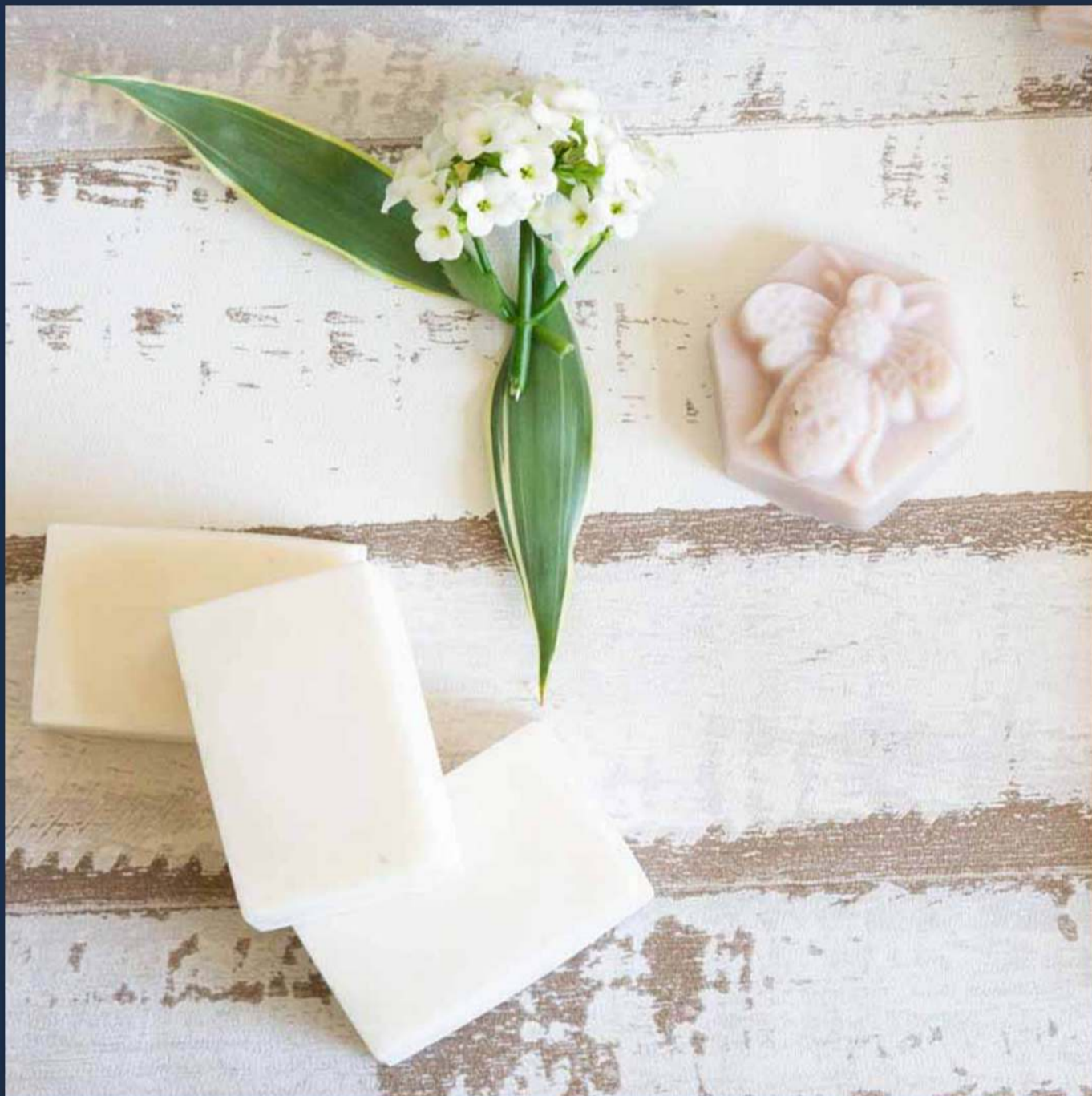


Create Your Own
SOAP RECIPES



Katie from heartscontentfarmhouse.com

(I am going to assume that you understand the basic process of soap making and I am not going to address that as it is not the purpose of this book. It is obviously very important for your safety and the success of your soap to be comfortable making soap before you attempt a custom recipe.)

The Science of Soap

Oil and Lye

Soap is the product of a chemical reaction between lye and fat.

The reaction between the oils and lye is known as “saponification”- the process of turning into soap. It starts as soon as the lye water (lye dissolved in water) touches the oils, continues as they are blended, and finishes over the curing period of the soap.

HOW OIL AND LYE AFFECT A SOAP RECIPE

Even though lye and oil are both necessary for soapmaking, there are millions of combinations of oils and lye that will make a successful bar of soap.

The types of oils and the amount of lye all work together to change the finished bar you end up with. Each oil has different properties (cleansing, high lather, moisturizing, etc.) that it will bring to the bar. There are still general rules that need to be followed, but there is an incredible amount of variety in the soap world. Don't confuse that with going “off recipe”. You have freedom in choosing your oils, but once you have calculated how much lye is needed, that amount must be followed exactly.

The other main factor that affects your soap recipe is the level of **superfat**. This is determined by how much lye is in your soap. Since we know lye turns oil into soap, if you decrease the lye you will have more oil in your recipe that did NOT get turned into soap. Extra oil = superfat. This makes for a more moisturizing bar.

So these two things, the superfat level and the oils chosen, all impact the finished product.

One end of the spectrum we could have a 100% coconut oil bar with a 0% superfat. It is made entirely of a hard, cleansing oil, and there is no oil left after saponification to

moisturize the skin. This bar will be harsh, drying, and hard. (But very good for household cleaning.)

One other end of the spectrum, we could have a bar made of olive oil, avocado oil, and hemp seed oil, with an 8% superfat. This would be a very moisturizing, gentle bar. But it would be soft, with low lather and not as cleansing.

Most soap recipes fall somewhere in between. Finding a perfect balance for different uses and for your personal preference is the fun part.

So now you know that different oils and different superfat levels change your finished bar of soap. Let's look at different properties of oils so you can pick what you would like to put in your custom soap recipe.

A BASIC BAR

If you would like to create your own soap recipe, sometimes it is best to begin with a basic bar and tweak it. The three most common soap making oils are:

OLIVE: moisturizing, soft bar (but hardens over a long cure period)

COCONUT: cleansing, lather building, hard bar

PALM OIL: hardening, lathering, cleansing, but not as harsh as coconut oil.

A bar that is one third of each of these oils will be well balanced and perfectly acceptable, as well as very affordable. But you want to make something more custom, right?

When you are just getting started, a good idea is to do a 30/30/30/10 bar. Thirty percent of each of these main oils, and ten percent of a "luxury oil". Tweaking your luxury oils is fun and each of them will bring something different to your soap.

Luxury oils tend to be expensive and moisturizing, such as hemp or avocado oil. There is an index at the back of this book with more listed and their properties.

BEGINNER CUSTOM RECIPE

So a good starting point for your first custom recipe would be:

30% olive oil

30% palm oil

30% coconut oil

10% one of the luxury oils listed above.

HOW TO CALCULATE THE AMOUNTS

Now obviously percentages of oils are not a workable recipe. You need to determine the total amount of oils and calculate from there. But how do you know how to calculate the total amount of oils? It all depends on your mold, and what it can hold.

Don't forget that there is water in your recipe as well. A typical 10 inch silicone loaf mold holds 40 ounces comfortably, or 50 with no room to spare. I typically do 40 ounces of oils plus 10 ounces of water when I calculate a recipe. (This fills my mold to the very top with no room to spare.) This will vary depending on your mold. Any commercially purchased mold will tell you the amount it can hold.

So let's say I am developing a beginning custom recipe. I want to use the 30/30/30/10 guideline listed above and I have chosen avocado oil as my luxury oil.

CONVERTING PERCENTAGES TO OUNCES

Don't worry too much about making sure the volume of your recipe will fit in your mold. Lye calculators have a "resize batch" function that you can use if it gets too big.

Let's use a nice round number to make our math easy in the beginning. For a standard 10 inch loaf mold, we will start with 30 ounces of oil.

Since the coconut oil, olive oil, and palm oil are each 30% of our recipe, we multiply by .3

This is 9, so we will need 9 ounces of each of these.

For our luxury oil, which is 10% of the recipe, multiply by .1, and we get 3.

Now we know we need:

9 ounces coconut oil

9 ounces palm oil

9 ounces olive oil

3 ounces avocado oil

Make sense? Now we need to know how much lye we need, and how exactly how much water.

USING THE LYE CALCULATOR

Lye calculators are a free tool you can find online. Here is a link to my favorite. <https://www.thesage.com/calcs/LyeCalc.html>

To use one, you input the amount of different oils you are using, in ounces, and it tells you the exact amount of lye needed to fully saponify the oils.

Now when you are making soap to be used on skin, you don't want your oils fully saponified. You want a little bit of oil left over to moisturize the skin, even if you want a very cleansing bar. If you recall, this leftover oil is known as superfat, and the most commonly used range is 5% to 8%. Five percent would be the least moisturizing and 8% the most moisturizing, as it refers to the percentage of oils that *remain as oils* in your bar (rather than changing to soap).

Let's input our oils and see what lye levels we get. The screen will look like this:

Vegetable Oils	Vegetable Oils	Animal Fats
<input type="checkbox"/> Acia Butter	<input type="checkbox"/> Illipe Butter	<input type="checkbox"/> Bacon
<input type="checkbox"/> Almond Butter, Sweet	<input type="checkbox"/> Jojoba Oil	<input type="checkbox"/> Butterfat
<input type="checkbox"/> Almond Oil, Sweet	<input type="checkbox"/> Kukui Butter	<input type="checkbox"/> Emu Oil
<input type="checkbox"/> Aloe Extract	<input type="checkbox"/> Kukui Oil	<input type="checkbox"/> Goat Fat
<input type="checkbox"/> Aloe Vera Butter	<input type="checkbox"/> Macadamia Butter	<input type="checkbox"/> Lanolin
<input type="checkbox"/> Apricot Kernel Oil	<input type="checkbox"/> Macadamia Nut Oil	<input type="checkbox"/> Lard
<input type="checkbox"/> Apricot Oil	<input type="checkbox"/> Mango Butter	<input type="checkbox"/> Milk Oil
<input type="checkbox"/> Avocado Butter	<input type="checkbox"/> Mango Oil	<input type="checkbox"/> Mutton
<input type="checkbox"/> Avocado Oil	<input type="checkbox"/> Meadowfoam Oil	<input type="checkbox"/> Neats Foot Oil
<input type="checkbox"/> Babassu Oil	<input type="checkbox"/> Moringa Butter	<input type="checkbox"/> Tallow
<input type="checkbox"/> Black Gummi Oil	<input type="checkbox"/> Neem Oil	<input type="checkbox"/> Olive Vera Oil Usage
<input type="checkbox"/> Black Currant Oil	<input type="checkbox"/> Oat Oil	<input type="checkbox"/> Monoi de Tahiti Usage
<input type="checkbox"/> Black Seed Oil	<input type="checkbox"/> Olive Butter	<input type="checkbox"/> Shortening Usage
<input type="checkbox"/> Blueberry Butter	<input type="checkbox"/> Olive Oil	
<input type="checkbox"/> Borage Oil	<input type="checkbox"/> Orange Butter	Oil Blends
<input type="checkbox"/> Castor Oil	<input type="checkbox"/> Palm Kernel Oil	<input type="checkbox"/> Lavender Lip Solutions
<input type="checkbox"/> Camelina Oil	<input type="checkbox"/> Palm Oil	<input type="checkbox"/> Mango Butter Lip Solutions
<input type="checkbox"/> Camellia Oil	<input type="checkbox"/> Pistachio Fruit Seed Oil	<input type="checkbox"/> Shea Butter Lip Solutions
<input type="checkbox"/> Cardolite Wax	<input type="checkbox"/> Peach Kernel Oil	<input type="checkbox"/> Soy Lip Solutions - Extra Firm
<input type="checkbox"/> Candelilla Oil	<input type="checkbox"/> Peanut Oil	<input type="checkbox"/> Vegan Lip Solutions
<input type="checkbox"/> Carnauba Wax	<input type="checkbox"/> Pecan Oil	
<input type="checkbox"/> Carrot Oil	<input type="checkbox"/> Perilla Nut Oil	
<input type="checkbox"/> Castor Oil	<input type="checkbox"/> Poppy Seed Oil	
<input type="checkbox"/> Cherry Oil	<input type="checkbox"/> Pumpkin Seed Oil	
<input type="checkbox"/> Cocoa Butter	<input type="checkbox"/> Red Raspberry Seed Oil	
<input type="checkbox"/> Coconut Oil	<input type="checkbox"/> Rice Bran Oil	
<input type="checkbox"/> Coconut Oil, Fraction	<input type="checkbox"/> Rose Hip Oil	
<input type="checkbox"/> Coconut Oil, Virgin	<input type="checkbox"/> Safflower Oil	
<input type="checkbox"/> Coffee Butter	<input type="checkbox"/> Sal Butter	
<input type="checkbox"/> Coffee Oil	<input type="checkbox"/> Sea Buckthorn Fruit Oil	
<input type="checkbox"/> Corn Oil	<input type="checkbox"/> Sesame Oil	
<input type="checkbox"/> Cottonseed Oil	<input type="checkbox"/> Shea Butter	
<input type="checkbox"/> Cranberry Seed Oil	<input type="checkbox"/> Shea Oil	
<input type="checkbox"/> Cupuacu Butter	<input type="checkbox"/> Sunflower Oil	
<input type="checkbox"/> Eucalyptus Oil	<input type="checkbox"/> Sun Wax	

We just fill in our oil amount, in ounces, in the box next to the oil we are using,

Then hit "calculate lye" and we get our result:

Created by	Service provided by Majestic Mountain Sage http://www.thesage.com																																														
Liquids		Fats & Oils		Lye Table (NaOH)																																											
For the size of fat batch that you are using, we recommend that you use approximately 8 to 11 fluid ounces of liquid .		<table border="1"><thead><tr><th>Fat</th><th>Amount (ounces)</th><th>% in recipe</th></tr></thead><tbody><tr><td>Avocado Oil</td><td>3</td><td>10.00</td></tr><tr><td>Coconut Oil</td><td>9</td><td>30.00</td></tr><tr><td>Olive Oil</td><td>9</td><td>30.00</td></tr><tr><td>Palm Oil</td><td>9</td><td>30.00</td></tr><tr><td>Total Weight</td><td>30</td><td></td></tr></tbody></table>	Fat	Amount (ounces)	% in recipe	Avocado Oil	3	10.00	Coconut Oil	9	30.00	Olive Oil	9	30.00	Palm Oil	9	30.00	Total Weight	30			<table border="1"><thead><tr><th>% excess fat</th><th>Lye Amount (ounces)</th></tr></thead><tbody><tr><td>0</td><td>4.55</td></tr><tr><td>1</td><td>4.51</td></tr><tr><td>2</td><td>4.46</td></tr><tr><td>3</td><td>4.42</td></tr><tr><td>4</td><td>4.37</td></tr><tr><td>5</td><td>4.33</td></tr><tr><td>6</td><td>4.28</td></tr><tr><td>7</td><td>4.23</td></tr><tr><td>8</td><td>4.19</td></tr><tr><td>9</td><td>4.14</td></tr><tr><td>10</td><td>4.10</td></tr></tbody></table>	% excess fat	Lye Amount (ounces)	0	4.55	1	4.51	2	4.46	3	4.42	4	4.37	5	4.33	6	4.28	7	4.23	8	4.19	9	4.14	10	4.10	
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WARNING: Always add your solid form lye, sodium hydroxide or potassium hydroxide, to the liquid. If the liquid were added to the solid form lye a violent reaction could result. This means you could have a "volcano" erupt out of your container.																																															
0% to 4% excess fat range: Proceed with caution! We do not recommend this unless actual saponification values are known and used.																																															

It tells us we need 8-11 ounces of water, and our lye amounts are given in the lye table. Let's say we want a moisturizing bar, we will pick the 7% superfat amount.

If you have misjudged an amount somewhere and end up with a total larger or smaller than your soap mold, simply enter the total ounces of oil you want and hit "resize batch". It will give you new amounts but keep the proportions the same.

Putting Our First Recipe Together:

We have just created a custom, moisturizing recipe with avocado oil! Here is the final result:

9 ounces coconut oil

9 ounces palm oil

9 ounces olive oil

3 ounces avocado oil

4.23 ounces lye

8-11 ounces of water

Changing your liquid:

A final way to customize your recipe is by altering the liquid you use to dissolve the lye. Instead of plain water, you can use goat's milk or an herbal tea or infusion (like rosewater). This can add color or a very slight fragrance to your finished product. Goat's milk will add another element of moisture and has mild exfoliating properties as well.

You can also add a commercial product known as sodium lactate (very inexpensive) to your COOLED lye liquid that will produce a firmer bar. A lye calculator will give you the exact amount to use for your specific recipe.

BEYOND THE BASICS:

Now that you have the basic process down, it is easy to keep picking more oils and customizing your soap recipe further.

If you understand the basic rules, you can customize things however you wish.

A few guidelines:

It is best to have a blend of hard and soft oils.

I personally keep my olive oil, coconut oil, and palm oil at at least 20% EACH almost all of the time and just tweak the other oils. I have the best results this way, but it is not a firm rule.

Some oils have similar properties and can be easily subbed out for each other. (i.e. tallow for palm oil, almond oil for avocado oil). You should still run your new recipe through a lye calculator.

Any reputable supplier of oils will tell you the general properties of an oil and what percentage you can put it in a soap without things getting weird.

Try to balance a lot of cleansing oils with a higher superfat to keep it from being too harsh, or a lot of moisturizing oils with a lower superfat to keep it from being too soft.

If you suspect your recipe is going to be too soft, it never hurts to add sodium lactate and pour into individual molds.

ADDING EXTRAS:

Up until now, we have discussed a custom recipe for soap by changing oils and lye levels. But of course, for some people the most fun is had with color and fragrance. There are literally thousands of commercial fragrance oils available.

Essential oils can be used as well, but they tend to fade during the saponification process, and are much more expensive.

Color can be added through artificial colorants or with natural clay powders or natural dyes.

You can do swirls, layers, embeds, or add extras at trace like seeds or exfoliating beads.

WHAT DO YOU WANT IN A SOAP?

The possibilities are truly endless, and designing your own recipes is one of the most fun parts of the soaping process. Don't forget that any formula can be further customized with color, fragrance, swirls, and molds.

Think of what you desire in a soap and make a recipe to get you there.

Have fun!

A FEW IDEAS:

A baby soap that is 70% olive oil, 20% coconut oil, and 10% almond oil (would need a long cure time) with lavender fragrance

An anti-aging soap that is 30% olive, 25% coconut, 25% palm, 10% argan oil, and 10% mango butter. Use goat's milk for the liquid.

An after-sports soap with for teenagers that is 30% coconut oil, 20% olive oil, 30% palm oil, 10% castor oil and 10% almond oil. Calculate to 5% superfat and add a refreshing fragrance.

I am going to leave you with my personal favorite recipe. It incorporates all my favorite oils and gives you more lather than a commercial body wash but leaves your skin moisturized. I am more than happy to share it, but I really hope it inspires you to create your own.

Extra Lathering Shower Soap:

(for 10 inch silicone mold, fills to the very top)

10 ounces coconut oil

9 ounces olive oil

9 ounces palm oil

4 ounces avocado oil

4 ounces castor oil

2 ounces sweet almond oil

2 ounces mango butter

5.77 ounces lye (6% superfat)

10-15 ounces water

Add .6 ounces sodium lactate at trace

3 tablespoons fragrance oil

Light color as desired

PROPERTIES OF BASIC SOAP MAKING OILS:

PALM OIL: Harder bar, increased lather. Inexpensive but environmentally controversial.

COCONUT OIL: Inexpensive. Harder bar, very cleansing, good lather. A staple.

OLIVE OIL: A soft bar initially, but will become a hard bar with a long cure time. Can be used at up to 100% (this is known as Castile soap), but more commonly used at around 30%. Small lather and moisturizing.

CASTOR OIL: Creates an excellent lather, but softens bar quite significantly. Can be used up to 10% of recipe.

TALLOW: Adds to hardness of bar and lather. Good substitute for palm oil.

PROPERTIES OF COMMON LUXURY OILS:

ALMOND OIL: Moisturizes skin without heaviness

ARGAN OIL: Very moisturizing with anti anti-aging properties (also very expensive)

AVOCADO OIL: Moisturizing and nourishing, not too heavy-feeling or expensive

BEE SWAX: Adds moisture to skin and hardness to bar

CARROT SEED OIL: Adds moisture to skin without any heaviness at all

COCOA BUTTER: Adds moisture to skin and hardness to bar, some people feel it leaves a "residue" on skin

HEMP SEED OIL: Richly moisturizing, also adds to lather

MANGO BUTTER: Moisturizing and adds to hardness of bar