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BEGINNER'S GUIDE TO SOAPMAKING: COLD PROCESS

We are going back to the basics. Here is a free beginner's guide to the art and science of soapmaking that includes a step-by-step guide through the basics of Cold Process, and in part two, a beginner's Melt and Pour layering project. Plus, downloadable PDFs make these guides a handy take-anywhere tool!

What's the difference between Melt & Pour (M&P) and Cold Process (CP) soap? Melt and Pour (M&P or MP) utilizes a pre-made base that is ready to use as is (literally, you could take the melt and pour block, as-is, get in the shower and lather away!). But this block of unassuming plain soap is waiting for your personal touch to transform into something amazing. Cold Process soap is made by mixing or saponifing lye and oil and the resulting chemical reaction is soap. With M&P base – the saponification and waiting step has been done for you while with CP, you do it yourself.

COLD PROCESS: Cold Process soapmaking 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 soapmaking is having complete control over ingredients. Depending on the ingredients you use, cold process soapmaking typically yields a long-lasting bar of soap. A downfall is that due to the chemical process, there are serious safety considerations to take into account and not all fragrance oils, essential oils, and colorants survive in cold process, thus limiting design options. Plus, patience is a virtue as this process involves a 4-6 week curing time.

VOCABULARY:

Trace: This is when the soap has emulsified and is a pudding consistency. You can check for trace by pulling the stick blender out of the soap batter, and checking the "trails" left by the soap batter. If they are suspended on the top of the soap, you've got trace! You will see trace referred to as light, medium and heavy. These are just different thicknesses and consistencies of the same process.

Gel Phase: Gel phase is a temperature phase during the soapmaking process. After soap is in the mold, the process of saponification can cause the soap to heat up. Gel phase is beneficial to soap because it can intensify colors in the soap and give soap a shinier, slightly translucent look. Professor Kevin M. Dunn, author of Caveman Chemistry and Scientific Soapmaking, mentions that heat and gel phases also speeds along the saponification process. However, not going through gel phase does not detract from the soap in any way. In fact, some soapers prefer the matte look of soap that has NOT gelled, or gone through gel phase, and take special steps in order to prevent gel phase. The warmest part is in the center of the soap (the most insulated section), which is where gel phase starts. In the very first picture in this guide, you can see that the center of the soap is darker than the outside of the soap. This is an example of soap that has gone through partial gel phase (the inside of the bar) and is a great example of more intense color in the center vs. less intense color along the outer edge. Insulating soap after molding will promote gel phase. Cooling the soap as quickly as possible will deter gel phase from happening, which is why some soapers put their soap into the fridge or freezer directly after molding. To gel or not to gel is a matter of personal preference.

Curing: The process of curing CP soap allows the excess moisture in the bars to evaporate, leaving a harder and longer-lasting bar. In chapter 21 of Scientific Soapmaking, Prof. Dunn notes that the total alkali of raw soap batter is about 10%, and that the total will fall to below 0.1% within an hour if the soap is held at 160 degrees. A zap test – sticking your tongue on the soap to test for a "zap" or lye reaction – or a pH test will confirm this. However, the earlier a bar is used, the softer and possibly slimier the bar will be in the shower, and the less time it will last. Additionally, the 4 to 6 week curing and drying time helps to produce the most gentle bar of soap possible. You will notice a difference in your skin when showering with a new bar of soap versus a fully cured and dried bar. It's the final bit of pH lowering that happens in the rest of the 4-6 weeks of curing, and the main benefit of the cure time is the evaporation of excess water, which makes for a harder bar and a more true net weight for labeling purposes if you're selling your soap. So if you'd like a harder bar, allow your soap to go through the standard 4-6 week cure.

Soda Ash: Soda ash is essentially a salt that precipitates to the surface of the soap. It is a whitish-grey substance that can appear on parts of the soap exposed to air, and usually appears within the first 24 hours. It is not harmful to the soap, and really the only malady is visual. Plastic wrap can be placed directly on (and touching) the soap before it's put to bed (either under towels for gel phase or left out if not gelling) to prevent Soda Ash, or for soaps with decorative tops, intermittent spritzes of 91% Isopropyl Alcohol can help. If Soda Ash persists despite preventative methods, washing the soap after a few days of curing will help as well. To wash soap, run the it under cold tap water and rub the effected areas with a pair of old nylons or tights. Rinse away any lather, and allow to dry on a rack. Switching up your recipe a bit to decrease the water amount by 10%, working at slightly lower superfat, or including .5% melted beeswax at thin trace can also help to decrease Soda Ash.

Lye Calculator: A calculator that is used to determine the lye and water amounts in a given recipe. Use a lye calculator to cross-check a recipe you find online and aren't sure about, or to get the oil percentages to change the size of the recipe. As long as you know the amounts of each of the oils called for, either in ounces or percentage, you can figure out your lye and water amounts and even adjust the size of a recipe using the lye calculator. For recipes given only in percentages, you'll start in the calculator by switching the format from "ounces" to "percentages", then enter in a desired oil weight. This weight is not the total yield of the soap, just the total weight of the fixed oils to be used in the recipe. Generally, the total weight of the fixed oils in a recipe is about 30% less than your desired yield. It can vary a bit based on the oils you're using, but it's a good jumping off point. Once you get your percentages entered into the calculator, adjust your desired superfat. Bramble Berry typically recommends 5% superfat, and most soapers use between 3% and 6%. Once your oil weight, percentages, and superfat amount are entered, hit "calculate" to see if your yield is on. You'll be able to adjust your oil weight accordingly to meet your yield.

LYE SAFETY AND SAFETY GEAR: Education is the key to lye safety. Lye is an alkali, a highly corrosive product that should be handled with care. Never leave lye water unattended or in an area where children or pets may mistake it for drinking water. In fact, be sure that when soapmaking, kids, pets and other tripping and distraction hazards are not in the general area. When mixing lye water, the solution will omit fumes so always soap in a well ventilated area. Soap Queen TV has quite a few episodes on cold process soapmaking so if you're a visual learner, be sure to check them out (especially the video on lye safety).

Goggles: Alkali burns are one of the most dangerous an eye can sustain. Soapmaking isn't worth the risk of a serious medical issue that can possibly result in blindness! Your safety goggles should protect the eye from all sides, so for this reason eye glasses are not sufficient protection. Some soapers (including those that make our 100+ pound batches of rebatch soap at Bramble Berry) prefer a full face mask when soaping.

Rubber or latex gloves: For extra protection, rubber dish gloves that go almost to the elbow work great, but can be bulky. Thinner latex provides protection without the bulk. Whichever type of glove you work with, they should be paired with long sleeves.

Long sleeves, pants, and closed-toed shoes: Protect your body from unexpected splashes by simply wearing clothing over it. The less exposed skin around lye and raw soap, the better.

EQUIPMENT:Any equipment that is being used for soapmaking should be exclusive to soapmaking. Do not use equipment for soapmaking that you hope to still use in your kitchen in food preparation. Along the same lines, soapmaking equipment should be hand-washed instead of washed in the dishwasher. Better safe than sorry!

Pyrex or other heat-resistant, non-reactive containers: Aluminum reacts with lye, creating a toxic fume, and is not appropriate for soapmaking. Heat-safe, tempered glass, stainless steel, or Polypropylene plastics are what we've found to work best.

Stick/emulsifying blender: Hand-stirring soap can literally take hours. A stick blender makes quick work of emulsifying the lye and oils! A stainless steel shaft will last the longest.

Rubber spatula: Use for scraping every last bit of soap out of your container into the mold.

Scale: For accuracy's sake, all of Bramble Berry's soap recipes are measured by weight instead of volume (and yours should always be as well). A digital scale is nice but you can always start with a cheaper, kitchen scale and work up to a digital scale. This is a good $20 starter scale.

Soap mold: There are many options for soap molds! The most common molds for soapmaking are made of either wood, plastic, or silicone. If you use wood molds, they must be lined (fresh soap eats wood) and you cannot use glass for a soap mold. While it is safe, it is difficult to release the soap from a glass mold.

Wood Molds: Wood molds cannot be used unlined, as the wood is porous and will absorb the oils in soap batters. Lining wood molds can be done with freezer paper, or done quickly with a silicone liner! See if your mold's manufacturer offers a silicone liner. Wood molds are sturdy and durable, and some can be used for alternate soapmaking processes like Hot Process or Cold Process – Oven Process.

Plastic Molds: Plastic is an excellent medium for soap molds. In addition to plastic molds intended for soapmaking, one can also find household items made of plastic (such as Tupperware or Rubbermaid containers) that can also double as soap molds. Even plastic yogurt containers will work! If you are re-using household finds, be sure that they are clean, free of food debris, and dry before using them to make soap.

Silicone Molds: Silicone is a flexible material that is especially conducive as a soap mold material. Flexibility allows for extreme ease in unmolding, which some soapmakers hold high above any other mold attribute. However, silicone molds also tend to want to "cling" to soap for a bit longer, so soap may have to sit for a few extra days. This doesn't have any effect on the soap itself, but may be a test of your patience.

MAKING SOAP

A basic recipe:

30% Palm Oil

30% Coconut Oil

30% Olive Oil

10% Sweet Almond Oil

STEP ONE: Suit up in safety gear (goggles, gloves) and make sure all kids and pets are not in the general area. Measure out the lye and water amounts. Slowly and carefully add the lye to the water. Stir until the water turns clear again and set aside. Do not breathe the lye fumes.

STEP TWO: Melt (when necessary), measure and combine your oils (often referred to as 'Fixed Oils').

STEP THREE: Once the oils and the lye water have cooled to below 130 degrees (and ideally are within 10 degrees of each other), carefully pour the lye water into the fixed oils. Pour the lye water down the shaft of the blender to avoid air bubbles.

STEP FOUR: "Burp" the stick blender by tapping on the base of the container to release any additional air bubbles. Pulse the stick blender to mix the oils and the lye water initially, then hold the mechanism at continuous blending until the soap reaches trace. Make sure your stick blender is fully submerged in the soap before turning it on, lest you end up with fresh soap batter all over your kitchen!

STEP FIVE: Once the soap has reached trace pour the soap into your mold. Tamp the mold on your work surface to release any air bubbles. Note: Trace is the time that you'll add any color or fragrance additives. Always hand stir them in and start with the color before the fragrance oil.

STEP SIX: Allow the soap to stay in the mold for 24-48 hours. Unmold, cut, and cure for 4-6 weeks.