Name: _____ Date: _____

High-Quality Facial Soap

Introduction

Glycerin soaps are soaps that contain glycerin, a component of fat or oil, also known as glycerol. Glycerin soaps are recognizably different from other soaps because they are translucent. Glycerin soap is made by melting and continuously heating soap that has been partially dissolved in alcohol until the mixture reaches a clear, jelly-like consistency. The glycerin in the soap acts as a *humectant*, or chemical that attracts water molecules, helping to moisturize the skin.

In this lab, you will prepare glycerin soap by dissolving regular soap in ethyl alcohol, glycerin and water. Batches of glycerin soap can be customized by adding dyes and fragrance oils, as well as pouring them into molds for more interesting shapes. The dissolving of the soap molecules in the polar water, glycerin and alcohol causes the light to pass through the solution, making it translucent instead of opaque.

Materials

distilled water
dye
ethyl alcohol
glycerin
pH paper
scented oil
soap flakes (Ivory)

Equipment

beaker, 250-mL
electronic balance
graduated cylinder, 100-mL
hotplate
soap molds
stirring rod
thermometer

Safety Considerations

- Sometimes chemicals from previous labs still remain in glassware and on other lab equipment; wash all lab equipment before and after performing this lab.
- Wash your hands thoroughly after completing this lab.

Procedure

1. Obtain 20 grams of solid soap flakes and place them in a 250-mL beaker.
2. Add 15 mL ethyl alcohol, 25 mL glycerin, and 15 mL distilled water to the beaker. Mix thoroughly.
3. Using a hotplate, gently heat the mixture at a low setting until it has turned clear. Be careful to stir slowly so you don't introduce air bubbles into the mixture.
4. Once the volume of the solution has been reduced by about half, remove the beaker from the hotplate.
5. If you would like to add a scent or color to your soap, add about 5 drops of each at this time. Mix slowly!
6. Prepare a plastic mold by wiping it with a small amount of glycerin.
7. Pour the soap slowly into a plastic mold. The fewer air bubbles there are in your mixture, the more translucent your soap will be.
8. Label your soap by writing your name on a small piece of paper and placing it under the

shape you used.
9. Allow the soap to set until hardened. This may take 1-3 days.
10. After the soap has solidified, test its pH using pH paper. Note the color of the paper and its corresponding pH value.

Clean-up

1. Dispose of any leftover solutions in the sink. Flush with lots of water!
2. Clean all used lab equipment with soap, water and a test tube brush.
3. Return all equipment to its proper location.
4. Wipe down your lab area and wash your hands before leaving the lab.

Questions

1. Test your soap product by using it to wash your hands. How well does it work?

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_____

2. What was the pH of your soap? Was it acidic, basic (alkaline) or neutral?

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_____

3. What are two major differences between your glycerin soap and the soap you made using shortening? Which do you prefer?

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4. Why do you think it was necessary to heat the solution and reduce its volume in order to make this soap?

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5. List one way you could change this lab and describe how your results might be different.

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