

# Soapmaking Recipes

Almost any combination of oils can make a soap, but what really goes into the thought process behind making a genuinely skin friendly soap? That's a difficult question to answer because there are many right answers. Every soapmaker has a different style and people in general have varying skin types.

What one person can't stand another might fall in love with. But whether a soap recipe was passed on from generation to generation, just tossed together in experimentation until someone stuck to it, or someone carefully strategized the recipe from a scientific standpoint- all soap recipes have a definite chemistry that makes them what they can become behind the curtains. This is not meant to be a "how to" on the soapmaking process for those interested in the craft of soapmaking, but rather a general guideline of considerations that can come into play when deciding what to use in recipe formulation. I think many be surprised at exactly how much science is really behind it and might help give a little extra appreciation for all quality soapmakers. If you're just beginning soapmaking yourself you may find this useful to have another soapmaker's ideas and insights.

## Basics

First things first, it may helpful to understand the very basics of how soap is made and some of the commonly used terminology. Soap is the outcome of a chemical reaction when oils react to a high alkali substance such as lye, or caustic soda. In this article I briefly touched on how it happens and explains "saponification": "Soaps With No Lye?" For every oil there it takes a specific amount of lye to make soap with without any remaining lye. That set number is known as the oil's "saponification value". Even carefully measured ingredients that meet the saponification values amount exactly, without going over or under, can make a harsher soap to skin, so extra oil beyond the amount called for to make soap is added. The extra oil added to to the recipe for mildness and/or moisturization is referred to as "superfatting". However increasing superfatting by too much can leave a soap feeling too oily on the skin or drastically decrease the shelf life of the soap.

**IMPORTANT-** Please note once again, this is NOT an instructional on how to make soap! There are many free sources on the net for learning and if you plan on trying it yourself I urge you to read every single one you can find BEFORE attempting to make it yourself! Handling lye can be downright dangerous and possibly DEADLY if it is not handled with care and special safety precautions! A lye heavy soap can also create very unpleasant situations. I beg of you to do plenty of homework first, follow all recommended safety precautions, measure ingredients carefully with an accurate scale, and always use a good lye calculator no matter where you get your recipe from!

## Oil Properties and Fatty Acid Composition

When I formulate a soap recipe the first thing I look at is a breakdown of the fatty acid composition of each oil I have on hand. An unbalanced recipe can wreck havoc on sensitive skin unless certain techniques aren't modified. When deciding what base oils to use and how much, here are the fatty acid properties that I personally take into account:

- lauric acid- Lauric acid is what helps contribute to big fluffy lather in a soap and helps to create a harder bar. Too much can make a horribly drying soap to skin so I pay special attention to make sure I don't overdo this! Coconut and palm kernel oil are two common oils high in lauric acid that are considered "lathering oils". I have found that there are many that actually have a sensitivity to coconut oil in particular, which is the most common oil of all used for lather. I have found it's best keep even lower amounts of coconut and whenever possible I allow extra superfatting or purposely lower the saponification value) for this ingredient.

- oleic acid- Oleic acid is supposed to be one of the most moisturizing properties and is most plentiful in olive oil, for an example. However many find a pure olive oil soap, also known as a true "castile", to still sometimes be drying. It is the most moisturizing, yes, but many soapmakers find that a really good soap also has a balance with the next property I'm about to mention.

- linoleic acid- Linoleic acid, found plentiful in oils such as sunflower or safflower oil, can really boost the moisturization or mildness of a bar and used in conjunction with a balance of oleic acid can make a wonderful soap. There is only one downside. I try to watch I don't go too high with this property because an extremely high amount of linoleic acid in a soap can help attribute to dos (dreaded orange spots) and cut down on the shelf life of a soap. Luckily you don't need an massive amount of oils high in this property to feel it's effects, and just in case there are tactics to help avoid this. In soap batches I have a nicer amount of linoleic acid than usual I'll often add a "natural preservative" that is high in antioxidants to prevent the breakdown of the oils such as rosemary extract, grapefruit extract, or vitamin E. I have also found that using a water discount (less water in the lye solution) also helps with this. Some say soaping with oils at a lower temperature before mixing with the lye solution may help as well.

- palmitic and stearic acid- Palmitic acid and stearic acid can help give an indication of how hard a bar of soap will be. The harder the bar of soap, the longer it lasts in the shower or bath. However, I only really watch these numbers because if they get too high they can also be drying.

- ricinoleic acid- The only oil that I'm aware of that has this rare property among the soapmaking oil is castor oil. This property can help with lather, especially great for recipes where a lower amount of lathering oils are used, can greatly help the ability of the soap to lather without being overly drying- matter of fact castor oil is high in essential fatty acids which is great for the skin. You don't NEED this property, however, to make a nice soap.

- iodine value- This isn't really a fatty acid composition but another number I keep an eye on in my final stats for my soap recipes. I think watching the iodine value really gives the best indication of all on how hard or soft a soap will be in the end. The lower the number, the harder the bar.

Now for each skin type I have set stats I tend to aim for. Of course I'm not going to give away all my exact secrets and

specs I tend to lean toward though. If you are just taking up the craft of soapmaking yourself I truly feel it won't do you any good. I really think to become skilled in this craft it takes a lot of experimentation and willingness to step "outside the box"- the more different techniques and strategies you try the more you learn and can better estimate how certain combinations and techniques will turn out in the end. Nearly anyone can follow a recipe that's given to them, but a true master will have no fear in trying something new. Not only that, but for every "rule" you learn there's exceptions and ways around things. But for the purposes of a good learning start, a recipe I put together for soap for somewhat sensitive skin, for an example, may look like something like this:

- lauric acid- 7%

- oleic acid- 45%

- linoleic acid- 16%

- palmitic acid- 15%

- stearic acid- 6%

- ricinoleic acid- 5% (optional)

- final iodine value- 70

Doesn't add up, does it? That's because there are fatty acid acid compositions involved, but I have only mentioned the one that I personally really watch out for. Now this all might sound like an awful lot of trouble and mathematics, but thankfully there are free lye calculators that help you figure out the final estimates of not just per oil, but your entire recipe! Good thing too because all that time with a calculator would have driven me batty by now! One really great lye calculator that is one of my favorites when it comes to sitting down o formulate recipes is the SoapCalc.

### Exceptions and Superfatting

When I first began soapmaking I was a complete and utter butter addict! Cocoa butter, mango butter, shea butter... I knew this was some good stuff so I figured the more the better... Well that just isn't always the case! I found my soap to be a tad on the drying side, which I didn't expect because of the reputation of these luxury ingredients. This is where the fatty acid composition comes into play. If you take a look at the breakdown of these butters you'll find they're actually pretty high in stearic acid, which many people can be sensitive to. So what's a person to do? What was the secret behind all these shea butter soaps and such? In time I learned there was two possible fixes for this. Increasing the amount of my oleic and especially linoleic acids made a difference. The other was upping on the superfatting.

Most soapmakers set their superfatting at 5-8%. Once again there are still exceptions. Some have superfatted at 4% and I have successfully soaped using up to 20%- it all lies in the goal of the bar and what you want to use. What you have to keep in mind is that the lower you go the more attention you have to pay to making sure your moisturizing properties are high in the combination of the oils chosen. If not you'll have a more drying bar of soap- but the soap will be a harder bar, have a longer shelf life naturally, and may lather better. If you set your superfat sky high you may want to lower your linoleic acid drastically so that your soap won't have the very opposite effects. It's all in experimentation. By using either of these methods , or even a combination of the two, I was finally able to create a soap with up to 30% in butter that I was satisfied with.

Another exception is the wonders of unsaponifiables. A "standard" recipe might feel drastically different with only a mere 5% addition of shea butter, for an example. Unsaponifiables are parts of the oil that naturally will not react with the lye to form soap, leaving it behind to nourish the skin. Shea butter, as with most butters, is pretty high in unsaponifiables and that small 5% doesn't add enough stearic acid to make the soap drying, but adds plenty to the moisturization and creaminess of a soap. Another big favorite for unsaponifiables is avocado oil. Many oils have their own unique little "niche".

Some oils just can't be explained and some have just seem to work well together. I might get some heat from this, but I found one of those oils are lard, to give an example. Even at 20% it just added something to the soap that oils that specialty oils I paid \$15.00 per pound couldn't even remotely come close to! Now adding 10-15% sunflower oil as well made some soaps feel beyond luxurious- even beyond what these two wonderful ingredients were capable of separately. Once again, it's all in experimentation.

### Additives

And then there's always the fun "extras". Tea, herbs, milks, silk, fruits, clays.... The possibilities are truly endless. If it's in your kitchen or garden, chances are it could be soaped. I've even heard of people using flat soda just for the fun of it! Sometimes some of these ingredients just add special bonuses to the soaps as well. Honey, sugar, and silk, for an example, seem to greatly help with lather in some recipes. Milks and teas many of times seem to add a certain "creaminess" to the lather.

Soapmaking definitely is not something that can be learned overnight. Matter of fact I find it's a never ending learning process. I may have given up some little "secrets of the trade" in some peoples eyes, but if helps just one person form a new appreciation for soapcrafters in general, or helps just one beginning soaper to expand themselves to keep this wonderful art alive- then I really think I have accomplished a darn good thing.

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