COLD PROCESS SOAP
TUTORIAL AND TROUBLESHOOTING
Makes 4 lbs of bar soap

Making cold process soap isn't as easy as a simple melt and pour soap, and it can be overwhelming at first. The team at the ChemistryStore.com wanted to lend a helping hand in making your cold process soap. We've crafted a complete guide to cold process soap with a basic recipe, step-by-step instructions, and some trouble shooting tips to help you make your cold process soap batch.

Ingredients:
- Water - 24.32
- Lye - 8.8 ozs
- Coconut oil - 12.8 ozs
- Olive oil - 44.8 ozs
- Palm oil - 6.4 ozs
- Total oils - 64 ozs
- Palm oil - 6.4 ozs
- (Total oils - 64 ozs)
- Fragrance or Essential oil – 2 oz

Equipment:
- Mica colorant (optional)
- Scale
- Soap mold
- Bowls
- Plastic spatulas or spoons
- Immersion blender
- Gloves (latex or rubber)

For this 4lb batch we used our 16 inch Precision Loaf Soap Mold. This mold is made of smooth HDPE plastic and snaps together so there’s no hardware to lose and you don’t have to line the sides. The thin mylar liner (2 included with the mold) keeps the soap from sticking to the bottom and makes for easier unmolding.

Instructions:

Step 1.
In a bowl or pitcher add the lye to the water, being extremely careful to not let the lye come in contact with your skin. It’s important to add the lye to the water and not the other way around!

Step 2.
Stir in all the lye and once it has dissolved set the container aside to cool a little.
Step 3.
Melt all oils and butters (palm oil, coconut oil, etc.) in a double boiler or microwave.

Step 4.
Mix all your oils and butters together (coconut, olive and palm) in one bowl, stirring them gently.

Step 5.
Add the lye solution to the oils and mix with the immersion/stick blender.
Step 6.
Blend the soap batter until you get a smooth creamy texture and reach a light trace. Trace means that when you lift the blender out of the batter and let some of it fall back into the bowl, it leaves a thin line on the surface of the batter before sinking back in.

Step 7.
Add the fragrance or essential oils and stir so that the fragrance is blended evenly throughout the soap.

Step 8.
Once the consistency is up to par on your soap you can pour it into the mold. However, if you’re looking to get colorful with your cold process soap or do a swirl, now is the time to divide your batter up accordingly to add your mica colorant.
Step 9.
To add coloring, select the color you want and add about 20 grams or ¾ of an ounce of mica (or titanium dioxide for white) for the whole batch. Whisk it in and you'll have that bright color your craving.

Step 10.
Once the desired color is met just pour your soap into the mold, following the steps for any swirls you want. Wrap your soap in a towel or plastic to ensure it gels throughout then let it harden. After 24-48 hours you'll have 4 pounds of great smelling and looking homemade soap ready to come out of the mold and be cut.
We use our Precision Economy Soap Cutter to quickly cut the loaf of soap into equal-sized bars before letting them cure. For curing, simply stand up or lay out your bars on a flat surface in a dry, well-ventilated area, flipping or rotating them occasionally. Leave the bars to cure for 4-6 weeks and then they’re ready to use! The curing process is important because it allows excess water to evaporate and the pH to balance out, leaving you with a hard, long-lasting bar of soap that won’t be too harsh for your skin!

COLD PROCESS SOAP TROUBLESHOOTING

There are dozens of variables that can cause problems in cold process soap making. One major factor that can determine the success of your soaping session is the fragrance or essential oil that is used. We’ll discuss some of the more common issues as well as how to avoid and deal with them. All the images shown were from a single tester batch that went through almost every problem imaginable. If this batch could be salvaged, almost any soap can!

**Acceleration** occurs when fragrance oil or soaping oil brings the batter to trace quicker than expected. Trace is when your oil, lye and water have mixed together to the point of no return. They will no longer be able to separate into oil, lye and water again. They have become soap. Acceleration isn’t really a problem unless you’re trying to make a swirl or some creative design with the different colors. The thick pudding-like texture of the batter will not cooperate with complex designs, but it’s still well-suited for a solid color or layered soap. If your batter does accelerate, try to get it in the mold as quickly as possible and whatever you do, DO NOT stick blend the batter more than you need to. Sometimes there’s no way to avoid acceleration, so to ensure your batter will not accelerate or seize test new fragrances in small batches first.
Seized soap (which is a more advanced form of acceleration) is like the texture of dough or clay and may even look cracked and crumbly. It is caused by a fragrance, certain oils or over blending. At that point it’s almost impossible to pour or work with, but you can usually still manage to scoop it into the mold, and as long as it’s not lye heavy, it will still make a good soap.

If your soap seizes:
Although the fragrance does accelerate trace, the batter won’t be unworkable. While it wouldn’t be suited to a design with intricate swirls, a thick batter like this can make a rustic soap design, such as a straight forward layered soap or a solid-colored soap. If you have a seizing or accelerating fragrance, just get that batch into the mold as quickly as you can. Be prepared for it to heat up quickly. Many times there’s a correlation between acceleration/seizing and excessive, quick heat in your soap batch.

Ricing occurs when an ingredient in the fragrance oil binds to harder oil components in the recipe to form hard rice-shaped lumps in the soap batter. Ricing can be stick blended or
whisked out if necessary. If utilizing the stick blender to smooth your soap out, you may get a thicker trace than expected. **Separation** occurs when the opposite happens. When a fragrance oil can’t be mixed into the soap batter, oil slicks start to form on top of the batter. Separation can look similar to ricing, and the two sometimes occur together. The difference between the two is you can see pools of oil on the soap with separation. Sometimes there’s no way to avoid ricing or separation, so to ensure your batter turns out well test new fragrances in small batches first.

**Soda Ash** is a white chalky powder that occurs when the sodium bicarbonate in the soap rises to the top during the curing process and hardens with the soap. This is an easily fixed problem and really only a minor cosmetic flaw. To try to be proactive in preventing soda ash, lightly spray 90% rubbing alcohol along the top of your soap right after you pour it in the mold. If you do get soda ash, rub the areas with soda ash with a damp rag or cloth until the ash is gone and then let the soap dry.

**Discoloration** occurs when using fragrance oils with a high VC (vanilla content). Many times the soap will turn a brown color, which is all from the amount of vanilla that is in the soap. Vanilla content can range anywhere from as little as 0.01% (which will have little to no effect on your soap) to 20% or higher (which causes dramatic discoloration). That same vanilla content can affect the final color of micas and other colorants because the soap batter is darker overall. Always check the vanilla content of your fragrance before using it and choose your colors accordingly since the dark brown color of the soap isn’t always apparent until after it’s hardened.
You can use titanium dioxide will lighten the soap batter and give it an off white or tan tint, but it will not be completely white.

Partial Gel Phase is when part of the soap gets hotter and therefore hardens more than the rest of the bar. The center is usually hotter than the outer edges as it’s more insulated and can leave a darker/more translucent ring in the center of the soap. This discoloration will leave a two-tone kind of look and a different texture within the soap. It’s purely cosmetic, however, and won’t affect your soap. To prevent a partial gel, wrap your soap in a towel to insulate it and ensure it gels all the way through.

In the end, practice makes perfect! Keep exploring and mastering techniques that will help you accomplish the soap you want. Every soaping experience is a learning one!

Here are a few tips to ensure you get well-behaved batter.

- Make sure you practice low-temp soap making. It’s safer to soap when the lye water and oils have cooled down some. When soaping at elevated temperatures, the risk of accelerating trace increases and you can also create a heat tunnel or soap volcano!
- Double check your recipe with a lye calculator and make you’re using the correct amount of water. Not using the right amount of water can accelerate trace.
- Mix the fragrance oil for the batch with an equal amount of liquid oil (you can pull it out of the regular recipe or just add extra oils). Heat the mixture for 20 seconds in the microwave so it’s closer to the temperature of the soap batter when you add it in.
- Whisk in fragrances and colorants after the batter reaches trace. If you stick blend the batter too much your batter is more likely to thicken up.
- Use recipes with mostly soft oils, like olive, sunflower or sweet almond as they tend to hold onto a thinner trace for a longer time.