Observations:

Record your observations and measurements here.

	Description of the Milk Before Soap	Rate from 1-3 the intensity of the reaction (3 being the most intense)
Half&Half		
2%		
Nonfat		

Questions:

What type of milk did you think worked best for the experiment? The more fat filled milk (Half&Half) or the less fat filled milk (nonfat)?

Why did the addition of soap make the color explode in the milk?

What do you think would happen if you used oil, melted butter, or water instead of milk or maybe even drop a solid piece of soap in the middle of the plate rather than liquid soap? Try it out and be amazed!!!

References:

<http://www.stevespanglerscience.com/experiment/milk-color-explosion>

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