



“Gardeners Soap Workshop”

Saturday May 13th, 2017

Presenter: Carol Muncer, handout prepared by Danielle Smith

COLD PROCESS: Cold Process soap making is the act of mixing fixed oils (common oils include Olive, Coconut and Palm) with an alkali (Sodium Hydroxide or Lye). The result is a chemical process called saponification, where the composition of the oils change with the help of the lye to create a bar of soap. One of the main benefits of cold process soap making is having complete control over ingredients. Depending on the ingredients you use, cold process soap making typically yields a long-lasting bar of soap.

Ingredients:

- 20 ounces of olive oil
- 6 ounces of coconut oil
- 6 ounces of sunflower oil
- 4.35 ounces sodium hydroxide, or lye. (also called caustic soda)
- 1 ounce of sweet almond oil (optional)
- 10 ounces distilled water
- your favorite essential oil, such as peppermint, lemon, rose or lavender
- 1-2 Tablespoon of your preferred exfoliant (optional)



Step 1: Gather the ingredients. Cold process soap is made from oils, lye and water. When these ingredients are combined at the right temperature, they harden into soap in a process called **saponification**. Go to your local hardware and grocery store to purchase the ingredients listed above.



Step 2: Set up your soap-making workspace. It's easiest to clear a space in the kitchen, since you'll need to heat the ingredients over the stove. You'll be working with lye, a dangerous chemical, so make sure children and pets are not underfoot while you work. Spread newspaper over a table and assemble the following equipment, which can be sourced online or from your local craft store:

- Safety goggles and rubber gloves, to protect you from the lye.
- A scale to weigh the ingredients.
- A large stainless steel or enamel bowl.
- A glass or plastic wide-mouth pitcher, to hold the water and lye.
- A two-cup plastic or glass measuring cup.
- Plastic or wooden spoons.
- A stick blender, also called an immersion blender. This isn't absolutely necessary, but it reduces stirring time by about an hour.

- Two glass thermometers that register between 80-100 degrees F. Candy thermometers work well for this purpose.
- Plastic molds that are suitable for cold process soap making; or box or a wooden mold (line box or wooden mold with parchment paper)
- Multiple towels for cleanup.



Step 3: Measure 4.35 ounces of lye. Use the scale to make sure the measurement is exact, and pour the lye into the two-cup measuring cup.



Step 4: Measure 10. ounces of distilled water. Use the scale to make sure the measurement is exact, and pour the water into a large, non-aluminum container, such as a stainless steel pot or glass bowl.



Step 5: Add the lye to the water. Place the container of water under your stove's running exhaust fan, or make sure the windows are open and the room is well-ventilated. Add the lye to the water slowly, stirring gently with a spoon until the lye is completely dissolved. **It is very important to add the lye to the water and not the other way around;** if you add the water to the lye, the reaction between the two substances is too quick, and may be dangerous. As you add the lye to the water, it will heat the water and release fumes. Keep your face turned away to avoid inhaling the fumes. Set the mixture aside. Allow it to cool and let the fumes dissipate.



Step 6: Measure the oils. Use the scale to weigh out 20 ounces of olive oil, 6 ounces of coconut oil, and 6 ounces sunflower oil. You can use many different types of oils for soap making. To get the proper amount of all ingredients when changing this recipe use a **Lye Calculator**.



Step 7: Combine the oils place all the oils in the bowl and heat until just melted (in pot on stove or in microwave) try not to over heat as they will need to cool down anyway to the temperature of the lye mixture

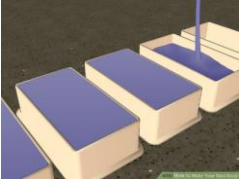
Step 8: Measure the temperature of the lye and oils. Use different thermometers for the lye and oils, and continue to monitor their temperatures until the lye reaches 95-98 degrees Fahrenheit (35-36 degrees Celsius) and the oils are at the same or lower temperature.



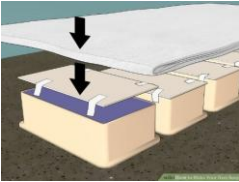
Step 9: Add the lye to the oils. When the two substances have reached the proper temperatures, add the lye in a slow, steady stream to the oils. Stir with a wooden or heat-resistant spoon; do not use metal. You may instead use a stick blender to stir the lye and oils. Continue to mix until **"tracing"** occurs; you'll see

your spoon leave a visible trace behind it, like one you'd see when making pudding. If you're using a stick blender, this should occur within about 5 minutes. If you don't see tracing within 15 minutes, let the mixture sit for 10-15 minutes before continuing to mix again.

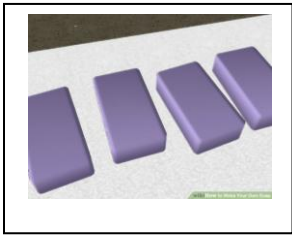
Step 10: Add your essential oils once tracing occurs. Some fragrances and essential oils (cinnamon, for example), will cause soap to set quickly, so be ready to pour the soap into molds as soon as you stir in the essential oil. This is also the time that you want to add any exfoliant to the mixture. If you would like to layer your soap you would also want to divide the batch now as well.



Step 11: Pour the soap into your mold. If you are using a shoebox or wooden mold, make sure it is lined with parchment paper. Use an old plastic spatula to scrape out the last bits of soap from the bowl to the mold. Carefully hold the mold an inch or two above the table and drop it. Do this a few times to work out any air bubbles inside the raw soap.



Step 12: Cover the mold. If you're using a shoebox as a mold, put the lid on it and cover with several towels. If you're using a soap mold, tape a piece of cardboard over the top before adding towels. The towels help insulate the soap to allow saponification to occur. Leave the soap covered, undisturbed, and out of air drafts (including the air-conditioner) for 24 hours.



Step 13: Check the soap. The soap will go through a gel stage and a heat process during the 24 hours. Uncover the soap and let it sit for another 12 hours, then see what the results are. If you measured accurately and followed the directions, the soap may have a light layer of a white ash-like substance on the top. This is basically harmless and can be scraped away with the edge of an old ruler or metal spatula. If the soap has a deep oily film on top, it cannot be used, because it has separated. This will occur if your measurements were not accurate; you did not stir long enough, or if there is a drastic difference in the temperatures of the lye and oils when they are mixed. If the soap did not set at all, or has white or clear pockets in it, this means it is caustic and cannot be used. This is caused by under-stirring during the soap-making process.

Unmold the soap. Turn the box or mold over and allow the soap to fall on a towel or clean surface.

Cut the soap into bars. You need to use tension to cut soap of this type. You can use a sharp knife, a length of wire with two handles, or heavy nylon string or fishing line.

Cure the soap one month. Let the soap sit, exposed to air for at least one month. When the soap has fully cured, use in your home, as you would any store-bought soap, or wrap as a present for your friends. It will keep indefinitely.

Tips

- Don't use perfume as a fragrance, especially if it contains alcohol. It will alter the chemical reaction that's taking place between the lye and the fats, and will cause your soap to fail. You can use natural essential oils or fragrances that are specifically manufactured for use in soaps. A little bit of essential oil or fragrance goes a long way. You may only need a teaspoon or so.
- Temperature is crucial when mixing the oils with the lye. If they are too hot, they will separate; if they are too cool, they won't turn into soap.
- Lye can be found in the plumbing section of most hardware stores or purchased online. Make sure the package says it is 100% sodium hydroxide.
- What the different oils do for your soap
 - Hard, stable, long lasting - (palm oil, beef tallow, lard)
 - these oils give a stable, creamy, low lather
 - Lathering - (coconut, castor, palm kernel)
 - these oils give bubbly, fluffy lather
 - Moisturizing/Conditioning - (olive oil, canola, sunflower, soybean)
 - these oils give a low creamy, milky lather
 - Luxury/Super Moisturizing - (cocoa butter, shea butter, almond oil, hemp oil, jojoba)
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Resources:

<http://www.wikihow.com/Make-Your-Own-Soap>

<https://www.soapqueen.com/bath-and-body-tutorials/cold-process-soap/free-beginners-guide-to-soapmaking-cold-process/>

<http://www.soapguild.org/lye-calc.php>

http://redandhoney.com/the-science-of-soap-why-all-bars-are-not-created-equal/#_a5y_p=4466124

<https://www.thespruce.com/create-a-basic-soap-recipe-516796> this has the various percentages you may want to various recipes