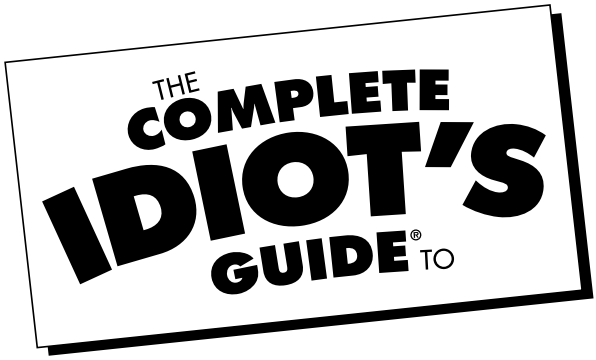
THE COMPLETE IDIOT'S GUIDE® TO

Live greener—and cleaner—with your own handcrafted soaps

Making Natural Soaps

Sally W. Trew with
Zonella B. Gould



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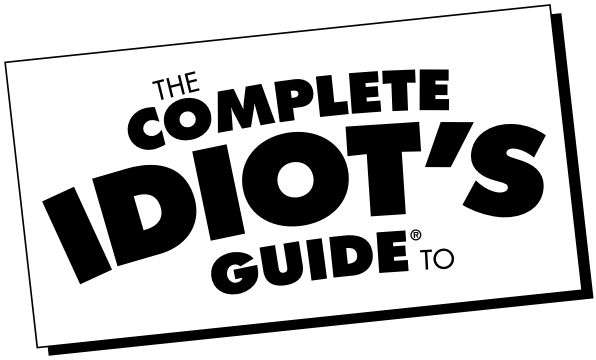

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Introduction

There's something so relaxing and gratifying about making a batch of natural soap. Not only do you feel the satisfaction of creating something lovely yourself, but you also know exactly what ingredients your soap contains because *you* put it all together. And with almost all the soap and shower gels sold in stores today being more chemical than natural, that's more important than ever before.

Want to make soap and just don't know where to start? We know the feeling. We searched the Internet for a year before we got up the nerve to make our first batch of soap. We devoured every article and website we came across that might help us learn how to make soap. Finally we felt ready to try that first batch of soap, and, thankfully, it was a success!

But as we made batch after batch, we had more and more questions no one seemed to have the answers to. Every time someone tried a new oil and raved about it, we bought that oil … until we had a refrigerator full of 25 different oils! We had so many questions—why use a certain oil? What makes one oil any better than another one? So we began our search again.

Then we found the answer to all our questions—SoapCalc. For the first time, we could tell how cleansing a soap was or how much lather the soap would make. Finding SoapCalc was like finding a million dollars—we were rich, richer than we could have ever dreamed, and all our questions had been answered. We know it must seem odd to get so excited over our find. But with this tool, we could fine-tune something so common and make it extraordinary.

Our soap-making journey has been one of trial, error, and success, and we've learned a lot throughout the years. Now, we're thrilled to be able to share our soap-making knowledge with you. In this book, you not only learn how to make soap but also how to formulate your own soap recipes. You learn how to formulate a batch of soap gentle enough to use on a baby or one with enough cleansing for your football-playing teenage son.

We also teach you how to save money by making your own laundry soap. (And no need to worry if you have a front-load washing machine—this laundry soap is safe to use in that type of washer.) You save even more money using this natural laundry soap to clean other surfaces and items in your home. Plus, it'll take the place of many chemical cleaners you might currently be using, making your home a more natural and environmentally friendly place to be.

When you've browsed through the following chapters and found the type of soap you'd like to try your hand at making, please read the equipment list, ingredient list,

and instructions completely before you begin. Have everything you need close at hand, including this book. Be relaxed and prepared. Soon you'll understand why so many are addicted to soap-making!

Good luck on making your first batch of soap. We hope we've made it as easy for you as can be!

How to Use This Book

This book is divided into three parts:

Having a good foundation is the most important key to being successful, and in **Part 1, "The Basics of Natural Soap-Making,"** we help you build a strong foundation that will set you on a path of becoming a great soap-maker. By the time you've read Part 1, you'll be well on your way, bolstered with knowledge and confidence!

Bet you didn't know there were so many ways to make soap! In **Part 2, "Making Cold and Hot Process Soap,"** we give you step-by-step instructions for each type of soap-making. We've included many recipes for you to experiment with. Try them all out and find the method you like best. And don't be afraid to try your hand at making liquid soap, too. We've made it simple, and the rewards are many.

Part 3, "Getting Creative with Your Soap," is when we have some fun! Roll up your sleeves and learn to swirl beautiful colors in your soap batches. Your children can join in on the fun with melt-and-pour soaps, too. There's no lye used, so the littler ones can have fun making soap safely.

Extra Bits

Throughout the book, you'll see nuggets of extra information, neatly packaged in sidebar boxes. Here's what to look for:

From the Soap Pot

Check these boxes for fun tips and tricks to make soap-making easier.

Lather Lingo

These boxes contain definitions of soap-specific terms you might not know.

Safety First

Heed the warnings in these boxes so your soap-making experience is a safe one!

Soap Stats

These boxes offer a little more information and fun facts.

Acknowledgments

Zonella and I both would like to say a special thank you to Ken Bower for creating SoapCalc. You opened a whole new world for soap-makers!

I would like to dedicate my part of this book to my family, for all their support and help. My mother, Iris Wyman, thank you for being such a great mom. My husband, Mark Trew; my children, Doug, Carissa, and Alicia; my son-in-law Keith; and my grandchildren, Hunter, Trenten, Shawn, Trinity, Sydney, and Pacey, I love you all. A special thanks to Sandra Morrow and all our list mates on the Apple! Your support and encouragement have meant the world to me! And lastly, K. C. Massey, thanks for all your help with my computer and for always being willing to test my formulations.

—Sally Trew

I would like to dedicate my part of this book to my family, for all their support and help. From Darrell and Dan and their families to sisters and brother and all the local people that have given nothing but encouragement.

—Zonella Gould

Trademarks

Part 1

The Basics of Natural Soap-Making

Taking the first step to making homemade soap is a start to an adventure. But as with anything you want to do, and do well, you need a good foundation. In Part 1, you begin building that strong foundation and take the first steps on the path to becoming a great soap-maker. You learn all about the oils and butters used to make soap and how to use SoapCalc to formulate your soap batch recipe. We also look at the fragrances and essential oils you can use and then cover the molds you pour all your delicious-smelling concoctions into.

By the time you've finished Part 1, you'll be ready to make your very first batch of soap!

Chapter 1

Introduction to Soap-Making

In This Chapter

- The basics of making soap
- What ingredients you need to make soap
- Soap-making safety and other equipment

If the soap-making bug hasn't bitten you yet, it's about to! As you'll learn in the following pages and chapters, natural, homemade soaps have many wonderful benefits. They're nonirritating to your skin—in fact, we've seen facial and other skin blemishes clear up after using natural soap. Properly made soap not only cleanses but is gentle and moisturizing and never leaves your skin feeling dry or itchy. The soap is such a pleasure to use that you'll look forward to showers and baths!

How Soap Is Made

Soap is made when the chemical reaction of lye plus water further reacts with oil and turns the oil into a salt. This process is called *saponification*. It can take as little as 24 to 48 hours for cold process soap to saponify; for hot process, the saponification is complete when it's finished cooking (more on cold and hot process soaps in Part 2). Bar soap cannot be made without

alkalis; sodium hydroxide and liquid soap cannot be made without potassium hydroxide. Both are caustic and can be dangerous if used improperly.

Lather Lingo

Saponification refers to the reaction of an alkali with a fat or oil and water to form soap. An **alkali** is a compound that has a pH greater than 7 (a base). Sodium hydroxide and potassium hydroxide are both alkalis. **Bases** are the oils you use in your soap recipe to stabilize the bar. **pH** is a factor that deals with the alkaline (drying) and the acid (conditioning) of the substance. The higher the pH number, the more cleansing and drying it is to the skin or hair. pH 7 is neutral. Most bar soaps have a pH of 10, and liquid soaps have a pH of between 9 and 9.5.

The caustic aspect isn't something to be feared, but it does need to be respected. All safety equipment and all safety procedures should be utilized throughout the whole soap-making process. Negligence to take proper safety precautions can cause injuries. We recommend you wait until the kids are at school, your spouse is at work, and the pets are outside or closed in another portion of the house before you start making soap.

When our grandmothers made soap, it was just a guesstimate in how much lye was to be used. Now we have soap calculators that calculate how much lye is needed. This means no more guessing and no more worries. With the proper use of a soap calculator (we give you a great one, SoapCalc, in Chapter 4), you'll feel certain that your soap won't be lye-heavy. With SoapCalc, you learn how to formulate a bar of soap to be exactly what you want.

Basic Soap Ingredients

The beauty of soap is that you need very few ingredients for a simple bar of soap. Fragrance, color, and embedded pieces are nice add-ins, but here's all you really need to make a basic bar of soap:

Oils/butters. These are the bases of your soap. Each oil and butter has a different property and a different use. Base oils are lard, tallow, and palm oil. Cleansing oils are coconut, babassu, and palm kernel oil. Castor oil is used for added lather and moisturizing. Many other oils/butters can be used for adding more conditioning to the soap.

Lye. This includes sodium hydroxide for bar soap and potassium hydroxide for liquid soap. Soap cannot be made without it.

Distilled water. Distilled water eliminates any contaminants or high amounts of minerals your water might contain.

Borax. This is used to neutralize any leftover lye in liquid soap, boost its cleaning power, and lower the pH. It is natural and mined from the earth. Borax is also known to be a disinfectant and deodorizer. Often borax is added to cold process or hot process soap when making a mechanic's soap bar.

Safety First

When lye is added to water and stirred to dissolve, it will produce a visible vapor. *Do not inhale this vapor.* When mixing, be sure you open a window, turn on a vent, or turn on the down-draft to draw the vapors out of the house and away from you.

Adding In Some Fun: Additives

Of course, you can get creative and add to that basic bar of soap with additives like herbs, honey, milk, colors, fragrance, micas, salt, and sugar. Anything other than oil, water, and lye are additives.

When working with fragrance oils, be sure to use only skin-safe fragrance oils. You can use essential oils to fragrance soap, but use sparingly because they're very potent and can burn the skin if you use too much. The average use ratio is a maximum of 3 percent, but a maximum of 2.5 percent is better for many of the essential oils. Also, several essential oils should not be used on children, pregnant women, or cancer patients. Be sure to check our chapter on essential oils (Chapter 3) before using them in soap. Liquid colorants are available, but we've found they don't always keep their color in the soap-making process. We use mostly micas and oxides. Any color used in soap has to be skin safe, and don't use crayons. Micas lose their "sparkle" during the saponification process, but when the bar is wet, you can once again see their beautiful sparkles and iridescent colors. Most oxides remain the same throughout the soap-making process.

And One More—for Safety

Vinegar, you might be thinking. *In soap?* Not exactly. Although vinegar doesn't go *in* the soap, it is very important to have on hand because vinegar neutralizes lye. If you spill lye on your skin, flush thoroughly with water and follow with vinegar to neutralize and remove all traces of the lye.

If you only flush with water, your skin will have a slick feel. Only when you apply the vinegar will the slick feeling go away.

The Importance of Safety Equipment

Speaking of safety, it's the number-one concern when making soap, and with just a few basic, inexpensive pieces of equipment, you can fully protect yourself from harm:

Safety glasses or a face shield. Any kind of heat-resistant, wrap-around safety goggles will do fine. Stay away from the type of goggles that look similar to eyeglasses as they tend to heat up and fog over, making it impossible to see what you are doing. A full-face shield also works great and isn't all that expensive. If you wear glasses, the shields are your best choice because you can wear them right over your glasses.

Gloves. Latex gloves like the ones dentists or doctors use are the best. They're inexpensive and readily available. You can find 100-count boxes at any drugstore.

Long-sleeved shirt. The splatter from the lye or potassium hydroxide mixture can be irritating to the skin but it can also eat holes in clothing, so wear an old long-sleeved shirt to cover your arms and protect the front of your shirt from splatters. You can also wear an apron to protect your pants.

Shoes. Never, *ever* make soap in your bare feet or sandals. Any splatter will sear your skin and hurt like crazy. Get a sturdy pair of closed shoes, and be sure they're ones you won't mind getting splattered.

Other Soap-Making Equipment You'll Need

Here again, just a few inexpensive items are needed to make soap:

Stainless-steel stockpot with a lid. Most of us have pots already and won't need to buy any. They will wash clean and still be food-ready. A 3- to 12-quart pot should allow you to make any size batch of soap you will want.

Safety First

Only use stainless-steel pots, never aluminum or enamelware, when making soap. Aluminum reacts with lye, causing the lye to eat holes in it. The lye etches enamelware and, in time, eats away at the enamel.

Handheld immersion blender. An immersion blender is a handheld, sticklike blender that has one spinning blade on the end. Mainly used for whipping cream or drinks, they're also a soaper's best friend because they reduce the amount of stirring time (and save your arm!). But they're optional if you'd rather SIY—stir it yourself.

Spoon or whisk. Again, stainless steel is best, or you can use utensils made for nonstick pans. Don't use

wooden spoons, however. Over time, the wood dries out and little splinters will end up in the soap batch.

Spatula. Stainless or nonstick is best.

Bowls. Stainless-steel or plastic bowls are the best to use to weigh oils, butters, water, or lye. Zonella uses food-saver bowls to mix her lye. These come with lids that cut down on the chance of spills if the bowl gets turned over or bumped. Sally uses a tall plastic pitcher with a lid and secures the handle so the pitcher cannot be tipped or knocked over.

Plastic pitcher with a lid. You'll be using this to mix lye. Don't use a glass pitcher because it'll etch the glass. Lye heats up so much it could cause the glass to break—a very dangerous situation.

Scale. In soap-making, everything has to be weighed. You'll need a good electronic kitchen scale with a flat platform big enough to rest bowls and pitchers on and that measures to $^1/_{10}$ an ounce. It should also measure in grams.

From the Soap Pot

Always use a scale to weigh your soap ingredients. Never use measuring cups, tablespoons, etc., because they measure *volume*. The weight of oils varies a lot; some are lighter than water, and some are heavier than water. The only way you'll get an exact amount is to use a scale.

Stainless-steel thermometer. A thermometer tells you the temperature of the oils and the lye/water so you know when to mix the oils and lye/water. The hotter the oils, the faster the soap will set up. If you don't have a thermometer, you can feel the outside of the pot or pitcher with your fingers. When it's ready to have the lye mixture added, it'll be comfortable to the touch.

Molds. We devote an entire chapter to molds (Chapter 5), so we won't go into detail here.

The Shelf Life of Soap

How long a soap will stay good varies. Sally once found some soap she'd put away, and it smelled and looked great. It was pushing five years old. Zonella, on the other hand, had some that didn't fare that long, but she had used sweet orange essential oil, which doesn't often stay well in soap.

From the Soap Pot

Antioxidants prevent or retard oxygen reacting on a substance. Rosemary oleo resin added to short-life soaping oils extends their shelf life.

The shelf life of any soap is based on the iodine value. If the iodine is too high, it's going to produce DOS—dreaded orange spots—a sure sign the soap is going rancid.

So for soap with a long shelf life, pay close attention to the iodine value when you put your soap recipe in SoapCalc. The iodine value is part of the soap qualities.

Storing Your Soap

The main thing to remember when storing soap is that it will absorb scents very easily, so be careful where you store it. We like to store our soaps in lidded plastic containers, like plastic shoe boxes. With the lid on, the soap remains clean and the fragrance stays true and doesn't absorb any other fragrances.

Soap Stats

If your soap has lost its fragrance, place it in an airtight container along with either cloth or paper towels saturated with fragrance oil, and replace the lid. After a few weeks, you'll find that the soap once again has a fragrance.

These boxes also stack well in a small space. Be sure to label the boxes, including the name of the soap, fragrance, date, and the recipe if you like. It's so easy to forget what's in all those boxes!

If you smoke, don't allow the smoke to get close to your soap. There's nothing quite so bad as soap that smells like a dirty ashtray!

Frequently Asked Questions About Making Soap

What is meant by *trace?* When you add the lye/water to the oils, a chemical reaction begins. The mixture begins to thicken just like pudding or gravy does when you're making it. The first stage of thickening is called *light trace*. If you dribbled some of the soap on top of the soap in the pot, it would leave a trace in the soap—hence the name. It will continue to thicken until it's a firm bar.

Does soap have to go through trace? Yes. If it didn't, you wouldn't have soap.

What does it mean when you say the soap is "in the gel stage"? The gel stage is when the soap has heated up so much it has the appearance of applesauce. It's liquid, hot, and almost finished in changing to soap. It's in full saponification.

Which way do you mix the lye and water together? You always add the lye slowly to the water. *Never* pour water into the container with the lye.

Is it really necessary to wear safety glasses and gloves? Yes. If lye gets on your skin it can burn you badly. You should immediately wash the area with lots of cold water. As mentioned earlier in this chapter, if you still can feel a slick feeling on your skin, follow with vinegar. The fumes can also burn your lungs, so don't put your face over the pitcher of lye solution. We recommend that you set your lye solution in a well-ventilated area while it's cooling.

How can I be sure my lye is good? When you add the lye to the water, it will start a chemical reaction that will cause the water to become very hot. If the lye is bad or inactive, this heat-up won't happen.

What kind of lye do I use? Many soap-makers use Red Devil lye, but that isn't always easy to get. You can order lye online from Boyer Corp. and from many online venders (find some in Appendix D). You have to use pure lye and one that says it's for soap-making.

I am afraid of using lye. Is there a safe way? You can't make soap without lye. However, melt-and-pour (M&P) soap might be something you could try. It's already a finished soap product, so you don't add any lye. M&P soap base is easy, fast, and fun. But still, if you follow the directions and wear your safety gear, you should have no reason to fear using lye—just don't forget to respect lye and handle it properly.

Can I make soap in my kitchen when my children are home? We never make soap when the kids are at home or when any of the pets are in the kitchen. Accidents can happen really fast when you turn your back for even a second.

Do I use the same lye to make hot process soap as I do to make cold process soap? Yes, they both use sodium hydroxide. Both soaps become solid.

Do I use the same lye for making liquid soap as I do for making cold process or hot process soap? No. For liquid soap, you use potassium hydroxide. This lye is in flakes or
diamond-shape pieces. With potassium hydroxide, the soap won't become solid. It stays a liquid.

Can I use Drano for my lye? No. Although Drano has lye, it also has other chemicals that could be harmful when used in soap.

The Least You Need to Know

- You don't need a lot of expensive, hard-to-find ingredients to make soap. With some oil/butter, lye, water, and borax, you're on your way.
- Soap-making won't require a ton of new tools and equipment. It's likely you already have most of what you'll need in your kitchen.
- It's easy to get excited about all the wonderful and lovely soap combinations you can create, but never forget the importance of safety. Soap-making can be dangerous if you don't pay attention and respect your ingredients.

Chapter 2

Oils and Butters

In This Chapter

- Choosing oils and butters for your soap recipes
- Understanding how oils and butters work in your soap
- Grocery store oils—they're not just for cooking!

Without oil/butter, water, and lye, you can't make soap. The oils and butters you choose for your soap can do far more than just provide part of the chemical reaction needed for saponifying. They also have wonderful skin-loving properties. Many have healing properties for certain skin problems, while others have more specialized benefits.

Many oils and butters are still very expensive, but some you might *have* to try, no matter how expensive they are. You could spend a fortune buying all kinds of exotic oils and butters, but in reality, because soap is a wash-off product, unless you're making a specialty bar, stick with the basic, good oils.

If you can only buy one butter for soap making, make it shea butter. Shea brings wonderful skin-softening properties to the soap as well as increases the creamy lather. If you can only buy three oils to start your soap-making adventure, choose castor oil, coconut oil, and palm oil.

Soap-Making Oils and Butters

As you'll see, the list is quite long. With each oil, we've listed its shelf life, description, properties, and typical uses. We've also included the common name and the botanical name you'll use in labeling. (For more on labeling, see Appendixes B and C.)

Before we dig into the oils and butters you can use in your soaps, here are a few things to keep in mind. If unopened, peanut oil, corn oil, and other vegetable oils keep for at least a year. Once opened, they're good for 4 to 6 months.

Peanut oil, like olive oil, which is high in monounsaturates, is better stored in the refrigerator. Olive oil keeps for about 6 months in the cool, dark pantry, but stays up to a year in the refrigerator. It may become cloudy and thicken in the cold. Letting it warm to room temperature by sitting on your kitchen counter will restore its pouring capacity.

If you don't use an oil very often, you can store it in your freezer. Most oils don't actually freeze, but they will become very thick, and the cold temperature will extend their shelf life. Butters will actually freeze.

Adding rosemary oleo resin extract (ROE) to oils gives them a longer shelf life. Use 1 percent of the weight of the oils. So if you have 32 ounces (907.2 grams) oil, you would use 0.3 ounce (8.5 grams) ROE.

Now, on with the show!

Almond (Sweet) Oil (*Prunus amygdalus*)

Shelf life: 6 months to 1 year.

Properties and benefits: This oil is great for flaky, itching, or rough skin. It contains vitamins A, B_1, B_6, and E as well as fatty acids. In soap, it adds conditioning and is often used for mature skin or in facial bars. Almond oil isn't expensive, so it's widely used in many soaps, lotions, and other bath and body products for its skin-loving benefits as well as its low cost. When using this oil in soap-making, keep the percentage low because it will increase the iodine. Sweet almond oil is a very light gold color and produces a white bar of soap. This oil has a hardness of 7.

Apricot Kernel Oil (*Prunus armeniaca*)

Shelf life: 6 months to 1 year.

Properties and benefits: Apricot kernel oil is good for damaged or irritated skin. It contains vitamins A, C, E, and unsaturated fatty acid. More often it's used in lotions and

body butters for its exceptional skin-healing properties. This oil isn't expensive and can be a wonderful addition to facial bars or for a gentle soap for mature or sensitive skin. It has a golden color and no fragrance. This oil has a hardness of 6.

Avocado Oil (*Persea gratissima*)

Shelf life: 1 year.

Properties and benefits: Contains vitamins A, B_1, B_2, D, and E; pantothenic acid; protein; lecithin; and fatty acids. Avocado hydrates and nourishes the skin. It is said to lighten age spots and increase the amount of collagen in the skin cells. This oil penetrates the skin quickly and easily, making it ideal for use in lotions and other leave-on products. In soaps, it's a favorite for shampoo bars, shampoo gel, and shower gel. Avocado oil is often used in facial bars because of its high vitamin content. The color varies from a light green to a clear oil, depending on the refining. This oil has a hardness of 22.

Babassu Oil (*Orbignya oleifera*)

Shelf life: 1 to 2 years.

Properties and benefits: There are three oils that are cleansing. Babassu is one of those oils. (The other two are coconut oil and palm kernel oil.) You increase the cleansing value of your soap bar by using a higher percentage of one of these three oils. This oil will also increase the lather and hardness in a bar of soap. Babassu is higher in lauric, myristic, palmitic, and stearic than coconut or palm kernel oil. It does not contain any linoleic acid. It offers very little moisturizing, so in soap-making, we use this oil only for its cleansing and bar-hardening values. Babassu is a hard oil that is semi-solid at room temperature. It has a hardness of 85.

Canola Oil (*Brassica campestris*)

Shelf life: Up to 1 year.

Properties and benefits: Canola oil is inexpensive, and you can buy it at your local grocery store so it is often used in place of the more pricey base oils, such as olive oil. It contributes moisturizing qualities to the soap and produces a creamy, stable lather, but it takes longer to saponify. Canola oil is made from genetically altered rapeseed. The name *canola* stands for "Canadian Oil Company." This oil is high in protein and fatty acids. It has a hardness of 6.

Castor Oil (*Ricinus communis*)

Shelf life: 2 years.

Soap Stats

Castor oil has many uses, from medicinal to cosmetics. It adds moisturizing properties to lipsticks and lip gloss, and it's used in other types of cosmetics because it doesn't contribute or cause acne. In soap-making it helps create lather without having to use the chemical SLS.

Properties and benefits: Using castor oil in soap increases the bubbly and creamy lather as well as the conditioning. If your bar of soap doesn't have a lot of lather, you can increase this oil to boost the lather your soap will produce. Note, however, that it also makes the soap bar softer. Using 10 to 15 percent castor in your soap batch gives a nice lather and increases the skin-conditioning qualities. We've experimented with using as much as 25 percent in bar soaps. For shower gels and shampoos, using 20 to 35 percent helps create a really nice lather. Castor oil is the only oil in this group that contains ricinoleic acid. It's a thick, clear oil with a hardness of 0.

Cocoa Butter (*Theobroma cacao*)

Shelf life: Up to 5 years.

Properties and benefits: Cocoa butter comes in three forms: natural, deodorized, and ultra-refined. Cocoa butter adds hardness to soaps and helps seal in moisture by forming a barrier on the skin. The average use in soaps is 3 to 5 percent, but in winter, some soap-makers increase that amount to 8 to 10 percent. Cocoa butter is the second-most-used butter in soaps, and it's widely used in many bath and body products. It's not recommended for oily skin, however. Natural cocoa butter has a rich, golden-yellow color and a delicate chocolate fragrance. That fragrance goes away within a few days after the soap is made. Deodorized cocoa butter is a light yellow and usually doesn't have any chocolate scent. Ultra-refined cocoa butter is white and has no scent. Cocoa butter has a hardness of 61.

Coconut Oil (*Cocos nucifera*)

Shelf life: 2 plus years.

Properties and benefits: Coconut oil is one of the three cleansing oils. It's inexpensive, at about 10¢ per ounce or less, depending on where and how much you buy. You can find this oil at your local grocery store on the isle with all the other cooking oils. Look for the oil with the brand name LouAna. It's in a white plastic jar with a green lid.

Soap-makers use coconut oil in all types of soap for its cleansing and cost factors. This oil is refined, bleached, and deodorized. It's high in lauric and myristic fatty acids, and has a high cleansing quality along with hardness and high bubbly lather. There are three types of coconut oil used in soap making: coconut 76 degree hardness is 79, coconut 92 degree hardness is 79, fractionated coconut hardness is 93. Coconut 76 degree is the type we most often use.

Corn Oil (*Zea mays*)

Shelf life: 1 year unopened; 4 to 6 months opened.

Properties and benefits: Corn oil creates a stable, creamy lather and is high in conditioning. Refrigeration helps extend corn oil's shelf life, or you can add 1 percent rosemary oleo resin extract. Corn oil contains the fatty acids palmitic, stearic, oleic, linoleic, and linolenic. You can easily find it in your local grocery store. It has a hardness of 14.

Emu Oil

Shelf life: Short. Refrigerate after opening.

Properties and benefits: Used in soap at 10 to 20 percent, emu oil makes a hard bar with a stable, moisturizing lather. This is another oil we often use in facial bars. It is known to sink deep into the tissues, bringing the other oils and essential oils with it. For those who want that type of benefit but who prefer not to use an animal by-product, Meadowfoam Seed oil is the vegan alternative. Emu oil contains palmetic and oleic fatty acids. It is an excellent choice to use when making a bar of soap for people with skin problems such as eczema or psoriasis. It has a hardness of 32.

From the Soap Pot

Use emu oil in massage or sports blends to help relieve soreness and inflammation.

Flaxseed Oil (Linseed)

Shelf life: 1 year. Refrigerate after opening.

Properties and benefits: Flaxseed oil must be blended with stable oils or an antioxidant such as rosemary oil extract (ROE). Use 1 percent per the weight of oil. If you have a 32-ounce (907.6-gram) bottle, use 0.3 ounce (8.5 grams) ROE. Flaxseed oil contains palmetic and oleic fatty acids. It is helpful for those who suffer from eczema, psoriasis, rosacea, acne, and dry or aging skin. It has a hardness of 9.

Grape Seed Oil (*Vitis vinifera*)

Shelf life: 6 months.

Properties and benefits: Grape seed oil is rich in flavonoids called procyanidolic oligomers (PCOs). These phytochemicals have antioxidant properties. (Antioxidants safeguard the cells against damage by unstable oxidant molecules called free radicals.) In addition, PCOs are thought to improve blood circulation and help strengthen blood vessels. Flavonoids also inhibit allergic reactions. These factors help fight against uncomfortable skin problems encountered with eczema. It is great for use in soap for those who suffer from skin problems such as eczema or psoriasis. It's also known to rebuild cellular tissue. This oil quickly and easily penetrates the skin, and it has almost no odor. Grapeseed oil is not an expensive oil, and it's a favorite for use in lotions and other leave-on products. Plus, it has a slight astringent property, which helps tighten pores and tones the skin. Grapeseed has a hardness of 12.

From the Soap Pot

To help prevent head lice in young children, add 1 ounce (28.4 grams) light oil such as almond or grapeseed oil mixed with ½ teaspoon (2.5 milliliters) tea tree essential oil and 7 ounces (198.5 grams) distilled water. Bottle the mixture in a fine mist spray bottle. After shampooing, spray the child's hair lightly while it is still wet. Tea tree essential oil repels the lice, and the oil helps detangle the hair. Be sure to shake the bottle before each use.

Hemp Seed Oil (*Cannabis sativa*)

Shelf life: 6 months to 1 year.

Properties and benefits: This oil is rich in vitamins A and E, is good for dry and/or irritated skin, and reduces inflammation. Hemp seed oil is used in similar ways as flaxseed oil. It's an excellent choice for use in shampoo bars for its hair-conditioning benefits, adding shine and silkiness to the hair. In soap, it adds conditioning and is an excellent choice for soap for mature skin. Use a small percent because it increases the iodine. Hempseed oil has a hardness of 8.

Illipe Butter (*Shorea stenoptera*)

Shelf life: 2 years.

Properties and benefits: Illipe butter is very hard and similar to cocoa butter. It can be used in soap-making to create firm and highly moisturizing bars with a creamy lather. Illipe butter is often substituted for cocoa butter in bath and body products. It has a hardness of 62.

Jojoba Oil (*Simmondsia chinensis*)

Shelf life: Infinite.

Properties and benefits: Jojoba oil is actually a liquid wax. In soap, it's often used in shampoo bars because it adds shine and gloss to the hair. It's very close to the natural oil, sebum, which the body produces for protecting the skin. Because of this, jojoba oil can be used in facial and other soaps for those who have acne. It can help control acne by tricking the glands into slowing down their sebum production. Jojoba oil can be used on all skin types. It's more often used in bath and body products. We use jojoba in our mineral makeup to help the powders adhere better to the skin. It's also an excellent makeup remover. Jojoba oil is a stable oil and often is used to extend the shelf life of other oils. When jojoba oil gets cold it becomes solid. It has a hardness of 0.

Soap Stats

During the 1930s, scientists analyzed the composition and properties of jojoba. They were surprised to find that jojoba is not based on triglycerides like most liquid oils and solid fats. It's actually liquid esters, making it a liquid wax.

Karanja Oil (*Pongammia glabra*)

Shelf life: 2 years.

Properties and benefits: Karanja oil is cold pressed from seeds. The oil is reddish-brown in color, rather viscous, and inedible. It has antiseptic properties, plus it's known for its natural insecticide qualities. To treat head lice without chemicals, add karanja oil to a small amount of shampoo, and wash the child's hair. We use karanja oil at the rate of 12 percent in soap. Most of the time it's combined with 10 percent neem oil for those who have eczema or psoriasis. This combination is also used in soaps for our pets because it repels fleas and ticks. Karanja oil has a hardness of 12.

Kokum Butter (*Garcinia indica*)

Shelf life: 2 years.

Properties and benefits: Kokum butter is a hard and brittle butter that's cream in color. It's the hardest butter with the highest melting point. Like cocoa butter, kokum butter melts quickly when it comes in contact with the skin. In soap, kokum butter can be used to

From the Soap Pot

When remelting kokum butter, be sure to leave empty space in your container in case the butter expands or "climbs" as it cools.

produce a hard, creamy bar of soap with high moisturizing properties. It has a hardness of 60.

Lanolin

Shelf life: 3 years.

Lanolin, known as wool oil or wool grease, has no useful benefits for making soap. It's a smelly, sticky substance that's actually a wax and not a fat or oil. Often lanolin is used in cosmetics. Its hardness is 0.

Lard

Shelf life: 12 to 18 months.

Properties and benefits: Lard, or pig fat, produces a moisturizing bar of soap but does not produce a lot of lather. To increase the lather and add cleansing in soap, you need to also use coconut oil and castor oil. Lard tends to make a soft soap and is often used in conjunction with tallow or vegetable oils like coconut or palm to increase the hardness. Lard is very inexpensive, and you can find it at your local grocery store. It makes a gentle white bar of soap. Lard has a hardness of 42.

Mango Butter (*Limnanthes alba*)

Shelf life: 2 to 3 years.

Properties and benefits: This white butter is hard and high in stearic acid. It's also a great source of essential fatty acids and antioxidants. Mango is one of our favorite butters, and we love to use it in our soap because it adds creamy lather and hardness to the bar. Mango butter has a similar conditioning value as shea butter. It's great for using in products such as lip balms and lotion bars because it adds firmness as well as moisturizing properties. Mango has a hardness of 53.

Mowrah Butter (*Madhuca latifolia*)

Shelf life: 1 year.

Properties and benefits: Mowrah butter is hard and solid at room temperature but melts quickly when it comes in contact with the skin. It has moisturizing properties and is known to help prevent wrinkles. In soap, it adds conditioning and a creamy lather. The ultra-refined mowrah butter is wonderful in lip balms and lipsticks, and gives them a rich and smooth texture while it helps keep the lips soft. Mowrah butter is a

great addition to your lotions and creams. It's also excellent to put on a burn because it stops the pain and even stops blistering if it's used soon enough. This butter is one of the softer butters with a hardness of only 46.

Soap Stats

Mowrah butter is imported from India. Since 2009, this butter has become harder to buy. About all we can find is the gently refined version, which is a dark yellow color and has a strong nutty fragrance. For our products, we prefer the ultra-refined mowrah butter.

Neem Seed Oil (*Azadirachta indica*)

Shelf life: 2 years.

Properties and benefits: Neem seed oil gets rid of head lice and won't poison your child. Add 1 tablespoon (15 milliliters) neem seed oil to 8 ounces (226.8 grams) of your regular shampoo. It also gets rid of fleas and won't harm your pet with pesticides that are in commercial products. Neem seed oil is great to use in soap that's for eczema, psoriasis, and acne. It's considered safe and can be used in skin products. The only problem with this oil is that it doesn't have a pleasant smell. Bars of soap made with neem seed oil don't have an unpleasant smell after they've cured, and with the use of an essential oil like juniper, they can have a very nice smell. We've used neem seed oil at 10 percent in soap, up to 5 percent in hand- and foot-care products, and at 1 or 2 percent as an insect repellent. Neem seed oil has a hardness of 33.

Olive Oil (*Olea europaea*)

Shelf life: 1 year.

Properties and benefits: Olive oil is the oldest-known oil used for soap. It's the ideal soap for a newborn or anyone who has a problem with their skin. Soap containing at least 50 percent olive oil is called castile. It's not a high-lathering soap, so if you want, you can add coconut, babassu, or palm kernel oil to add cleansing. For more lather, add castor oil. 100 percent olive oil soap has a cleansing number of 0, but it's very high in conditioning. In soap-making, the bars made

Soap Stats

Because olive oil is naturally high in oleic acid, it is very stable and has a long shelf life. Several other oils we use are termed *high oleic*. These other oils have been bred to have less polyunsaturated fat and more monounsaturated (oleic acid) fat. The outcome gives these oils a longer shelf life and stability, similar to that of olive oil.

with high olive oil are very soft when you first remove them from the soap mold but in time, they become very hard. To help speed this curing and hardening time, use a water discount. Many soap-makers regularly use olive oil in their soap recipes. In liquid soap, a high amount of olive oil seems to help thicken the soap. It has a hardness of 17.

Olive Oil Pomace

Shelf life: 1 year.

Properties and benefits: This very stable oil does not go rancid easily and can be stored without refrigeration for a year. Olive oil pomace creates a long-lasting, nondrying, mild soap with a creamy lather. It's very gentle. This oil makes a great soap to use for babies and the elderly who have dry skin. The downside is that the oil often discolors the soap to a slight olive color. Some people may find certain grades unpleasantly strong-smelling. It has a hardness of 17.

Ostrich Oil

Shelf life: 1 year. Keep refrigerated.

Properties and benefits: Ostrich oil contains essential fatty acids known for their skin-conditioning properties, making it ideal for lotions, shampoos, creams, and soaps. Just like emu oil, ostrich oil is an excellent oil to use in your facial bars. Ostrich oil sinks deep into the skin's tissues and acts like a carrier, delivering all the other ingredients to the deep tissues at the same time. It has a hardness of 36.

Palm Oil (*Elaesis guineensis*)

Shelf life: 2 years.

Properties and benefits: Palm oil makes a nice, hard bar when used in combination with other oils such as coconut and olive oil. Soap-makers use this oil as a base and stabilizer. The difference between palm kernel oil (nut inside the fruit) and palm oil is that palm kernel is white and has a higher melting point. Palm kernel oil is also one of the three cleansing oils, whereas palm oil has no cleansing values. It is also solid at room temperature. Palm oil is beige-colored and has a lower melting point close to room temperature—unless it's homogenized, and then it will be the last to melt in your pot. Palm oil is like milk in that it separates when left sitting. Before you can use palm oil to make soap, you have to completely melt all the oil and stir it very well. If you don't, you may find white, chalky veins running through your soap. The chalky vein

is the stearic acid that's separated. It doesn't hurt the oil to melt and then later reuse it over and over. During the winter months, you can buy homogenized palm oil, which does not need to be melted and stirred before use. Palm oil has a hardness of 50.

Soap Stats

Oils with higher melting points are hard and make harder soaps that take longer to melt in the bath or shower.

Palm Oil (Red Unrefined, Unbleached, Nondeodorized)

Shelf life: 2 years.

Properties and benefits: Unrefined, not bleached or deodorized, this oil contains vitamins K and E. In Africa, it's used mainly for cooking. We love this oil for all its skin benefits. Red palm oil is like whole milk; it separates. Before you can use the oil, you have to melt the entire container and stir the oil very well before it's ready to use. It doesn't hurt the oil to remelt it over and over again. If you fail to melt and stir the oil, your soap will have a waxy vain running through it. When the bar gets wet, the waxy vain washes away, leaving a gap in the soap bar. In soap and lotions, it produces a lovely apricot yellow color. It has a hardness of 50.

Soap Stats

Red palm oil contains very high levels of the two most important types of vitamin E and carotenoid, which our bodies changes to vitamin A. The vitamin A is what gives the red palm its deep-orange/red color.

Palm Kernel Oil (*Elaesis guineensis*)

Shelf life: 2 years.

Properties and benefits: Also known as palm nut, palm kernel oil is pressed from the kernels of the palm tree fruit. It has a high percentage of lauric acid, which is why palm kernel oil produces a hard soap and a rich lather. Soap made with this oil is white with a smooth texture. Palm kernel oil is often substituted in place of coconut oil because it's very stable. Palm kernel oil is one of the three oils you can use for adding cleansing to your soap. (The other two are coconut and babassu.) We don't recommend using two of the cleansing oils together in a batch of soap. Palm kernel oil comes in a flake form or solid in a container. It has a hardness of 70.

Peanut Oil (*Arachis hypogaea*)

Shelf life: 1 year.

Properties and benefits: Peanut oil has a high content of vitamin E. It's a thick conditioning oil that has a slight fragrance and is slow to penetrate so it leaves your skin with an oily feeling. It is good for all skin types. In soap-making, this oil is best when used in a small amount. It adds conditioning and has a long-lasting creamy lather. Many people have severe allergies to peanuts, so if you use this oil in your soap, you have to clearly mark it on the label. Peanut oil is easy to find in your local grocery store. It has a hardness of 11.

Safety First

Peanut oil should not be used by anyone allergic to peanuts.

Rice Bran Oil (*Oryza sativa*)

Shelf life: 1 year.

Properties and benefits: Rice bran oil is high in vitamin E. The oil comes from the husk part of rice. Many use this oil in place of the more expensive olive oil in soap-making. Blending rice bran oil in equal parts with sunflower oil, high oleic, gives you a less-expensive oil that's comparable to olive oil. It isn't a heavy oil, and it doesn't leave a greasy feel on the skin. It's an excellent moisturizer that's often used in massage oils, lotions, eye creams, and baby products. It's also good for liquid soaps. Rice bran oil has a hardness of 26.

Safflower Oil, High Oleic (*Carthamus tinctorius*)

Shelf life: Less than 3 months without refrigeration or 2 years mixed with 1 percent rosemary oleic resin extract. Keep refrigerated.

Properties and benefits: Safflower oil is very light and moisturizing; however, it's used more in leave-on products and not very often in soap-making. Because it doesn't stain sheets, it's often used with other oils in massage oils. You can find this oil at your local grocery store. It has a hardness of 7.

Sal Butter (*Shorea robusta*)

Shelf life: 1 year.

Properties and benefits: Sal butter, imported from India, is produced from the seeds of the sal tree. This hard, light-yellow butter is recommended for use in soap to add

hardness and conditioning. It also has nice skin-softening qualities. It's more often used in body products such as lotions and creams because of its uniform triglyceride composition, which gives it high oxidative and emulsion stability. It's an ideal choice to use in balms and lotion bars. Like cocoa butter, sal butter melts easily on the skin. It has a hardness of 50.

Shea Butter (*Butyrospermum parkii*)

Shelf life: 1 to 2 years; longer if refrigerated.

Properties and benefits: Shea butter, a hard butter rich in vitamins A, E, and F, along with other vitamins and minerals, adds wonderful conditioning properties to soap. We have used from 5 percent up to 40 percent shea butter in soap and found that the magic number is around 10 percent for soap you want to use or sell now. A bar of soap made with 20 to 40 percent shea butter gets better with age. Letting it age for over a year, even 2 years, gives the soap time to fully come into its own and becomes an incredibly moisturizing bar of soap. Shea butter is also helpful for those who have eczema and psoriasis. It has a hardness of 45.

Soybean Oil (*Glycine soja*)

Shelf life: 1 year.

Properties and benefits: This high-protein oil contains lecithin; unsaturated fatty acid; sterols; and vitamins A, E, and K. It's easy to obtain from the grocery store, but it isn't an oil that has any special benefits for the skin. When you use it in a soap, you have to watch the iodine value because it is so high. When we used it in liquid soap the first time and weren't watching the iodine level, the soap went rancid in less than a month. It has a hardness of 16.

Soap Stats

The soybean oil we use is a European Union, non-GMO (genetically modified organism) type, which means the soybeans haven't been genetically modified through any biotechnology procedures to add a specific trait. These soybeans are stored untreated and without any chemical pesticides.

Sunflower Oil, High Oleic (*Helianthus annuus*)

Shelf life: 2 years.

Properties and benefits: Sunflower oil has a high vitamin E content and contains lecithin, tocopherols, carotenoids, and waxes. It resists infection by forming a protective

barrier, and it's very moisturizing for the skin. This oil is the oil we most often use for infusing with herbs we want to use in our soaps or bath and body products. You can buy this oil at your local grocery store. There are two types of sunflower oil. We use the high oleic type. It has a hardness of 7.

Tallow, Beef

Shelf life: 1 year from manufacture.

Properties and benefits: Rendered from beef fat, tallow is high in oleic, palmitic, and stearic acids and is an inexpensive addition to soap. It adds some conditioning, cleansing, and creamy lather as well as hardens the bar of soap. It is also inexpensive, making your soap batch more cost-effective. Beef tallow, when combined with other oils, produces a hard, long-lasting, white soap bar that has a rich and silky lather. It has a hardness of 58.

Frequently Asked Questions About Oils and Butters

What kinds of oils do most soap-makers use? There seem to be four favorites among soap-makers: castor oil, which adds lather and is moisturizing; coconut oil for cleansing; olive oil for moisturizing; and palm oil for hardness and stability.

Can I use motor oil for my soap? No. It has no values that will interact with the lye.

Can I use LouAna Coconut Oil I see at the grocery store? Yes, that is 76 degree coconut oil. That means the oil is solid if the temperature is cooler than 76 degrees Fahrenheit.

Is regular shortening from the grocery store okay to use? Yes, you can use it. But other than the Spectrum brand, which is 100 percent palm oil that's been homogenized, regular shortening doesn't add much to your soap.

The Least You Need to Know

- The oils and butters available to use in your soaps is long and should inspire your creativity.
- Each oil and butter have specific properties and qualities, so you can more easily choose the best oil or butter for your soap.
- You can buy many of your soap-making oils in your local grocery store.

Chapter 3

Fragrance and Essential Oils

In This Chapter

- Using fragrance oils in your soap
- Tips on blending fragrance oils
- A look at essential oils
- Tips for using essential oils in soap

Nearly every soap-maker becomes addicted to and excited about scents and scent blends. We joke with each other about our passion, that the family doesn't need groceries this week because there's a fragrance oil prebuy starting, and that's more important than food.

It's all in fun, but deep down, there's a grain of truth. We soap-makers love our fragrance and essential oils. Soon, you will, too.

Fun with Fragrance Oils

You've had a rough day. Traffic was terrible. Your boss scolded you for your co-worker's error. Your kids and their friends had made a mess of the kitchen by the time you got home from work. And to top it off, you've had a headache all day. You want to escape from it all in a bath filled with the

scents of lavender and vanilla in a soap you made yourself. That's where fragrance oils come in.

Fragrance oils are soothing and relaxing. You can lie in your tub, surrounded by scents, and just let the world go by. Light a scented candle while you're at it, and relax even more. Before you know it, your headache is gone and you're rejuvenated, ready to face that huge mess in the kitchen!

Choose Your Scent

Fragrance oils are synthetic blends made from chemicals that mimic scents and essential oils that are then added to bases. Fragrance oils are formulated in different ways for specific products—candles, bath and body products, and soap. You can find any number of fragrance oils. Here's a list of a few of the most popular fragrances:

- Spellbound Woods is a seductive blend of top notes of amber, middle notes of cedar and sandalwood, and faint bottom notes hinting a touch of floral.
- Black Tea and Berries is a fresh and deliciously fruity blend of berries with a touch of red clover.
- Cool Mountain Lake is a fresh, crisp, and clean water fragrance.
- Lavender Rose is a lovely blend of French lavender with rose top notes complimented by musk, moss, and muget. Add a little powdery note, and you have a very romantic, soft, and sexy scent.
- Cucumber Mint is a rejuvenating blend of fresh mint and cold, crisp cucumbers.
- Hardwood Musk blooms with notes of sandalwood, cedarwood, oak, and myrtle woods with earthy base notes. This a very sexy male fragrance women love to smell on their fellas.
- Fresh Pomegranate is, just like the name implies, a sweet fruity-cranberry scent.

That's just a sampling of the more than 7,500 fragrances on the market today. Many are duplicates of popular colognes and commercial home fragrance lines. No matter what type of fragrance you love, you will certainly find plenty to choose from.

Safety First

It's important that you only use fragrances safe for skin in your soaps. Choose your vendor carefully, and know what you're buying.

You'll hear a lot about *phthalates* in fragrance oils and how harmful these are. There are several different types of phthalates, and some are more harmful than others. Phthalates are usually found in some of the bases manufacturers use, but you can find many phthalate-free fragrances.

Fragrance oils have what are called *flash points*. A flash point is the temperature at which the fragrance oil gives off just enough vapor that will ignite when an open flame is applied. Every fragrance oil is given a flash point number.

Lather Lingo

Phthalates are chemicals used to soften plastics and make them flexible. They're also in cosmetics, plastic toys, beverage bottles, flooring, furniture, wallpaper, and thousands of other everyday things. There are seven types of phthalate compounds. The one used in premade fragrance oil base is diethyl phthalate (DEP). It's considered safe and is used as a fragrance stabilizer. Many fragrance oil manufacturers are starting to offer phthalate-free fragrances.

Flash point is important when you're using a fragrance oil in candles. A too-low flash point could cause the candle to catch fire. If your wick burns at 160°F, you wouldn't want to use a fragrance oil with a flash point of 140°F. Flash point isn't as important in soap-making because we don't use open flames when making soap. That said, there are restrictions on how low a flash point can be and still be shipped by the postal service or allowed to be brought into other countries. Fragrance oils with flash points of 200°F and greater can be shipped through regular mail. All others have to be shipped by the other carriers.

How Much Do I Use in Soap?

You want your soap to smell nice, but you don't want it so strong you get a headache from the scent, so it's important to know how much fragrance oil to use. As a general rule of thumb, for stronger fragrance oils, use only .5 to .7 ounce per pound of oil. If it's a light fragrance, use 1 ounce per pound of oil. Bath and body products generally contain 1 to 3 percent fragrance oil.

Serious soap-makers have a lot of money invested in fragrances. The more concentrated the fragrance is, the higher the cost. You actually save money buying the higher-priced oil because you use less fragrance oil per pound of soap. With the cheaper and

Safety First

When it comes to fragrance oils, you get what you pay for.

weaker fragrances, you have to use 1 ounce or more per pound of soap and even then, the fragrance may fade within a month or two. As you learn more about soap-making, you'll see that $25-a-pound fragrance formulated for soap is usually more cost-effective than one of the much cheaper fragrances.

Blending Fragrance Oils

Many soap-makers enjoy blending their fragrance oils to create new scents. You can blend fragrances, even those from different manufacturers, or add an essential oil to a fragrance oil to make a new scent. As you saw in the list of fragrance oils earlier in this chapter, you have many options when it comes to fragrance oil scents. Be creative and have some fun. For example, to make a man's cologne fragrance oil into one suitable for a female fragrance, all you have to do is add a little floral fragrance oil. It's that easy!

Some soap-makers add the fragrance oil to the warm oils before adding the lye mixture. Some wait until light trace. We prefer waiting until light trace.

Frequently Asked Questions About Fragrance Oils

Are any fragrance oils made to be used only in soap? Yes, but you can also use them in all your other bath and body products, too. They are more expensive, but you use a lot less per pound of oil, so in the long run you save money.

Can I use any fragrance oil in soap? No. It has to be skin-safe. Don't use fragrance oil that's not labeled skin-safe.

Can I use my favorite perfume to scent my soap? No. You have to use fragrance oils or essential oils formulated to be used in soap-making. And remember, they have to be skin-safe.

Can I blend fragrances together to create my own scent even if they're from different vendors? Yes, as long as they're all skin-safe and formulated for the product you intend to make.

Enhancing Soaps with Essential Oils

You might be wondering why we've included *essential oils* in a book on making soap. Here's our line of thought: essential oils were our first "medicine," so why not add them to soap to help with different skin or hair problems? Not only can you use them

for medicinal reasons, but some of them are also great for adding fragrance to the soap. (Be sure to write down all the combinations you like so you can remember them!)

Do not use essential oils as if they were fragrance oils. Because essential oils are distilled from the roots, bark, flower, stems, and leaves of plants, they contain the true essence of the plant they were derived from. Therefore, they're very potent and can be irritating if too strong. You are told in the recipes later in the book what percentage of essential oils to use.

Lather Lingo

Essential oils are volatile oils extracted from plant matter by distillation, expression, or solvents that can be blended together and with other natural essences to make scents for use in perfumes and colognes. Essential oils aren't just for scenting; they also have medicinal properties and are widely used in aromatherapy.

The Usefulness of Essential Oils in Soap

With more and more antibiotic-resistant bacteria, mutating viruses, disease-causing parasites, and infectious fungi in the news each day, it can be comforting to know we have essential oils to rely on because, although the mutating bacteria in viruses can become resistant to Western medicines, they never become resistant to essential oils. When essential oils were tested by diffusing, the report was that the essential oils killed 100 percent of bacteria and viruses in the room. A study in France showed the antiseptic qualities of 34 essential oils. Among them, thyme, origanum, sweet orange, lemongrass, Chinese cinnamon, and rose were so antiseptic that one part of these rendered 1,000 parts of raw sewage free of all living organisms.

Although this knowledge has been known and applied with great success for ages, it's just now being rediscovered. An inquisitive doctor put some of the microbe-laden air from a hospital into a flask containing just a few drops of essential oils, and after 20 minutes, 40 percent of the microbes were destroyed; 80 percent in an hour, and 100 percent in 9 hours!

Essential oils should be called germ-killing oils! They're so good to add to soaps for acne and other conditions where germs are a problem.

Adding Essential Oils to Soap

Peppermint, cinnamon, and clove all smell great in soap but can cause a great deal of pain and burning if you use too much. If you want the smell of cinnamon and clove in

your soap, use the cooking herbs you have in the spice rack in the kitchen rather than essential oils. Or you can buy a skin-safe fragrance oil that's been formulated for use in making soap.

When adding essential oils to soap, never use them as if they were fragrance oils. They are too potent and could cause a skin problem. Most essential oils should only be used at .5 percent and never higher than .7 percent.

When using essential oils in creams or lotions, we suggest you buy a book that tells the percentages that have been tested for each and every essential oil. A great one is *Plant Aromatics* by Martin Watt (Martin Watt, 1992).

Common Essential Oils You Can Use

Now let's take a look at some of the essential oils you might use in your soaps.

Note: This information isn't meant to take the place of professional medical help. It's only a guideline of known uses for essential oils.

Balsam peru (*Myroxylon pereirae*) Known uses: helps hold fragrance in products; good for chapped hands and feet; and relieves itching caused by scabies, eczema, and ringworm. Use a small amount at a time.

Basil, sweet (*Ocimum basilicum*) Antibacterial, antispasmodic, and anti-inflammatory. Known uses: for pain relief, virus and chest infections, mouth ulcers, muscle aches, and infected gums; serves as a digestive aid; helps rheumatoid arthritis; and aids in circulation and urinary tract infections.

Bay laurel (*Laurus nobilis*) Antiseptic and *expectorant*. Known uses: for colds, virus infections, muscle aches and pains, sprains, bruises, hair loss, greasy hair, and flaky scalp; can act as a scalp and hair tonic, respiratory system inhalant, and liver and kidney tonic. Try it in shampoo bars!

Lather Lingo

An **expectorant** thins and loosens mucus congestion in the lungs and bronchial tubes.

Bay rum (*Pimento racemosa*) Known uses: for general aches and pains, scalp conditions, acne, dandruff, and greasy hair; acts as an appetite stimulant; and settles stomach pains. Try using it in a shampoo bar or gel.

Benzoin (*Styrax benzoin*) Antiseptic and expectorant. Known uses: as a pulmonary antiseptic; for acne, eczema, and psoriasis; acts as a preservative in foods; and helps hold fragrance in soap.

Bergamot (*Citrus bergamia*) Antiseptic, expectorant. Known uses: relaxes the nervous system; acts as a digestive aid and a gargle for sore throats; helps anxiety, depression, mild respiratory and urinary tract infections, wounds, herps, acne, and oily skin. Bergamot can be a photosensitizer (a substance that absorbs light), so use the bergaptene-free version. *Should not be used when pregnant.*

Cajeput (*Melaleuca leucadendron*) Antiseptic, analgesic, and expectorant. Known uses: acts as an insect repellant; helps with skin care, wound cleansing; acts as a stimulant; soothes colic and vomiting; and helps respiratory tract infections, nasal and sinus congestion, headaches, gout, muscle stiffness, pain, fire ant bites, menstrual cramps, acne, genital herpes, hemorrhoids, and varicose veins. From the same family as tea tree and manuka.

Carrot seed (*Daucus carota*) Stimulant. Known uses: acts as a tonic for liver regeneration and cholesterol control; helps mature wrinkled skin; tones the skin, stimulates blood cells; adds elasticity to the skin; helps burns, weeping sores, ulcers, boils, eczema, psoriasis, carbuncles, and scars; and can be used as a massage oil and blood purifier.

Cedarwood, atlas (*Cedrus atlantica*) Antibacterial. Known uses: acts as an insecticide; helps remove body fat, cellulite, fluid retention, respiratory ailment discomfort, dandruff, oily skin and scalp, alopecia, acne, eczema, bladder and kidney functions, and psoriasis; reduces oily secretions; acts as a hair tonic for seborrhea of the scalp; can be used in chest rubs; helps hold fragrances. Can also be used in men's fragrances, in facial washes and shampoos, in tonics, and in chest rubs. This is a true cedar, also known as Atlantic cedar or Moroccan cedarwood.

Safety First

Do not confuse atlas cedarwood with Texas or Virginia cedarwood. And do not use on children or pregnant women.

Cinnamon bark (*Cinnamomum zeylanicum*) Antibacterial, antispasmodic, antiseptic, aphrodisiac, and antifungal. Known uses: acts as an insecticide and room spray; can be inhaled for a respiratory and circulatory stimulant; helps exhaustion and depression. The bark oil is a dermal toxin, so don't use it on the skin. If you want a cinnamon-smelling soap, use the cinnamon you cook with instead.

Clary sage (*Salvia sclaria*) Antispasmotic and analgesic. Known uses: helps nervous tension, fear, paranoia, depression; relaxes; inhibits prolactin; helps during menopause; sooths digestion; accelerates labor; helps throat and respiratory infections; cools inflammation; and helps hold fragrances in soaps, perfumes, and cosmetics. *Do not use while pregnant or nursing.*

Combava petitgrain (*Citrus hystrix*) Antiseptic and anti-inflammatory. Known uses: acts as a liver decongestant and sedative; calms; and relieves stress, agitation, insomnia, skin inflammation, and acne. Do not use on sensitive skin. You can use it in soap for acne.

Coriander (*Coriandrum sativum*) Anti-inflammatory. Known uses: for stress, anxiety, insomnia, to stimulate the mind, arthritis pain, migraines, clears black heads and tames oily skin.

Cypress (*Cupressus sempervirens*) Antiseptic and antispasmodic. Known uses: acts as a deodorant, diuretic, haemostatic, hepatic, stryptic, vasoconstrictor, respiratory tonic, and sedative; can be inhaled for strength and comfort, or diluted in a carrier oil and used to massage varicose veins every day. Try it in a deodorant soap!

Elemi (*Canarium luzonicum*) Antifungal, antiseptic, analgesic, and expectorant. It's nontoxic, nonirritating, and nonsensitizing. Known uses: helps nervous exhaustion and stress, skin and acne, cell regeneration, dry and mature skin, wounds, sores, inflamed skin, eczema, and dermatitis; balances sebum secretions; and controls heavy perspiration.

Eucalyptus (*Eucalyptus globulus*) Also called blue gum. Antiseptic, antirheumatic, expectorant, analgesic, and insecticide. Known uses: acts as a decongestant, inhibits cold viruses, repels insects, lowers fevers, eases breathing, clears sinus congestion, loosens phlegm, and can be used in room sprays. Should never be taken internally.

Eucalyptus (*Eucalyptus radiate*) Antiviral and expectorant. Known uses: same as eucalyptus globules. This one is gentler and a more pleasant oil to use. For a scent blend, try blending it with spearmint.

Eucalyptus, lemon (*Eucalyptus citriodora*) Antiviral, antibacterial, antifungal, and analgesic. Known uses: helps viral, bacterial, and fungal skin infections; colds and flu; is calming; acts as a sedative and an antihypertensive. Useful in soap.

Fir needle (*Abies alba*) Analgesic, antiseptic, expectorant, deodorant. Known uses: inhaled for anxiety, stress, and respiratory issues; is warming; good for massages; and relieves muscle aches, pain, and rheumatic or arthritic conditions.

Soap Stats

You can use essential oils to make room sprays to kill bacteria. Mix 1 teaspoon (5 milliliters) vodka or perfumer's alcohol with 7 ounces (198.5 grams) distilled water in a spray bottle. Add 1 teaspoon (5 milliliters) essential oil or essential oil blend. To help the oil blend with the water, you might want to add 1 teaspoon (5 milliliter) of an emulsifier such as polysorbate 20. Shake the bottle before each use.

Fir needle, Canada (*Abies canadensis*) Canadian balsum and Siberian fir are favored for their wonderful fragrance. Known uses: good for respiratory problems, warming, massages, and deodorant and room sprays.

Frankincense (*Boswellia carteri*) Also known as olibanum. Antiseptic and astringent. Known uses: for anxiety and stress, dry and mature skin, wrinkles, scars, and wounds; acts as a diuretic; helps digestion; and can be used as a sedative. Mix with myrrh for soap.

Geranium (*Pelargonium graveolens*) A.k.a. rose geranium. Antidepressant, antiseptic, and analgesic. Known uses: helps depression, anxiety, and PMS; acts as a diuretic, detoxifier; helps stimulate the lymphatic system; balances sebum; helps oily skin, wounds, ulcers, and burns; and repels mosquitoes.

Grapefruit, pink (*Citrus paradise*) Stimulant, antidepressant, antiseptic, disinfectant. Known uses: helps depression; acts as a detoxifier and diuretic; helps cellulite, digestion, congestion, oily skin, and acne; and can be used as a room spray.

Jasmine (*Jasminum grandiflorum*) Antidepressant, aphrodisiac, antiseptic, and antispasmodic. Known uses: helps depression, headaches, nervous exhaustion, stress, skin care, dermatitis, and eczema.

Juniper berry (*Juniperus communis*) Antiseptic, antispasmodic, astringent, and expectorant. Known uses: acts as a diuretic; helps the urinary tract, cystitis, kidney stones, gout, acne, blocked pores, weeping eczema, psoriasis, and inflammations; and eliminates uric acid. The berries and extracts are used in diuretics, laxatives, gout treatment, wart treatments, flea and tick repellants, spicy fragrances, and aftershaves.

Lavender (*lavandula officinalis*) Known uses: helps burns, headaches, sleep, athlete's foot, and herpes and acts as an insect repellant. Great in scent for soap.

Lavender, Bulgarian (*lavender augustifolia*) Antidepressant, analgesic, antirheumatic, antiseptic, antispasmodic, antiviral, antibacterial, antifungal, and decongestant. Known uses: acts as a diuretic, deodorant, sedative, fungicide, and bactericide; calms; lowers high blood pressure; helps insomnia, sunburns, and scars; promotes new skin cells; and can be used in room sprays. It's also great in soap!

Lavender, super (*Lavandula* hybrid var. super French) Antispasmatic. Known uses: helps headaches, relaxation, inflammation, acne, scabies, skin infections, and respiratory disorders. It's great in soap!

Lavendin, grosso (*Lavandula* hybrid var. grosso French) Anti-inflammatory and antiseptic. Known uses: acts as a stimulant; helps acne, scabies, skin infections, and respiratory disorders. This is wonderful in soap.

Lemongrass (*cymbopogon citratus*) Anti-inflammatory. Known uses: helps high blood pressure, gastrointestinal problems, and fever; can be used in deodorants, skin care, fragrances, and insect repellants; also good for aromatherapy.

Lemongrass, East Indian (*cymbopogon flexuosus*) Anti-inflammatory. This genus has 200 species. Known uses: acts as a stimulant; helps aching muscles, headaches, nervous exhaustion, and stress; aids the flow of milk; stimulates hair; helps acne, athlete's foot, and open pores; and prevents the spread of contagious diseases. It also smells divine in soap.

Lather Lingo

When discussing ingredients, such as an essential oil, **neat** means to use it as it is, not diluted.

Litsea cubeba (*Litsea cubeba*) A.k.a. may chang. Antidepressant, antiseptic, astringent, insecticide. Known uses: helps depression; calms; promotes sleep; acts as a sedative; and helps indigestion, flatulence, lower back pain, chills, travel sickness, headaches, excessive perspiration, acne, and oily skin. Also helps hold sweet orange essential oil in soap. Do not use *neat*.

Manuka (*Leptospermum scoparium*) Antibacterial, antifungal, and antiviral. Known uses: proven effective against both strep and staph infections. It's very similar to tea tree but smells better. It can be used in place of tea tree, and it's great to use in soap for acne.

Myrrh (*Commiphora myrrha*) Antiseptic, astringent, disinfectant, and deodorant. Known uses: acts as a diuretic; stimulates the immune system; helps gum disorders, sore throat, excessive mucus, colds, coughs, flatulence, hemorrhoids, wounds, weepy eczema, athlete's foot, jock itch, mouth ulcers, gingivitis, and bleeding or spongy gums. Do not use during pregnancy.

Myrtle (*Myrtus communis*) Antiseptic, astringent, antibacterial, and expectorant. Nonirritating and nonsensitizing. Similar to eucalyptus. Known uses: helps pulmonary and urinary infections, hemorrhoids, insomnia, and nervous conditions and acts as a sedative. It's revitalizing and balancing.

Neroli (*Citrus aurantium*) Antispasmatic, antidepressant, antiseptic, stimulant, and deodorant. Known uses: helps digestion, anxiety, depression, stress, insomnia, broken capillaries, and oily or dry skin. Balances sebum.

Niaouli (*Melaleuca quinquenervia*) Antiseptic, antibacterial, insecticide, decongestant, and vermifuge. This is another melaleuca, and you can use it instead of tea tree oil. Known uses: stimulating and for head and chest colds. Does not smell as bad as tea tree oil.

Oak moss absolute (*Evernia prunastri*) Characterized by its earthy, mossy, musky odor, oak moss's properties are more emotional and spiritual than physical. It's soluble in alcohol and is used as an anchor in all types of perfume. Known uses: in fragrances and respiratory oils and relieves congested sinuses. It also smells wonderful in soap.

Orange, bitter (*Citrus sinensis*) Antiseptic; comes from the peel of the orange. Known uses: aids in calming, helps nervousness, is disinfecting, and is used in men's fragrances. Must be diluted before use.

Oregano (*Oreganum vulgare*) Antibiotic, anti-inflammatory, antioxidant, and expectorant. Known uses: helps infections; relieves pain, coughing, fever, and digestion; counters effects of poison; soothes muscle spasms; and aids wounds.

Patchouli (*Pogostemon patchouli*) Antidepressant, antiseptic, astringent, antifungal, and insecticide. Known uses: helps depression, wounds, acne, eczema, scars, cracked skin, fungal infections, scalp disorders, wrinkles, and cellulite; tightens skin; and aids in tissue regeneration. Try mixing with lemon, lime, or lavender essential oils for a wonderful scent.

Soap Stats

If you could only get one essential oil for the medicine cabinet, it should be oregano. With the super bugs that have reared their ugly heads, this is one that can take them all on and win.

Peppermint (*Menthe piperita*) Decongestant, expectorant, and *emmenagogue*. Known uses: for cooling, pain relief, muscle aches, cramps, diarrhea, colic, nausea, bruises, joint pain, insect bites; acts as a stimulant; and helps itching or irritation and travel sickness. Avoid during pregnancy. When using in soap, be careful not to use too much because it can cause a burning sensation in sensitive areas.

Lather Lingo

An **emmenagogue** helps stimulate the blood flow in the pelvic area. It can help stimulate menstrual flow or help with menstrual problems.

Rosalina (*Melaleuca ericifolia*) A.k.a. lavender tea tree. Antiseptic, antispasmodic, expectorant, and anticonvulsant. Known uses: helps respiratory congestion, infections, stress, and insomnia; calms. This is a twin to rosewood essential oil, and it's wonderful in soaps.

Rosemary (*Rosemarinus officinalis*) Antidepressant, antirheumatic, antispasmodic, astringent, antimicrobial, and antiseptic. Known uses: helps depression, digestion, hypertension, blood circulation, gout, and tired muscles; acts as a diuretic; lowers high

blood sugar; enhances the color in dark hair; and reduces static charge. Do not use if epileptic, have high blood pressure, or are pregnant. Rosemary is great to use in a shampoo bar or gel.

Rosewood (*Aniba roseaodora*) A.k.a. *bois de rose*. Antiseptic, antidepressant, aphrodisiac, deodorant, and insecticide. Known uses: helps depression, infections, and odors.

Sage, dalmatian (*Salvia officinalis*) Anti-inflammatory, antibacterial, and antiseptic. Known uses: helps digestion, inflamed or oily skin, alopecia, baldness, joint pain, muscle pain, and arthritis; acts as a diuretic; and stimulates hair growth. Can be toxic if overused. Do not use if you're pregnant or have high blood pressure.

Sage, Spanish (*Salvia lavandulifolia*) Anti-inflammatory, antibacterial, and antiseptic. Has all the uses of *Salvia officinalis* without the dangers. *Avoid while pregnant.*

Soap Stats

Rosewood is native to the Amazon and is being overharvested. We suggest using rosalina instead.

Sandalwood-mysore (*Santalum album*) Antiseptic, antispasmodic, aphrodisiac, expectorant, and astringent. Known uses: calms; soothes mucous membranes; acts as a diuretic and sedative; helps acne, infections, insomnia, sore throats, dry cough, dry eczema, aging and dehydrated skin, arthritis, muscle injuries, premenstrual pain, insect bites and stings, and inflammation.

Spearmint (*Menthe spicata*) Antispasmodic, insecticide, and stimulant. Has the properties of peppermint essential oil, but it's not as potent. This can be used on children, too, and it mixes great with other fragrances for use in soap-making.

Spikenard (*Nardostachys jatamansi*) Antifungal. Known uses: calms; helps serious skin conditions, athlete's foot, and dandruff. This is one of the oldest of the sacred oils.

Spruce (*Tsuga canadensi*) Known uses: helps stress, anxiety, muscle aches and pains, joint pain, poor circulation, muscle spasms, and respiratory conditions.

Spruce, black (*Picea mariana*) Has the same benefits as the *Tsuqa canadensi*. Wonderful evergreen scent.

Styrax resin (*Liquidambar styraciflua*) American styrax or red gum. Known uses: helps with wounds, ringworm, and scabies.

Tangerine (*Citrus reticulate*) Antiseptic and antispasmodic. Known uses: acts as a sedative; helps with the stomach, stretch marks, and acne; and stimulates circulation. Can be a photosensitizer.

Tea tree (*Melaleuca alternifolia*) Antibacterial, antiseptic, expectorant, antiviral, and insecticide. Known uses: helps infections, fungus, scars, and acne. Do not use this oil neat; always dilute it with a carrier oil. It's good to use in soap for acne.

Tea tree, lemon scented (*Leptospermum petersonii*) Antibacterial, antifungal, and expectorant. This is a cousin of Manuka. Known uses: helps oily skin and acne; kills mold, fungus, and bacteria; and repels insects. Use in candles or a room spray to kill mold, fungus, and bacteria in the air.

Thyme (*Thymus vulgaris*) Antirheumatic, antiseptic, antispasmodic, aphrodisiac, expectorant, and insecticide. Known uses: acts as a diuretic; and helps the heart, cicatrizant, gout, scalp, hair loss, and dandruff. This is a great choice for a shampoo bar or gel.

Thyme, linalol (*Thymus vulgaris linalool*) Antibacterial, anti-infectious, and antifungal. This is the mildest of the thymes.

Verbena (*Lippia citriodora*) Antidepressant and antispasmodic. Known uses: helps depression, insomnia, nervous fatigue, stress, digestion, nausea, fever, and flatulence.

Vetiver, El Salvador (*Vetiveria zizanoides*) Known uses: relaxing, mild sedative, balances sebum production. Used in making fragrances.

Violet leaf (*Viola odorata*) Decongestant and stimulant. Known uses: helps the liver, aging and problem skin, enlarged pores, and blackheads; acts as a circulatory stimulant. Used in making fragrances.

Yarrow (*Achillea milleflorum*) Anti-inflammatory and stimulant. Deep blue in color. Known uses: for acne, oily skin or scalp, hair growth, rheumatoid arthritis; acts as a circulatory stimulant; and repels ticks. *Do not use for pregnant women, small children, or babies.*

Ylang ylang (*Canangium odoratum*) Antidepressant. Known uses: for depression, insomnia, constipation, dermatitis, diabetes, emotional exhaustion, epilepsy, blood pressure, indigestion, stomachaches, muscle spasms, nervous tension, temporomandibular joint disorder (TMJ), sexual difficulties, acne, and hair loss.

Frequently Asked Questions About Essential Oils

Is it safe to use essential oils for babies and young children? Yes, but with one warning: do not use essential oils on a baby younger than 3 months. Along the same lines, there are some essential oils that pregnant women shouldn't use or come in contact with. We make a lavender bath oil with essential oil that helps calm children and ease them to sleep right after their bath. Now that's heaven!

My father is a diabetic. Can I use peppermint essential oil to scent soap for him? No. Everything we've read about diabetics and peppermint essential oil says not to mix the two.

Can you mix fragrance oils and essential oil to make a blend for soap? Yes, as long as the fragrance oil is rated as soap- and skin-safe. One of our favorite blends is made with equal parts patchouli essential oil, sandalwood fragrance oil, and ½ part English garden fragrance oil. We call that blend Peach on Earth!

The Least You Need to Know

- Essential oils can help with a multitude of aches and pains and other bothersome aspects of your everyday life.
- You can really get creative when you use essential oils.
- Certain essential oils are antibacterial and are great to use for a natural antibacterial soap.

Chapter 4

Say Hello to SoapCalc

In This Chapter

- Using SoapCalc
- What numbers do I want my soap to have?
- Formulating the type of soap you want

As you read in earlier chapters, you don't need a lot of different kinds of ingredients to make soap. Some oil/butter, some lye, some water, and you've got your basic recipe. But there's more to it than that, and that's where SoapCalc (soapcalc.net) comes in.

SoapCalc does all the work for you. For whatever type of soap you want to make, you enter the ingredients, choose some of the qualities you want your soap to have, click a button, and SoapCalc produces the recipe, adding the correct amount of water and lye you need in your recipe. But it doesn't stop there. It also tells you the properties your soap will have, including cleansing, hardness, lather, conditioning, and the iodine. All these things are very important when you're formulating a certain type of soap.

How to Use SoapCalc

First, go to soapcalc.net and click on the **SoapCalc** tab. This brings up the fill-in form you'll use over and over as you make different kinds of soaps. (You might want to bookmark this page for quick reference later.)

As you read through this chapter's tutorial, follow along on the SoapCalc website. This will help make everything easier to understand as you fill in numbers later.

Starting at the top left on the homepage, you'll notice that the topic boxes are numbered 1 through 8. If you click on the number in the box, you'll get an overview of what you're calculating in that box and why. We'll also use these numbers to identify what area of SoapCalc we're talking about. Let's take a look at each box.

Box 1: Type of Lye Used

In this box, you have two choices:

- **NaOH,** or sodium hydroxide, for making bar soap
- **KOH,** or potassium hydroxide, for making liquid soap

Click on the circle next to either NaOH or KOH, depending on the type of soap you're making. The default for bar soap is NaOH.

Box 2: Weight of Oils

This box is for the total weight of all the oils or butters you use in a recipe. You have three choices for which unit of measure you want to use:

- **Pounds**
- **Ounces**
- **Grams**

When you change the filled-in circle here, you'll notice that the green box underneath changes according to your choice, as does the far-right column in box 6 (unit measurement).

From the Soap Pot

When you choose **pounds** in box 2, it doesn't mean your calculations will make 1 pound of soap. Lye + oils + water = total weight of soap. "Pounds" in this box means 1 pound of *oils*, which will make 24.86 ounces (704.8 grams) of soap at full water of 38 percent. For an easy way to remember how much oil you need for a pound of soap, just think "11" (11 ounces oil plus 5 ounces water/lye equal 1 pound soap): 11 ounces of oils make 1 pound of soap; 22 ounces of oils makes 2 pounds of soap, and for 3 pounds of soap—you guessed it! You need 33 ounces of oils.

Box 3: Water

As you'll see, this box contains three calculations. Let's go through them one at a time.

Water as % of Oils The default value for water is 38 percent. That means water weighs 38 percent of the weight of the oil used. This is the best percentage for soap, and the best one for beginners to use. We use the 38 percent of water when we make a batch of soap that will have a fragrance or essential oil in it we've not used before. This is because some fragrances, mainly florals, and some essential oils will accelerate trace (the thickening of the soap) so fast you won't have enough time to get the soap out of the pot. Using the full amount of water cuts down the chances of this happening. As you make more soap and becoming familiar with the process, you can start reducing the amount of water (called discounting water).

The soap may be softer than you like with the full amount of water, but it will harden in time. Sometimes it may take up to 2 weeks to fully harden.

If your finished soap is "soft," meaning you leave an indentation when you press on it with your finger, you can reduce the amount of water the next time you make it and it'll be harder. If in doubt as to how the fragrance is going to react, reduce the water to 34 percent on the second go-round with the recipe and fragrance. If the second batch of soap is still too soft, reduce the water to 30 percent. This usually makes a hard bar of soap.

Don't worry about making mistakes with the water calculation—a built-in warning box in SoapCalc will pop up if you try to reduce the water by too much, telling you it's not a safe thing to do.

From the Soap Pot

Keep notes on each batch of soap you make. If the soap turned out exactly like you expected, note that on the recipe. If it was too soft, write that down, too, so you'll know what you need to do the next time.

Lye Concentration Another option to reducing the water in your soap recipe is using the lye concentration. This box is for advanced soap-making; if you're using the 38 percent water calculation, you don't need to do anything with this box.

Water : Lye Ratio This box is for changing the water-to-lye ratio in your recipe. Again, this is advanced soap-making and you don't actually need to use this box at all, ever.

Box 4: Super Fat %

In this box, we are dealing with two topics:

- **Super Fat %**
- **Fragrance**

Super Fat % means there's been a reduction in the amount of lye, so a portion of the oils won't be turned to soap; instead, they serve to soothe the skin. The higher the super fat percentage, the more oils/butters are left to soothe the skin. The highest number we've super fatted with is 15 percent. Most soap-makers prefer to super fat at 5 to 8 percent for most bars of soap. During the summer months, 5 percent is good to use, and during the winter months, 8 percent is used more often. Still, it's a matter of which works best for your skin or purpose.

The default here is 5 percent because the super fat should never be below 5 percent or your soap would be lye-heavy. The scale we use isn't that accurate, and saponification numbers are averages that can change with each shipment to the United States. So with 5 percent as a buffer zone, you're safe. If you're making laundry soap, however, the rules change. You want 0 percent super fat for laundry soap and all liquid soaps. The super fat is set at a –13 for liquid soaps. (We explain why in Chapter 10.)

From the Soap Pot

Some soap-makers think that by super fatting to a higher number, the soap will go rancid and produce DOS (dreaded orange spots). This isn't so. DOS is caused by a high amount of iodine. This is why we advise to keep your iodine number under or as close as possible to 70.

The Fragrance field enables you to determine the amount of fragrance or essential oils for the recipe. The standard is from .5 to 1.0 ounces (14.7 to 28.4 grams) per 1 pound (453.6 grams) of oils. This is not the same thing as 1 pound of soap, remember. It's a pound of oil.

If your essential oil is a strong fragrance, use .5 ounce (14.7 grams) percent per 1 pound (453.6 grams) of oils. If your essential oil is a weaker fragrance, use .7 ounces (19.8 grams) per 1 pound (453.6 grams) of oils. This is the maximum amount of an essential oil you'll want to use because essential oils are *potent*.

For fragrance oils, you can use higher percentages. If it's a light fragrance, use 1.0 ounce (28.35 grams) per 1 pound (453.6 grams) of oils. If it's a very strong-smelling one, reduce the amount and use .5 ounce (14.3 grams) or even less. Some fragrances are so strong we use as little as .25 ounce (7.1 grams) per pound of oil.

Safety First

Be careful with hot essential oils, such as cinnamon and clove. They're not recommended for use on the skin because they can burn sensitive skin. You can use peppermint, but don't overdo it.

In box 4, type the amount you're going to use in the green box in line with **Oz per lb** or **Gm per Kg.** The amount to use will be displayed after you click **Calculate Recipe** and **View or Print Recipe.**

To figure how much fragrance oil to use in box 4, here's an ounces-to-grams conversion chart for fragrance:

.5 per pound of oil = 31.25 per gram/kilogram

.6 per pound of oil = 37.50 per gram/kilogram

.7 per pound of oil = 43.75 per gram/kilogram

.8 per pound of oil = 49.99 per gram/kilogram

.9 per pound of oil = 56.25 per gram/kilogram

1.0 per pound of oil = 62.50 per gram/kilogram

If you use pounds or ounces in the Weight of Oils, you would use .5 to 1.0 ounces (14.7 to 28.4 grams) per pound of oils in box 4 for the fragrance ratio. If you use grams, you'll use the per gram/kilogram numbers to fill in box 4 for the fragrance ratio. With these numbers, SoapCalc can calculate the amount of the fragrance oil or essential oil you need for your soap recipe.

Box 5: Soap Qualities and Fatty Acids

The soap quality numbers are the sum of all the fatty acids in all vegetable oils and butters. This section has two columns:

- **One,** on the left, represents the qualities for an individual oil/butter. If you click on an oil or butter in the scroll-down list on the right, you can see how the numbers change in this column.
- **All,** on the right, gives the combined weighted average of all the oils/butters in a recipe.

If you hover your cursor over each attribute on the left—Hardness, Cleansing, Conditioning (abbreviated as *Condition* here), Bubbly, Creamy, Iodine, and INS—a box will pop up showing the optimal value range. Each attribute represents a different aspect of the soap.

Here's a list of the attributes and what they do (their optimal value range is noted in parentheses):

Hardness (29 to 54) This denotes the softness of a soap. The lower the number, the softer the soap will be. You want a hardness of 45 and up; otherwise you'll need to reduce the water to get a hard bar of soap without waiting for the cure to finish. We make a bar of soap for acne that is 100 percent coconut oil, and the hardness is 79. There's always an exception to every rule. Our facial bars will be very soft. Many times their number is 34 or below.

Cleansing (12 to 22) This rates the harshness of the cleansing properties of a soap. The lower the number, the better it is for sensitive skin. We've found that people who have very sensitive skin need to reduce the cleansing to between 2 and 7. (2 is also a good level for those who are in chemotherapy.) For very oily skin or for those with acne, a range of 20 to 22 is optimal. During winter months, we like to lower the cleansing number and up the super fat to help combat winter skin dryness. Try super fat at 8 percent and the cleansing between 8 to 10.

Conditioning (44 to 69) This notes a soap's ability to soften and soothe the skin. The higher the number of the conditioning, the greater the softening and soothing ability of the oils in your soap. If your soap recipe has 44 conditioning, you can raise the super fat number from 5 to 8 percent. This lowers the amount of lye used in the recipe so more oils are left to soothe the skin. Changing the super fat percentage won't show in the soap qualities. The only thing you'll notice is less lye. The iodine value will be the limiting factor to how much conditioning. Don't let the iodine go over 70.

Bubbly (14 to 46) This refers to the soap's ability to lather up and get bubbly. The higher the number, the greater amount of lather your soap will produce. This lather is fluffier and is the first to go when left alone and the water isn't agitated.

Creamy (16 to 48) This is the stable form of lather and is the last to dissipate. The higher the number, the more lather your soap will produce.

Iodine (41 to 70) The iodine value represents the softness of the oil. The softer the oil, the higher the iodine value. The iodine value is the indicator if soap will go rancid in time. There are no optimum numbers here. If you keep the iodine value at 70 or below, you won't have a problem with rancidity. (We are still testing this to find the highest number we can use and *not* get rancidity.)

INS (136 to 165) The INS, or iodine in SAP, indicates the moisturizing quality of the soap. The more moisturizing the soap is, the lower the INS number. A balanced bar of soap will have an INS number of 160. In bath bars, we try to get close to this number. Specialty soap, such as a facial bar, will be much lower. We have recipes that call for 121 and another one for 136.

Soap Stats

It may take a little practice to choose the right cleansing for your type of skin. You'll know it's right when you don't have itchy skin after you take a bath or shower. If the soap is right for your skin, you won't have to use lotion after your bath.

The rest of the list—Lauric, Myristic, Palmitic, Stearic, Ricinoleic, Oleic, Linoleic, and Linolenic—are the fatty acids. When you place your cursor on the individual fatty acid, a brief description pops up, and if you click on the name, a new window opens with a Wikipedia page definition. Lauric and myristic contribute to the hardness, cleansing, and bubbly lather. Palmitic and stearic contribute to hardness and creamy lather. Ricinoleic, which comes from castor oil, contributes to both creamy and bubbly lather and conditioning properties. Oleic, linoleic, and linolenic all contribute conditioning properties.

So when you're choosing oils and butters, keep an eye on these numbers to be sure they stay within the range you want for your particular soap recipe.

From the Soap Pot

The most commonly used coconut oil for soap-making is coconut 76 degree. The 76 degree means the oil is solid when room temperature is under 76 degrees and it's a liquid over 76 degrees. Another type of coconut oil is called coconut oil 92 degree, which is solid when room temperature is less than 92 degrees and a liquid when over 92 degrees. Both types are cleansing, but the 92 degree is a much harder oil when in its solid state, and therefore harder to dig out of the container. Both 76 and 92 degree have a long shelf life. The 76 degree type is more easily found at your local grocery store.

Box 6: Soap Recipe

Now, here's where the real fun really starts! This box is where you add your oils and butters. To the left is a scroll-down menu with all the oils and butters listed. To add an oil or butter to your recipe, just double-click the name in the scroll-down list and you will see it appear under Soap Recipe. (Notice that as you do this, the numbers in box 5 change.)

If you want to replace one oil/butter with another, simply single-click on the ingredient you want in the scroll-down list and then click the red **+** next to the ingredient you want to replace in your recipe. Voilà! The ingredient has been replaced. To remove an oil/butter, just click on the red **–** next to its name.

Each oil has another set of boxes next to it. The first box next to the oil is where you start playing with the percentages of the oils for the recipes. All recipe percentages will total 100 percent. You can raise or lower the percentage of an oil to change the qualities of the soap you're formulating. Keep a close eye on the iodine number, and keep it close to or under 70. To add more conditioning and lather, increase the percentage of castor oil. Note that the higher percentage the castor oil, the lower the hardness number is. To increase or decrease the cleansing, simply change the percentage for the cleansing oils. These oils are coconut, palm kernel, or babassu oil. Continue adding oils and playing with the percentages until you're satisfied with the recipe and the qualities of the soap you're formulating. SoapCalc completes the second box after you click on the Calculate Recipe button. That box will have the amount of each oil to be used in the type of weight measurement you chose—pounds, ounces, grams, or kilograms.

Box 7: Save Recipe

This is a button you may not feel a need to use. It's mainly here if you want to save your recipe instead of print it. But if you want to use this, after you click **Calculate Recipe** (box 8) you can save your recipe by clicking on this button. Then just choose a recipe name in the drop-down menu and click **Save Recipe.** You can choose to save your recipe in percentages, pounds, ounces, or grams by clicking on the button beside the type you want.

After you've done all this, you can't go back and change the name of the recipe.

Box 8: Calculate Recipe and View or Print Recipe

After you have your recipe completed, click **Calculate Recipe.** Look at the numbers for the iodine, hardness, lather, conditioning, and cleansing. If you're happy with the qualities, continue to the next step, which is to view or print your recipe. If you want

to make any changes, now is the time to do so. When you've made your changes, then click **Calculate Recipe.** Continue doing making changes until you're satisfied with your soap recipe. Then, click the **View or Print Recipe** button. It's not unusual for soap-makers to spend hours playing around with the oils and amounts.

After you've clicked the View or Print Recipe button, a page will pop up with your recipe, including all the soap qualities and the amounts. This is the page you print out. Type or write the name of the soap at the top in the space provided. At the bottom you'll see buttons that say Show Graph and Hide Graph. You can either print the graph or just view it before you print out the recipe.

Space is provided at the bottom of the printed page for you to make your notes. Be sure to note all additives, including colorant, and all results in this space. Include the name of the fragrance oil you used here, too.

The **Reset Recipe** button clears all the oils/butters from the Soap Recipe in box 6. Before making another recipe, be sure the fields in boxes 1 through 4 are back to their default numbers.

Formulating Soap Using SoapCalc

Some of this may seem confusing, so let's look at some simple recipes. You'll learn a lot faster with some practice runs while you read these instructions than if you just read the instructions and tried to remember them.

Basic Soap

We are going to use a basic soap recipe—Palm 70%, coconut 20%, and castor oil 10%.

First, in box 2, click **Ounces** and type in **11.** Notice that the right column in box 6 has changed to **oz.**

Next, in box 3, change **Water as % of Oils** from the default (38%) to **30.**

In box 4, change the **Super Fat %** to **10**, and for fragrance, type in **.5.**

In the oil list, double-click on **Palm,** and you'll see it appear on the first line of the

From the Soap Pot

It's important to learn how to use percentages because everyone uses different-size molds. All you have to do is change the amount of oils in the Weight of Oils and SoapCalc does the rest. You can size up or down to fit any mold as long as you have your recipes in percentages.

recipe. Click the circle above the **%** symbol and the column will go green. Next to Palm, type in **70.**

Next, double-click **Coconut (76 deg, solid)** and type in **20** in the green field under **%.** Then double-click **Castor Oil** and type in **10** in the green field.

Click **Calculate Recipe** in box 8.

If your percentage isn't 100, you'll get a pop-up box telling you how much to add or subtract to get 100 percent.

Here are the soap qualities (box 5) of this recipe:

Hardness	51
Cleansing	14
Conditioning	46
Bubbly	23
Creamy	46
Iodine	48
INS	163

In box 8, click **View or Print Recipe.** A new window will open. This is your soap recipe.

Lather Lingo

When we refer to the **hardness** with a number for a butter or oil, it has to do with the number in SoapCalc. All oils and butters have a hardness number. SoapCalc computes the numbers for hardness in your soap recipe and determines the total hardness number. Because of all the soft oils used in a facial bar, its hardness number may be in the low 30s. A bath bar will be in the 40s or 50s.

Olive Oil Soap

The oldest soap is olive oil soap, also called Castile soap. This soap is mild enough for using on a newborn baby. We're going to make a pound of soap with olive oil. You can use any of the olive oils. The highest grade will make a green-tinted soap; the golden olive doesn't.

Starting in box 2, click on the circle in front of **Ounces,** and type **11** in the green field below.

In box 3, change the 38 water to **25.** This is a soft oil and will take forever to harden.

Everything in box 4 is fine as is, so no changes here.

In box 6, double-click **Olive** and type in 100 under **%.** Click **Calculate Recipe** and then click **View or Print Recipe.**

Here are the soap qualities:

Hardness	15
Cleansing	0
Conditioning	83
Bubbly	0
Creamy	15

Let's take a look at these numbers. A 15 for Hardness means this soap is very soft. And with Cleansing at 0, the soap will clean you, but it won't do well against oil and grease. The 83 for Conditioning is very good. The 15 for Creamy means there will be some lather, just not a lot.

So let's change this a bit. In box 6, change the **Olive** to 80, and add **Coconut (76 deg, solid)** at 20%. Now click **Calculate Recipe.** The revised soap qualities are as follows:

Hardness	28
Cleansing	13
Conditioning	68
Bubbly	13
Creamy	14

As you can see, the cleansing and bubbly lather are much higher.

Now, let's say you wanted more cleansing and more lather. Add **Castor Oil** to the recipe and type in **10.** Then, change Olive to **70** and Coconut to **20** and click **Calculate Recipe.** Now the soap qualities are as follows:

Hardness	26
Cleansing	13
Conditioning	70

Bubbly	22
Creamy	22

Lard Soap

Lard is another old standby that can be found at any grocery store. The lard makes a slightly soft soap, so you can reduce the water to **30** instead of 38. With **100** percent lard, the soap qualities are as follows:

Hardness	42
Cleansing	1
Conditioning	52
Bubbly	1
Creamy	41

Now, change Lard to **80.** Add **Coconut (76 deg, solid),** and set it to **20.** The qualities of this soap are as follows:

Hardness	49
Cleansing	14
Conditioning	44
Bubbly	14
Creamy	35

With the addition of the coconut, cleansing is up 13 percent, and the combined bubbly and creamy lather is up from 42 to 49.

Now let's try it with Lard at **70** and **Coconut (76 deg, solid)** at **20.** Add **Castor Oil,** and set at **10.** The soap qualities are these:

Hardness	45
Cleansing	14
Conditioning	48
Bubbly	23
Creamy	40

Now the conditioning is up and the combined lather is up from 49 to 63! If you want soap for very sensitive skin, you can cut down on the amount of coconut oil or not use it at all.

Beef Tallow Soap

Beef tallow is another old-time soap ingredient. When used at **100** percent, beef tallow (listed as **Tallow Beef** on SoapCalc) makes a very nice bar of soap. Change the water to **38** because beef tallow makes a hard bar of soap. Here are the soap qualities:

Hardness	58
Cleansing	8
Conditioning	40
Bubbly	8
Creamy	50

Now, change the beef tallow to **92** and add **Coconut (76 deg, solid)** at **8.** The soap qualities are as follows:

Hardness	60
Cleansing	13
Conditioning	38
Bubbly	13
Creamy	47

Soap Stats

Beef tallow makes a hard, white bar of soap, but it offers very little conditioning or lather. You can increase both the conditioning and the lather by adding castor oil. Beef tallow is also inexpensive. It also comes in a cube, so all you have to do is use a knife to slice off the amount you need. Very easy!

Change the beef tallow to **82** and the **Coconut (76 deg, solid)** to **8.** Add **Castor Oil** and set to **10.** Here are the soap qualities:

Hardness	54
Cleansing	12

Conditioning	43
Bubbly	21
Creamy	51

When working with beef tallow, change the super fat to 10%, because the conditioning is in the low 40s. During the summer months, that's fine, but in the winter, when your skin gets so dry, the added conditioning is a great benefit.

The Least You Need to Know

- Formulating your own batch of soap can be fun and so rewarding!
- Not only are these oils great for making soap, but you can actually see what qualities the oils add up to in your soap batch.
- The math part of soap-making won't be scary because SoapCalc does all the work for you.

Chapter 5

Soap Molds

In This Chapter

- Finding—or making—a soap mold
- Determining how much soap a mold holds
- Instructions for lining a soap mold
- A look at M&P molds
- Tips for removing soap from molds

So far we've learned about the basics of soap-making and what oils, butters, and other ingredients you need, plus some of the fragrances and essential oils you can add in to create one-of-a-kind soaps at home. But there's one more very important piece of equipment you need if you're making bar soap, and that's a soap mold. It's what holds everything together—literally!

In this chapter, we look at everything mold-related, from finding a mold—or even making your own—to lining your mold, to unmolding your finished soap.

What Can I Use for a Soap Mold?

The better question is, what *can't* you use! Just about any container works as a soap mold—except anything metal, which would react with the lye and ruin your soap. If you're a first-time soap-maker, we suggest you start with a box or tray as your mold. You could even use a food storage container or buy the small, 2-pound plastic tray mold that makes pretty designs on the top of your soap bar. Some soap-makers use Pringle potato chip cans or PVC pipe to make round soap bars. Shoeboxes can also be used if you line them with freezer paper first. As long as it's at least 5×6 inches, it'll hold a 1.5-pound (24-ounce; 680.4-gram) batch of soap. That should make four bars each measuring 3×2.5 inches and weighing 6 ounces. As you make more and more soap, you'll find yourself looking at different types of containers and thinking *That might make a really cool soap mold!*

You can find many types of wooden, plastic, and acrylic molds in soap-making supply shops and online, in all sizes, from a 1-pound mold up to a 25-pound mold for the professional soap-makers. There are log molds, slab molds, upright molds, and trays, and while you're shopping, you're sure to come across log soap molds that have a soap bar cutter, divided molds that make perfect bars, and even molds with slits in the sides so you can cut perfect bars with your soap knife. You'll find no-liner molds and others that come with premade liners you just place up against the sides and bottom of the mold. Let's not forget about the individual plastic soap molds that make one bar at a time with a pretty design on the bar. Or a soap bar stamp! You can have them custom made, for a reasonable cost, so you can stamp your name or logo on the top of each soap bar.

From the Soap Pot

We've found that the premade liners often leave a weird texture on the outside of the soap bars.

Making Your Own Soap Mold

Yes, you can make your own soap mold, and we bet you'll find it easy and fun. The final product might not be all that pretty, but if it works, that's what counts!

To start, you'll need some wood. The easiest thing to do, if you don't have wood handy at home, is to go to your local lumber store and buy either the precut .5-inch-thick wood pieces close to the necessary sizes and then finish them at home, or have a store employee cut the pieces the exact sizes you need. Here's your wood list:

- 2 pieces, each .5 inch thick, 13 inches long, and 2.5 inches wide
- 2 pieces, each .5 inch thick, 11 inches long, and 2.5 inches wide
- 1 piece 12 inches long and 10 inches wide

You'll also need these:

- Wood glue
- 1 small package of 1-inch nails
- At least 2 C clamps
- Hammer
- Sandpaper
- Varnish (optional)

Safety First

Before you start putting together your mold, please put on your safety glasses to protect your eyes from flying nails or bits of wood.

This mold measures 10×12×2 inches inside, holds 6.5 pounds (2,948.4 grams), and makes 16 bars of soap each weighing about 6.5 ounces (184.3 grams). This shape mold is called a slab mold and is the easiest mold to use for doing swirls, embeds, and other fun and fancy designs.

Here's how to assemble your slab mold:

1. Starting with one 11×2.5-inch piece and one 13×2.5-inch piece, apply wood glue to the end edge of the 11-inch piece. Butt that piece flush against the inside edge of the 13-inch piece, lining up the edges so they're even. The pieces will make a right angle and look sort of like an L.
2. While holding everything tightly in place, nail the pieces together from the outside with three evenly spaced nails.
3. Do the same with the other two 11×2.5-inch and 13×2.5-inch pieces. You should now have one 12×10 piece, which is the bottom of the mold, and two L-shape pieces, which are the sides.
4. Apply wood glue to the two edges of the first L piece and on the lower ¼ of the bottom edge, where it will butt up to the edge of the mold bottom. Line those pieces up against the mold bottom, and nail into place. Space the nails 2 inches apart.

5. Do the same with the second L piece, and let the glue thoroughly dry overnight.
6. Sand the inside and outside of your mold, and apply a coat or two of wood varnish (if desired).

Soap Stats

Using a wood varnish on your wood soap mold isn't absolutely required. The molds do absorb some oil during the soap-making process, and spills do happen. But a coat or two of wood varnish protects the mold and makes cleaning up spills easier. At the very least, you should use a sealant.

How Much Soap Will My Mold Hold?

How much soap you'll use in a mold varies greatly depending on the type of oils and butters you use in the recipe. Butters weigh more than oils. Get out your calculator, because we're going to run some numbers.

First, you have to decide how much you want each bar to weigh. Many soap-makers like their bars to weigh 6 ounces after they have cured. To end up with 6-ounce bars, they have to start out weighing 6.5 ounces. (They lose the water weight during the curing.) Multiply that number by how many bars your mold makes. For example, in our 10×12 molds, we make 16 bars, so we multiply 6.5×16 to get 104 ounces. We then divide 104 by 16 ounces to get 6.5 pounds. So 6.5 pounds is the total weight of oils, water, and lye this size of mold will hold.

Now let's use the dimensions of the mold to determine the approximate weight the mold will hold. To do this, multiply the width (10) by the height of the bars (1.5 inches). Multiply that number by the length (12) and then again by .58 for a total of 104.4 ounces (2,948.4 grams). Then divide that by 16 ounces (453.6 grams) for a total of 6.5 pounds (104 ounces; 2,948.4 grams). This mold will hold 6.5 pounds (104 ounces; 2,948.4 grams) without coming to the very top and possibly spilling over the edge during gel stage. (That would make a *huge* mess!)

You can calculate the weight of a log mold the same way you do the slab molds. If the inside measurements of your log mold are (like ours) 3.5 inches wide by 2.5 inches tall by 15 inches long, and you cut your bars 1.25 inches thick, you'll get 12 bars. So multiply 3.5 (the width) by 2.5 (the height) by 15 inches (the length) by .58, and you'll get 76.13 ounces, which, rounded down, is 76 ounces (2,154.6 grams). Now divide 76 ounces (2,154.6 grams) by 16 ounces (453.6 grams), and you have 4.75 pounds.

Now to check the math, multiply 6.5 (1,842.75 grams; the weight of bars) by 12. That's 78 ounces (2,211.3 grams), and that's pretty darn close. Our bars come out weighing between 6.3 ounces (1,786.05 grams) and 6.5 ounces (1,842.75 grams), depending on the recipe.

Okay, if you're still with us after all that math, now we need to figure out how many ounces of oil per pound of soap the mold will hold. Remember, it takes 11 ounces (311.85 grams) of oil plus the water and lye to make 1 pound (16 ounces; 453.6 grams) of soap. In SoapCalc, you need to know how many ounces to put in the box for total weight of oils.

The math for this part is a little different from the math formula we just used. Once again, we multiply the width (3.5 inches) by the height (2.5 inches) by the length (15 inches) by .38 for a total of 49.88 ounces (2,494.8 grams). Round that up to 50 ounces (1,417.5 grams). That's the number you'll use for your total weight of oils, depending on your recipe. You may have to add or subtract 1 or 2 ounces (28.35 or 56.7 grams), but this formula gives you a starting place for determining your total weight of oils.

Lining Your Mold

When I first started making soap, I bought a plastic no-line mold (that in reality needed to be lined!) … and I thought I'd *never* get the soap out! I finally stuck the mold in the freezer and left it overnight. The cold shrank the soap enough that it released from the mold and the soap came out. What a relief! From then on, I've always used white freezer paper to line my molds … and I haven't had any more problems.

Soap-makers talk about using everything from cling film to trash bags to line their molds, followed by the lament that they're always having to fight to have a smooth lining for a smooth bar. And we've tried just about every way there is to line our soap molds, from making complicated measurements and cutting out parts for the corners to the simple and easy method we now use—white freezer paper.

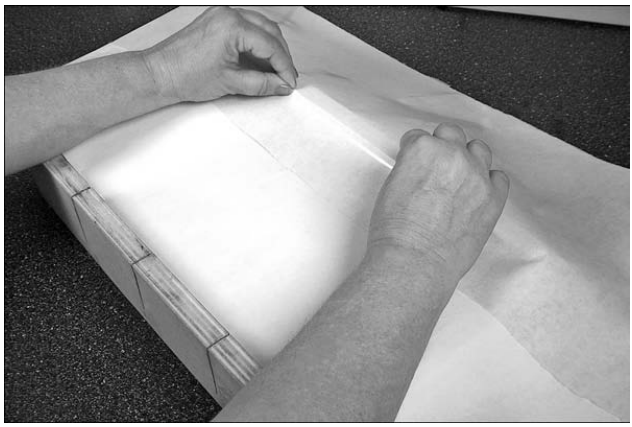
From the Soap Pot

The easiest and best thing to use for lining your soap mold is freezer paper. Yep, this is the same thing you can buy at your local grocery store. Turn the shiny side up so it's next to the soap, and when you're unmolding, the paper will peel right off the soap. No wrinkles or dents from crumpled liners!

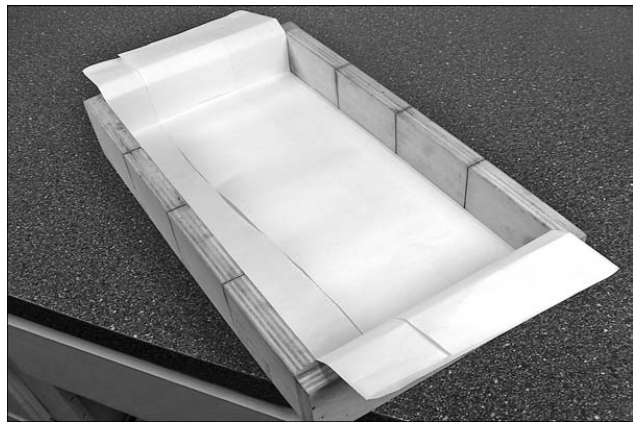
We use freezer paper, shiny side up, so it won't stick to the soap. Using one large sheet and making folds and a slit in each corner, you, too, can line your mold in just a couple minutes. There are no leaks because there are no cutouts and very little if any waste. Freezer paper is readily available, even in your grocery store. It's on the aisle with the foil and waxed paper.

Here's how to line your soap mold with freezer paper:

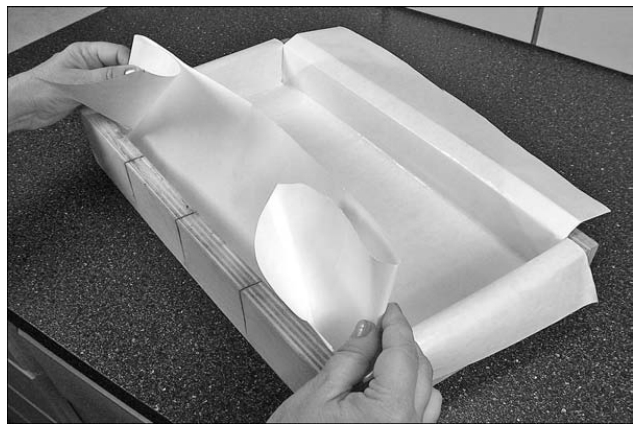
1. Measure the length of your mold, and add 13 inches. The lining has to completely cover the inside of your mold, up the sides and ends with a little extra for folding over each top edge of the mold. Roll out your freezer paper, measure the length, and mark and cut it.
2. Lay the paper, shiny side up, lengthwise next to your mold. Fold up one edge 3 or 4 inches the whole length of the paper. Line the folded edge of the paper against the inside edge of the mold. With your thumb, make a crease in the paper along the other inside edge of the mold. That will be your next fold line. After you've folded the second side, place the folded paper in your mold to be sure it fits smoothly and evenly. If not, make the proper adjustments.



3. Using the point of your scissors, crease the paper where it butts up smoothly on each end. Crease and fold down each end, as you did with the sides.



4. Next, pull up the long sides and smooth them into place. Working with one corner at a time, pull up the end piece while holding down the side piece, and crease the triangle fold so it lies flat and smooth against the mold. Make a slit in the corner edge of the paper. Repeat this in the other corner on that same end. Now fold the paper over the edge on the end and tape it securely. Repeat for the other end.



5. Fold the paper over the edges of the mold and tape securely. Check to be sure the lining is still smooth and flat. Now you have a perfectly lined mold that won't hold on to your soap for dear life!

See how easy that was? You'll be even more surprised how easily your finished soap comes out of your freezer paper–lined mold!

Melt-and-Pour Soap Molds

There are many high-quality plastic and silicone soap molds on the market designed for melt-and-pour (M&P) soap base. These molds don't have to be lined, but you might want to spray a cooking spray in the mold before you pour in the M&P soap. This will help you remove your soap after it has hardened. You can also buy a silicone spray mold release if you want—many are available online. These molds range in price from $2 or $3 and up. (The silicone molds cost more but they have a longer use life.)

You can also make your own silicone mold using a silicone product designed for this purpose. There are two kinds of silicone. With one kind, you paint the silicone over the object you want to make a mold of. With the other type, you fill a container with the appropriate amount of silicone and insert the object upside down in the container. Both of these silicone products are easy to use. The painted-on type will not last through very many uses, but the other type will.

Unmolding Your Soap

Depending on what type of mold you're using, and whether or not you lined it, removing soap from the mold can be a frustrating ordeal. It doesn't matter if you've used M&P or made cold process soap; the best way to get a stubborn soap out of the mold, especially an unlined plastic tray or PVC pipe mold, is to put the filled mold in the freezer. Some will only need to be in the freezer for a few minutes while others will need to be kept there overnight.

Depending on what type of mold you're using, you have some options for removing the soap.

First, let's look at removing soap from a plastic tray mold. When the soap is ready to come out of the freezer, you'll see that it has retracted from the edges of the mold. Let the mold sit on the counter for about 5 minutes. Place a piece of waxed paper on your counter, and turn the soap tray upside down onto the paper. Gently press on the center of the back of the tray. You should be able to see the soap releasing from the mold. Continue to press until the soap pops completely out of the mold. If the tray is a slab type with bars, allow the soap to thaw to room temperature before cutting into bars.

Next up, let's look at plastic PVC pipe molds. I made soap in a round PVC pipe once—and only once. I froze it. I banged it. But no matter what I did, I couldn't get the soap out of the pipe. Two months later, I saw a big, hairy spider in my workshop so I grabbed the closest thing to me to whack it with, the PVC pipe still full of soap. When I slung the pipe to hit the spider, the soap shot out and went flying across the room. It had finally dried enough to let go of the sides of the PVC pipe. Imagine the look of shock and amazement on my daughter's face as she watched the soap roll fly out of the mold, across the room, and make a loud thud as it hit the floor. The spider ran off, safe to taunt me another day. The soap and the PVC mold went directly in the trash.

Although plastic no-line CP soap molds are very convenient molds to use, they can be hard to remove the soap from. But if you use the freezer method explained earlier in this section, you should be okay. I had problems with mine, so now I line my no-line mold whenever I use it.

Lined molds are the easiest type of mold to remove your soap from. Start by placing a piece of waxed paper on the counter. Loosen the taped sides, turn the mold upside down on the waxed paper, and pull the mold straight up. Gently pull the freezer paper off the soap, and then let the soap sit out in the open air for a few hours or a day, depending on how soft the soap is, before cutting.

If you're using a lined mold with knife slits, loosen the taped sides and, using your large soap knife, place the knife where it will fit into both slits, one on each side of the mold. Gently guide the knife down through the soap. Do this both across and lengthwise to cut your perfectly shaped bars. Lay a piece of waxed paper on the counter, and turn the soap mold upside down. Pull the mold up, and place to the side. Very gently remove the freezer paper from the cut bars of soap, careful not to nick or bump the bars. Set bars on a wire rack or in an open box to dry. Wire cookie racks work really well for drying soap!

You are now ready to choose the type of soap mold you want to try first. Be sure to gather all the things you will need to use with your mold before you start making your soap batch. Lining your mold first is the best way to get started. Don't wait until your soap is ready to be poured to line the mold. Have it ready and waiting.

The Least You Need to Know

- Choosing or making your own soap mold can be a little fun-filled adventure!
- Don't be afraid to try different sizes and shapes of soap molds! You might love the results, but if you don't, move on to the next experiment.
- If you are math challenged, don't worry—store-bought soap molds come with specific instructions on how much the mold will hold so you don't have to do any number-crunching.

Part 2 Making Cold and Hot Process Soap

Now you really start your soap-making adventure! In Part 2, you learn how to make soap in the oven, on the stove, and even in a slow cooker. In the following chapters, we also give you recipes for everything from goat milk bar soap to liquid laundry detergent.

But watch out—soap-making can become an addiction! You might soon find yourself wanting to make soap instead of doing … well, anything else! It happens to us all, new soap-makers as well as long-time soap-makers. And a heads-up: you'll likely also become very fond of fragrance oils, often finding yourself pacing past your front door waiting for the UPS man, who you've been on a first-name basis with for some months now, to deliver those lovely bottles of oils and potions. That's all part of the fun!

Chapter 6

Cold Process Soap

In This Chapter

- All about cold process soap
- Understanding super fatting
- A quick look at cold process oven process soap
- How to make cold process soap

I was so nervous the first time I made soap. I had read and reread everything I could find about making cold process soap, but still, I couldn't find enough information to explain many of the steps or equipment. For example, I had no idea what an immersion blender was, or what trace looked like. It took several months for me to muster the courage to jump right in and make my first batch of cold process soap.

That first batch took *5 hours* to come to trace. Why? Because I didn't have an immersion blender and was using a stainless-steel spoon to stir the soap batch. (At least I had the right kind of spoon!) The soap was also slow to trace because the recipe I used contained a lot of peanut oil. (Peanut oil is very slow to trace and is sometimes used to slow down a recipe when a touchy floral fragrance oil is being used.) In addition, the soap took several days to harden enough that I could remove it from the soap mold—a mold I'd made myself, by the way.

Needless to say, this wasn't the ideal soap-making experience, and I began to think that if all soap took that long, then my soap-making career was going to come to an end right then and there. Before throwing in the towel, however, I went online, found a soap-makers group at Yahoo! Groups, and joined. I posted a question as to why my soap took 5 hours to trace. Zonella answered that post, and together we began our soap-making adventure.

I do have to tell you that the peanut oil soap I first made turned out to be one of my favorite bars of soap. I have since fixed the recipe and have several immersion blenders. Trace no longer takes 5 hours.

The Basics of Cold Process Soap

Cold process (CP) soap is one method of soap-making where the saponification takes place in the mold. As you learned in Chapter 1, saponification is the chemical reaction of the lye attaching to the oils. This method takes longer to *cure*.

During this process, the soap batch goes through a very hot gel stage. After you've mixed your oils and lye and brought the batch to trace, you pour the soap into the mold, cover it with waxed paper, and walk away. Saponification begins once the soap becomes solid in the mold.

Lather Lingo

Curing is when the water is evaporating and the bar of soap hardens.

This is the hardest part for me because I want to peek and see what my swirls look like. I have to force myself not to touch it—which is important because it's hot and you can get lye burns on your fingers if you touch it.

Cold process soap has a creamier texture than hot process soap. As you become more experienced with making soap, you might want to try discounting the water phase to help speed up the curing. This isn't something for a beginner to try, though, so only try this method after you've gotten the knack of soap-making. I prefer not to discount the water phase. When you do, often *trace* will come faster, and I like to have the time to swirl several colors or make layers with my soap.

Lather Lingo

Trace is when the soap batch becomes thick. There are three stages of trace: light, medium, and thick. When trace starts, you'll start seeing a little ripple behind your spoon or immersion blender as you move it through the soap. Light trace looks like a thin sauce. Medium trace looks like gravy. Thick trace looks like pudding. All soap has to go through trace for it to properly saponify.

In all the soap-making classes I teach, I tell every student to save their exotic and more expensive oils for the leave-on products so the user will get the most benefits from these oils. Soap is a wash-off product, and even though you'll get some of the benefits by taking a bath rather than a shower, it all still just goes down the drain. Unless you're making a certain type of bar designed for a certain reason, stick with the basic oils:

- Babassu oil
- Castor oil
- Coconut oil
- Olive oil
- Palm oil
- Palm kernel oil
- Peanut oil
- Cocoa butter
- Shea butter

These will get the job done well and also keep the cost per bar reasonable. If you want a little more conditioning, you can increase the super fat (oil that's not attached to lye—more on super fatting coming right up), but don't go over 8 percent.

Keep it simple. You don't need to put 1 ounce of this and 2 ounces of that in your batch to have a great bar of soap. Stick to the basics, and your soap will be wonderful as well as cost-effective.

One final tip: remember, always weigh your ingredients instead of using volume measures such as cups and tablespoons. Many of the oils weigh more than others, so if you use volume, you may have not enough or too much lye. Be very accurate when weighing your ingredients.

Soap Stats

Facial bars are one of the exceptions to the rule for the more exotic and expensive oils. Rosehip oil added to the formula for a facial bar helps lighten age spots. Flaxseeds or flaxseed oil added to a bath bar helps with certain skin disorders.

The Skinny on Super Fatting

Many times we've heard new soap-makers—and sometimes even those more experienced—say "My soap is super fatted with shea butter" or that their soap is super fatted with shea butter because they added it at trace.

This is scientifically impossible when you're making cold process soap. If you're making hot process soap, however, you can super fat after the cook phase and just before the soap goes into the mold.

We mentioned *super fatting* briefly in earlier chapters, but just what is super fatting? Basic chemistry tells you that in cold process soap, the lye doesn't know the difference between the oils or when the oil/butter was added. All the oils and butters are in the pot together. All the oil molecules mingle with all the lye molecules. When all the lye molecules have attached to the oil molecules, what's left is the oil that's called the super fat. These unsaponified oil molecules provide extra conditioning for the skin. Adding the oil or butter at trace does not keep that oil/butter from being saponified when making cold process because saponification takes place over a period of 48 hours.

Lather Lingo

Super fatting is the process of reducing the amount of lye in a soap recipe so more oils are left un-saponified and can then soothe the skin.

Most soap-makers super fat at 5 percent. In winter, you can raise it to 8 percent to help combat winter dryness.

Cold Process, Only Faster: Cold Process Oven Process

The cold process oven process (CPOP) method is perfect for those who are in a hurry to use or sell their soaps because it forces the gel stage and dries out the soap faster—sometimes in as little as 2 or 3 days, your soaps are hard and ready for use. To make CPOP soap, simply follow the directions for making regular cold process soap, except put the soap-filled mold in the oven.

Here's how: just before you're ready to start mixing together the lye and oils, preheat the oven to 170°F. Follow the directions for making CP soap, and pour your soap into the mold. Cover the top with waxed paper. Now turn *off* your oven, turn the oven light on, and put your mold in the oven on the middle rack. Shut the door and leave it until tomorrow. The next day, remove the mold from the oven, let it stand a few hours to cool before you remove the soap from the mold, and cut it into bars. Then let the bars sit for another couple days.

Unmolding and Cutting Your Soap

Many people choose to unmold their soap batch after 24 hours, but we think this is too soon. The soap will still be too soft, and the lye will still be active. It's best to wait 48 hours before you take your soap out of the mold and set it on a drying rack.

When your soap is ready, cover a section of your workspace with a piece of waxed paper. Loosen the tape that held the freezer paper lining in place. Slowly turn the soap out onto the waxed paper. Let the soap dry for a day or two before you try to cut it into bars.

Sally uses a ruler to first measure and mark the bars. Most soap-makers cut their bars 3.25 inches long and 2.25 inches wide.

Stand with the soap directly in front of you so you can push the cutter or knife straight down into the soap, making a clean, straight cut. To cut your soap, you can use a handheld soap cutter or a knife. Once you've cut the bars, set them up on their sides to dry. Many people use cardboard as soap-drying trays, and some use professionally made drying racks, but whatever you have will be fine as long as the soap is open to the air. Avoid drying your soap in a humid area; instead of drying, they'll absorb the moisture in the air and become mushy.

Making Cold Process Soap

Are you ready? Let's make a batch of cold process soap! First, gather all your equipment. Here's what you'll need (turn back to Chapter 1 if you need a refresher on these items):

- Stainless-steel stock pot
- Several paper cups or measuring cups
- Scale
- Stainless-steel thermometer
- Long-handled stainless-steel spoon
- Thin latex gloves
- Safety glasses
- Freezer paper
- Waxed paper
- Soap mold
- Paper towels
- Skin-safe fragrance or essential oil
- Soap-safe colorant
- Oil(s)
- Sodium hydroxide lye
- Distilled water
- Stove

Always run your recipe through a lye calculator before you start to be sure your lye and water phase are correct. This is a good habit to get into right from the start.

For every pound of soap, you'll need 11 ounces of oils. The rest of the pound comes from the lye and water. So if you have a 3-pound mold, you'll need 33 ounces of oils. For the following Basic Recipe for Cold Process Soap, we'll be making a 3-pound batch. So in SoapCalc's Weight of Oils section, choose **ounces** and type **33** in the green box.

Basic Cold Process Soap

Here's what to put in SoapCalc:

Weight of Oils	33 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	1
Distilled water	12.5 ounces (355.5 grams)
Lye—sodium hydroxide	4.6 ounces (131.0 grams)
Castor oil	6.6 ounces (187.1 grams) (20%)
Coconut oil (76 degree)	6.6 ounces (187.1 grams) (20%)
Palm oil	19.8 ounces (561.3 grams) (60%)

Here are the soap qualities:

Hardness	46
Cleansing	14
Conditioning	51
Bubbly	32
Creamy	50
Iodine	51
INS	156

Always put on your gloves and safety glasses before you begin.

1. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it.
2. Set your scale to ounces (or grams if you're an international reader). Place your empty plastic pitcher on the scale, and push the tare button to zero out the weight of the pitcher, and wait for the scale to read 0. Start pouring the water into the pitcher until it weighs 12.5 ounces (355.5 grams). Remove the pitcher from the scale, and set it aside for now.
3. Put a bowl on the scale, push the tare button, and wait for the scale to read 0. Using a spoon or scoop, add the lye to the bowl until your scale reads 4.6 ounces (131.0 grams). Remove the bowl from the scale.
4. Have the pitcher of water sitting in the sink or on a counter several inches away from you. Open a near window or turn on an extracting fan. Slowly add the lye to the water and stir until the lye is totally dissolved. You'll know your lye is good because the water will become hot.
5. Put the pitcher of lye/water in a safe place to cool. This takes about 1 hour.

Safety First

Follow all the safety instructions while working with lye. Wear your safety glasses and latex gloves, and have the area well ventilated. When mixing the lye and water, slowly add the lye to the water, and never put your face over the pitcher of lye.

6. Before you can weigh all your oils, the palm oil has to be completely melted and stirred because, like milk, palm oil separates. If you don't melt and stir the oil, you'll have chalky white veins running throughout your soap batch. You can return this unused palm oil to the container and use it at another time.
7. Once your palm oil has melted, and you've stirred it well, weigh 19.8 ounces (561.3 grams) on your scale and place the oil in a stainless-steel pot. Do the same with the castor oil for 6.6 ounces (187.1 grams) and coconut oil for 6.6 ounces (187.1 grams).
8. Put on your safety glasses and latex gloves again.
9. When the lye and oils have cooled to less than 90°F, it's time to make soap! Slowly pour your lye/water solution into your oils.
10. Once your oils are well blended with the lye water, it's time to add your fragrance.

11. Continue stirring until you start to see trace. This is like the beginning of gravy or pudding where you can see a little thickening as your spoon treads through the soap.

When poured from the spoon, the soap at light trace makes a thin stream. It should look similar to buttermilk or a thin sauce.

12. At this point, if I've used a fast-moving or floral fragrance oil I pour the batch into the mold. Otherwise, continue to stir until you reach a medium trace and then pour the soap into the prepared mold. Don't overstir, or you'll end up with hard trace and it'll be very hard to pour it smoothly into the mold.

Medium trace soap is thicker than light trace when you pour it, but it still flows freely. It looks more like a medium gravy.

Thick trace is the "pudding" stage. The soap no longer pours freely but globs out of the pot and into the mold. Any thicker than this, and you'll have to push and shove the soap into the mold!

13. Cover the top of the soap with a piece of waxed paper. If you have a lid for your mold, put that on. Leave the soap for 48 hours. During this time your soap will go through the gel stage, which is when it saponifies. The oils and lye/water are going through chemical changes, too, and these changes are what make it soap as the lye molecules attach to the oil molecules. It takes 48 hours for your lye to complete its work and become neutralized.

Congratulations! You've just made your first batch of soap. If you're not addicted yet, you soon will be!

Forty-eight hours later, your soap should be ready to come out of the mold. Place a piece of waxed paper on your counter, and gently turn the soap mold upside down and place your soap on the paper. Let the soap air for several hours before you cut it into bars. Be sure you're wearing latex gloves while doing this so you don't get any *lye bites*.

Lather Lingo

While the lye is still active, it can burn your skin. Such **lye bites** occur when little bits of soap that contain still-active lye touch your skin and give you a little shock or burn.

Your soap will need time to cure so the water can evaporate and the bars harden. If you use your soap without it properly curing, it will melt faster in the shower or bath.

From the Soap Pot

When using your soap in the shower, keep it away from the spray of the water or move it where it doesn't sit in water because the water exposure will melt it very quickly. For longest life, set the soap on a slated soap dish out of the path of the water.

The Zap Test

Before you use or give a fresh bar of soap, it's a good idea to be sure the lye has completely neutralized. This is where the zap test—or the lick, *yuck*, and spit test—comes in handy.

The test is easy: simply touch the tip of your tongue to the bar of soap. If you get nothing but the yucky taste of soap, then that soap is safe to use. However, if you get a little tingle or zap, the lye is still active and the soap needs more time to cure before it can be safely used.

You've now made your first batch of soap! Congratulations! But waiting to use it will be a killer! If you don't mind it melting in the water quicker, you could sneak just one bar out of the batch to use after the soap has been sitting 3 or 4 days—do the zap test first!—just so you can see how nice it is! Nothing feels as nice on your skin as handmade soap. And if you think you'll get to keep your soap batch all to yourself, think again! Once your family and friends find out you're making soap, they'll all want to try a bar! By that time, you'll love your new craft so much you won't mind making soap to share. Plus, it will give you a great excuse to buy more fragrances! There's one more addiction to add to the pot!

The Least You Need to Know

- Following the easy instructions makes working with lye safe and not so scary!
- Making a batch of soap is very fun and addicting. But the best part is using it!
- You will have so much fun experimenting with fragrance and essential oils, colorants, and embeds! A batch of soap can be an artist's canvas.

Chapter 7

Hot Process Soap

In This Chapter

- All about hot process soap
- How to make stovetop hot process soap
- How to make slow cooker hot process soap
- How to make oven hot process soap

Need some soap quickly but don't want to wait 2 to 4 weeks for the soap to cure? Then let me introduce you to hot process soap! Hot process soap needs little to no cure time! You still need the same oils, type of lye, and equipment, but the difference is: cold process soap goes through saponification in the mold, and hot process goes through saponification over heat in the pot. Both methods produce lovely soap. Let's get started!

The Basics of Hot Process Soap

Hot process soap-making is a method of cooking the soap mixture on the stove until it has completely finished saponifying (made into soap). When the soap has finished cooking and has cooled, it's ready to use. With this process, you can add oils after the cooking stage to super fat because the

saponification process has already used up all the lye. Hot process soap-making does not make as pretty a bar of soap as cold process soap, but it does offer instant gratification!

There's a new way to make hot process soap. You start out with cold process soap, and after pouring the soap into the mold, place it in an oven preheated to 170°F. Allow the soap to cook at this temperature for 4 hours, turn off the heat, and leave the mold in the oven until it has cooled. When you get it out of the oven, it's ready to cut and use. The heat of the oven forces the soap into saponification and holds it there for a few hours. With this method, you have the beauty of cold process soap and the no-wait of the hot process soap—the best of both worlds!

Soap Stats

Unsaponifiables are the part of oils and butters that don't react with the lye—the sodium hydroxide or potassium hydroxide—and are left in the soap in their original state. These later help moisturize the user's skin.

The one downside to hot process soap is that it's hard to get out of the mold. But there's a simple fix for that: line your mold with freezer paper, with the shiny side against the soap. Then your soap will slip out of the mold with ease.

Making Hot Process Soap

Before we begin, be sure you have everything you need at hand. When things get going, you won't have time to go looking for things you've forgotten. Trust us—we know this for a fact! Here's what you'll need (turn back to Chapter 1 if you need a refresher on these items):

- Safety glasses or face shield
- Thin latex gloves
- Plastic pitcher
- Scale
- Plastic or glass cereal bowl and 1 small glass or stainless-steel cup
- 1 stainless-steel or glass bowl or 2-cup measuring cup
- Long-handled stainless-steel spoon or plastic spoon
- Immersion blender
- Large stainless-steel (stock) pot
- Mold lined with freezer paper
- Stove with an oven

We give you a basic recipe in this section, but any recipe will do if you want to try something different. Just remember to run it through SoapCalc to be sure the lye

amount is right and see if the recipe has the qualities you want. Don't do a water discount.

Basic Hot Process Soap

This is a hard bar of soap. The cleansing is mild, and the conditioning is a little low, but putting 8 percent in the super fat instead of 5 percent improves the conditioning (although it won't change the 48 conditioning in the soap qualities on SoapCalc). And with a combined bubbly and creamy lather amounts, at 67, this soap produces loads of lather. This recipe makes a total of 17.11 ounces (485.1 grams) of soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.7
Distilled water	4.18 ounces (118.503 grams)
Lye—sodium hydroxide	1.454 ounces (41.232 grams)
Beef tallow	7.92 ounces (224.532 grams) (72%)
Coconut oil	.88 ounce (24.948 grams) (8%)
Olive oil	1.10 ounces (31.185 grams) (10%)
Castor oil	1.10 ounces (31.185 grams) (10%)
Fragrance oil	.481 ounce (13.640 grams)

If you want to add a colorant to your soap, now is the time to get it ready. Measure the manufacturer's recommended use amount for the size of soap batch you're making, and put it in the 2-cup measuring cup or stainless-steel bowl. If you're using a powder colorant, you need to add a little oil to wet the colorant so it will be ready when it's time to color. (See Chapter 11 for more information on using colorants.)

Here are the soap qualities:

Hardness	50
Cleansing	11
Conditioning	48
Bubbly	20

Creamy	47
Iodine	50
INS	146

Before we go any further, let's discuss recipes a little more, especially the percentages used in them. Don't freak out if you get a recipe that only lists percentages for the oils. Using percentages for a recipe makes it very easy to size up or size down the soap batch to fit the mold you want to use. For every pound of soap it takes 11 ounces oil and 5 ounces water/lye solution. If your mold is a 3-pound mold, you'll multiply 3×11 and get 33—that's the number to add into SoapCalc for total weight of oil. After that, you put in the oils from the recipe and the percentages. Click **Calculate Recipe,** and SoapCalc converts the recipe to fit your soap mold. It's as easy as that! All the recipes in this book list the percentages as well as the ounces to be used for a specified batch size, but you can make it any size you want by using the percentages.

You can also multiply the percentage of the oil by the amount of the total weight of oils for the size batch you want. Let's say for a 1-pound batch you need 11 ounces oils. If the palm is 72, multiply by 11 (the amount of oils you're going to use), and you get 7.92 ounces (224.5 grams). Easy! If you want to make 2 pounds of soap, multiply all the percentages in the recipe by 22, the ounces of oils it takes to make 2 pounds of soap. To check if your math is right, add all the ounces, and you should have either 11 ounces (for 1 pound of soap) or 22 ounces (for 2 pounds of soap). How can 11 ounces of oils be 1 pound of soap? Remember, you add the water and lye to the oils to get the weight of the soap.

Now, back to the recipe. Always put on your gloves and safety glasses before you begin.

1. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it.
2. Set your scale to ounces (or grams if you're an international reader). Place the ceramic bowl on the scale, and push the tare button to zero out the weight of the cup, and wait for the scale to read 0. Start pouring the fragrance oil into the bowl until it weighs .481 ounce (13.640 grams). Remove the bowl from the scale, and set it aside for now.
3. Do the same for the colorant, and set aside.

4. Place a cereal bowl–size bowl on the scale, and push the tare button to zero out the weight of the bowl. Weigh each oil individually and add to the stockpot.
5. Place the stockpot of oils over medium-low heat. Let the oils completely melt.
6. Put on your safety glasses and latex gloves again.
7. While the oils are heating, place a plastic bowl on the scale, and push the tare button to zero out the weight of the bowl. Weigh the sodium hydroxide (lye) in the bowl. Remove the bowl from the scale, and set it aside.
8. Place a pitcher on the scale, and push the tare button to zero out the weight of the pitcher. Weigh the distilled water. Remove the pitcher from the scale, and set it aside.
9. When the oils have completely melted, it's time to mix your lye into the water. Put on your safety glasses and latex gloves again. Now slowly sprinkle the lye into the water, stirring while you do this and keeping your face away from the pitcher until all the lye has dissolved. Remember, the fumes from the lye can burn your eyes and lungs, so don't get your face too close to that pitcher!
10. With the pot still over medium-low heat, slowly pour the lye/water mixture into the oils. Using an immersion blender, blend until the oils and water come together.

Safety First

Always slowly add the lye to the water—*never* the other way around. Doing it the other way around can cause a volcanic reaction.

From the Soap Pot

A fellow soap-maker shared this tip: add 1 ounce of a soft oil, such as sweet almond oil, to the hot process soap batch when it reaches the mashed potato stage, stir it well, and add your fragrance oil and colorant. That's actually adding a little more super fat to the soap, which gives it more conditioning. The results are fantastic.

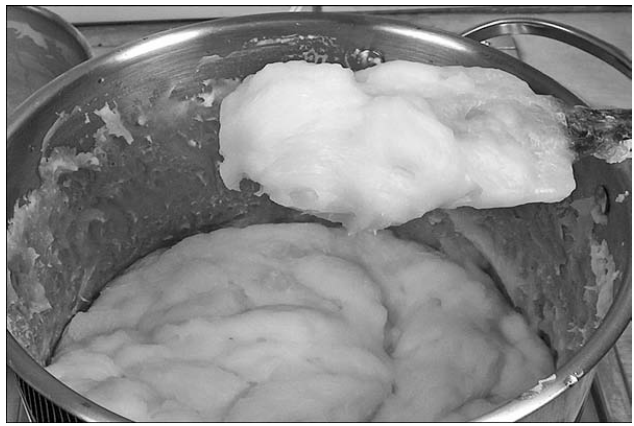
11. Continue stirring, with the pot on the heat, as the soap starts coming to trace.
12. Don't stop cooking yet! The soap will now go through the next stage. This is when the soap looks like it is falling apart, but it's supposed to do this. You will see the oils coming to the top. This is the "applesauce" stage. The soap is going through gel and is saponifying.

With your oils and lye in the pot on the stove, stir or use an immersion blender to bring it to trace.

The soap will thicken and come to a full trace.

13. Continue cooking through the applesauce stage. It will saponify and then start to smooth out. This is the "mashed potato" stage, and now is the time to add the fragrance and color. Add your fragrance first and stir until it's well incorporated. How much coloring you use depends on how dark or light you want the finished soap to be. Using your long-handled spoon, scoop out about 1 cup (8 ounces) of the soap and add it to the bowl with the colorant. Stir well until the mixture is one uniform color. Add the colored soap back into the pot, and stir in the color until you have the desired effect—less stirring gives you a two-colored, swirled bar; the more you stir, the more you get one color. If the color is too light,

remove another cup of soap and add more colorant. Stir it well and return it to the soap pot. You do have to work quickly before the soap batch starts setting up.



After trace and during the cook stage, the soap batch falls apart. Don't worry! It has to do this.

14. Pour the soap into the freezer paper–lined mold. Smooth down the top as best you can. Bang the mold on the counter a few times to get the air bubbles out. Now let the soap cool. You can leave your soap to cool on your counter or put it in a cold oven, with the oven door slightly cracked open, so the soap is out of the way. After it has completely cooled, the only thing left to do is to cut it into bars, and your soap is ready to use.

Let the cooked soap cool in the mold.

15. You'll need a soap cutter or a long knife. Use a ruler to measure and mark the cutting line. Then, place your cutter over the first cutting line and push firmly straight down all the way through the soap. If you stand directly over the soap, you'll increase your chances of cutting straight.

Making Slow Cooker Hot Process Soap

Soap? In a slow cooker? You bet! It's just as fast and just as easy as making soap on the stove. The only difference is your stove and stockpot are free for simmering a pot of stew while you make soap in your slower cooker. After dinner you could relax in a nice hot bath using a bar of your freshly made soap! That's a perfect ending to a busy day if you ask me.

Safety First

Once you use a slow cooker for soap, it is no longer safe to use for food. Over time, the lye will destroy the surface of the slow cooker bowl. Even with one use, you'll see that the bowl's surface isn't as shiny as it was.

In addition to most of the equipment listed earlier in the "Making Hot Process Soap" section, you will obviously need a good-quality slow cooker. Some have two temperature settings (low and high), and some have three (low, medium, and high). We recommend using a slow cooker with three settings, as the one with two settings gets a bit too hot when set on low.

Slow Cooker Hot Process Soap

This easy, hands-off recipe will yield 17.2 ounces (487.6 grams) of soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.07
Distilled water	4.18 ounces (118.501 grams)
Lye—sodium hydroxide	1.498 ounces (42.455 grams)
Palm oil	7.92 ounces (224.528 grams) (72%)
Coconut oil	1.98 ounces (56.132 grams) (18%)

Castor oil	1.10 ounces (31.184 grams) (10%)
Fragrance oil	.481 ounce (13.64 grams) (.7%)

Here are the soap qualities:

Hardness	50
Cleansing	13
Conditioning	47
Bubbly	22
Creamy	46
Iodine	49
INS	160

Always put on your gloves and safety glasses before you begin.

1. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it, but it does help if you spray the mold with a cooking oil spray.
2. Put a ceramic bowl on the scale, and push the tare button to zero out the weight of the cup. Weigh the fragrance oil, and set it aside.
3. Do the same for the colorant, and set aside.
4. Heat the slow cooker to high.
5. Place a cereal bowl–size bowl on the scale, and push the tare button to zero out the weight of the bowl. Weigh each oil individually and add to the slow cooker.
6. Put on your safety glasses and latex gloves again.
7. While the oils are heating, put a plastic bowl on the scale, and push the tare button to zero out the weight of the bowl. Weigh the sodium hydroxide in the bowl. Remove the bowl from the scale, and set it aside.
8. Place a pitcher on the scale, and push the tare button to zero out the weight of the pitcher. Weigh the distilled water. Remove the pitcher from the scale, and set aside.
9. When all the oils have melted, it's time to mix the lye and water. Slowly add the lye to the pitcher of water and stir with a long-handled spoon. Stir the mixture until all the lye has dissolved. Do not put your face close to the pitcher. The vapor from the lye can burn your eyes and lungs.

10. Slowly pour the lye/water mixture into the slow cooker. Using an immersion blender, blend until the soap comes to trace/starts to thicken. This may take 10 to 15 minutes. Once it has come to trace, stop blending, turn the heat to low, and put on the lid. Let it rest as you do the next step.
11. Pour some of the oxides/glycerin mix into a bowl. Dry oxides also work—just mix your dry oxides with the glycerin. I can't tell you how much to start with; this is a trial-and-error thing. Set the colors and fragrance aside.
12. This is the stage when your soap will start to separate, and oil will start coming to the top. Don't worry—this is part of the gel stage, and it's supposed to do this. Keep stirring! The soap may try to climb out of the pot or boil over if you don't keep stirring. Once you reach the mashed potato stage, you can turn off the heat. Stir the soap while it cools down some. If your slow cooker is the type that can be removed from the base, remove it to help the soap cool a little faster.

From the Soap Pot

We use mostly mica or oxides mixed with glycerin to color our soap. We've used liquid colorants but find some of them don't hold their color as well as the oxides.

13. When the soap has cooled, add the fragrance oil and mix well. Using your long-handled spoon, scoop out about 1 cup soap and add it to the bowl with the colorant. Stir well until the colorant is incorporated. Add the colored soap back to the bowl, and stir in the color until you have the desired effect—less stirring gives you a two-colored, swirled bar; the more you stir, the more you get one color.
14. Pour the soap into the freezer paper–lined mold. Smooth down the top as best you can. Bang the mold on the counter a few times to get the air bubbles out. Let the soap completely cool. You can leave the soap mold on your kitchen counter while it cools or put it in a cold oven to get it out of the way. Cut into bars, and your soap is ready to use.

From the Soap Pot

Sometimes you'll have a hard time getting the soap out of the molds. When using the Milky Way brand molds, we've found that by placing them in the freezer for a few hours (the longer the better), the soap comes out with ease.

Making Cold Process Oven Process Soap

Cold process oven process (CPOP), hot process oven process (HPOP), in the mold oven process (ITMOP)—whatever you call it, you're talking about the same thing:

hot process soap that was poured into the mold and then placed in the oven to finish cooking. It's cold process soap put in the oven to force the gel stage and speed up saponification. This is a good way to make a 48-hour process happen in 4 hours! It's the best of both worlds—the smoothness of cold process soap without the cure time.

In addition to most of the equipment listed earlier in the "Making Hot Process Soap" section, you also need an acrylic mold if you opt to only use the oven light for heat. Be sure to line your mold. You can use a wooden mold for the light-on method.

The recipes in this section make approximately 1 pound of soap. The first one has a cleansing of 13, the second one has a cleansing of 11, and the third has a cleansing of 8. The 13 is best suited for normal skin, and the 8 works well for dry skin.

Cold Process Oven Process Soap for Normal Skin

This recipe yields 17.2 ounces (487.6 grams) of soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.07
Distilled water	4.180 ounces (118.501 grams)
Lye—sodium hydroxide	1.498 ounces (42.455 grams)
Palm oil	7.92 ounces (224.528 grams) (72%)
Coconut oil	1.98 ounces (56.132 grams) (18%)
Castor oil	1.10 ounces (31.184 grams) (10%)
Fragrance oil	.481 ounce (13.64 grams) (.7%)

Here are the soap qualities:

Hardness	50
Cleansing	13
Conditioning	47
Bubbly	22
Creamy	46

Iodine	49
INS	160

The conditioning is low for this soap, but we fixed that by changing the super fat to 8 percent. Even though this number doesn't change on SoapCalc, we know we've added conditioning by raising the super fat. This lowers the amount of lye and leaves more of the oils free to moisturize and condition the skin.

You'll start this soap on the stove and finish it in the oven. You have two choices for the heat: you can either turn on the light in the oven before you start measuring out the oils or preheat the oven to 170°F.

Always put on your gloves and safety glasses before you begin.

1. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it.
2. Place the plastic pitcher on the scale, and push the tare button to zero out the weight of the pitcher. Pour the exact amount of water called for in the recipe into the pitcher, and set it aside.
3. Place the plastic bowl on the scale, and weigh out the exact amount of lye called for in the recipe.
4. Pour the lye into the water in the pitcher and stir until completely dissolved. Put the lid on the pitcher so the lye/water won't make a crust on top. Place at the back of the counter so no one can accidentally turn it over. You won't use this until it's cool.
5. Weigh all oils on the scale and add them to the stockpot. You can stir them at this point if you want, but you don't have to. Set over low heat, and allow the oils to melt. Don't let them get too hot, though. We usually leave some of the coconut or palm unmelted. (The oils will be warm enough to continue melting the little bit that hasn't melted after you remove the pot from the heat. And this way, you don't have to wait as long.) You want the oils to cool down to between 95° and 100°F. The lye should be close to that, too. Don't worry if both of them get cooler than this. It will still make soap.
6. Weigh the fragrance oil in the cup, and set it aside. If you're going to color your soap, have that measured, ready, and waiting nearby.
7. When the oils and lye/water have cooled down, pour the fragrance oil into the other oils. (Or you may wait and add the fragrance at trace if you want to.) Pour

the lye/water into the oils, and stir with spoon or whisk. When you see light trace, pour the soap into the mold and use a spatula to get all the soap out of the pot.

From the Soap Pot

When working with floral or fast-moving fragrance oils, a few tricks might help. First, you can add an extra 1 or 2 ounces water to slow the trace. Or you could add the extra water and let the oils and lye cool way down, almost cold. After you've mixed your lye/water into the soap and it's starting to trace, remove the immersion blender, add the fragrance, and use a spoon to hand-stir. Move quickly, because you won't have much time to get the soap into the mold. Pour as soon as all the fragrances are well incorporated. It will take some practice to master the temperamental fragrance oils, but you can do it!

8. If you're using a wooden mold, place it on the top shelf of the oven, and close the door. Leave the oven on for 2 hours and then turn it off, leaving the soap alone, inside the closed oven, until the next morning. Don't open the oven!

   If you're using just the light (and an acrylic mold), leave the light on for 6 hours and then turn it off and leave the soap in the oven until the next morning. Again, don't open the oven door. The soap will still be a little warm the next day.

9. Remove the mold from the oven, and let cool. Remove the soap from the mold, cut it, and it's ready to use.

Soap Stats

If you see any wrinkles on the top of the soap, that means it got too hot. We've found that when we put two molds in the oven at once, we have to turn off the light or the soap gets too hot and has wrinkles or waves on the top. (This is an easy fix; just plane, or shave, off some of the wrinkles until the soap is smooth.)

Cold Process Oven Process Soap for Mild Skin

This is one of our favorite recipes. You can make the recipe to fit your soap mold using the percentages listed next to each oil. This recipe yields 17.3 ounces (490.5 grams) of soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38

Super Fat %	8
Fragrance Oz per Lb	.7
Distilled water	4.180 ounces (118.501 grams)
Lye—sodium hydroxide	1.485 ounces (42.099 grams)
Palm oil	8.25 ounces (233.883 grams) (75%)
Coconut oil	1.65 ounces (46.777 grams) (15%)
Castor oil	1.10 ounces (31.184 grams) (10%)
Fragrance	.481 ounce (13.64 grams)

Here are the soap qualities:

Hardness	49
Cleansing	11
Conditioning	48
Bubbly lather	20
Creamy lather	48
Iodine	50
INS	157

You probably noticed that with a cleansing of 11, this soap is a little milder than the preceding recipe, which has a cleansing of 13.

Prepare as instructed for the preceding Cold Process Oven Process Soap for Normal Skin recipe.

Cold Process Oven Process Soap for Sensitive Skin

This mild soap is perfect for those of you who have sensitive skin. This recipe yields 17.2 ounces (487.6 grams) of soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.7

Distilled water	4.180 ounces (118.501 grams)
Lye—sodium hydroxide	1.464 ounces (41.505 grams)
Palm oil	8.8 ounces (249.476 grams) (80%)
Coconut oil	1.1 ounces (31.184 grams) (10%)
Castor oil	1.1 ounces (31.184 grams) (10%)
Fragrance oil	.481 ounce (13.640 grams) (.7%)

Here are the soap qualities:

Hardness	48
Cleansing	8
Conditioning	50
Bubbly	17
Creamy	49
Iodine	52
INS	151

As you can see, this recipe is even a little milder than the preceding two. The more sensitive the skin, the lower the cleansing needs to be.

Prepare as instructed for the previous Cold Process Oven Process Soap for Normal Skin recipe.

Cold Process Oven Process Soap for Difficult Skin

This soap is great for eczema or for dogs who get hot spots in the summer. This recipe yields 17 ounces (482 grams) soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.5 (This is an essential oil so use less.)
Distilled water	4.18 ounces (118.501 grams)

Lye—sodium hydroxide	1.45 ounces (41.102 grams)
Palm oil	6.6 ounces (187.107 grams) (60%)
Coconut oil	1.1 ounces (31.184 grams) (10%)
Karanja oil	1.1 ounces (31.184 grams) (10%)
Neem oil	1.1 ounces (31.184 grams) (10%)
Castor oil	1.1 ounces (31.184 grams) (10%)
Juniper essential oil	.34 ounce (9.750 grams)

Here are the soap qualities:

Hardness	42
Cleansing	7
Conditioning	54
Bubbly	16
Creamy	44
Iodine	59
INS	149

This soap will be a little soft, but it'll harden up in a few days.

Prepare as instructed for the previous Cold Process Oven Process Soap for Normal Skin recipe.

The Least You Need to Know

- With the methods in this chapter, you can make soap faster and use it the same day!
- Your oven isn't only for baking—it's also perfect for making soap!
- Drag out your slow cooker from the closet! It has a new use—making soap!

Chapter 8

Cold and Hot Process Soap Recipes

In This Chapter

- Recipes for cold and hot process soap
- Tips for coloring your soap
- Ideas for decorating your bars
- Finishing and packaging your soap

Now that we've covered the basics of cold and hot process soap-making in the preceding two chapters, it's time to get down to business and start making some super soaps.

In this chapter, we give you a few recipes to get started. These recipes, which work for either cold or hot process soap, are relatively easy to do, but the soaps they produce are absolutely wonderful.

We start with a very simple recipe, and each subsequent recipe takes you another step forward in your soap-making education. By the time you've made all the recipes in this chapter, you'll be well on your way to being a good soap-maker. Enjoy, remember to be creative, and above all else, have fun!

A Few Notes Before We Begin

As mentioned, these recipes all work for either cold or hot process method. Simply follow the appropriate directions from either Chapter 6 for cold process soap or Chapter 7 for hot process soap.

Use SoapCalc to check the recipes and print out the recipe you want to make so you'll have it in front of you while you make the soap batch. Also, by using SoapCalc and the percentages next to each of the oils in the recipes, you can increase or decrease the size of the soap batch to fit your needs and the size of your mold.

From the Soap Pot

Please read all directions before you start. Hindsight is 20/20, and a little foresight/reading can save the soap—and lots of time and frustration!

If you plan on coloring your soap, before you start making any, be sure to read the section on coloring your soap in Chapter 11. We suggest you do a solid color the first time. Choose your colorant and have it ready. If you plan on using oxide for your colorant, you need to wet it first. You do this by putting about 1 teaspoon (5 milliliters) oxide in a glass container and wet it with one of the oils in the recipe or with glycerin. When the oils have melted, add the colorant directly to the oils and use your immersion blender to mix the colorant before you add the lye solution to the oils. If you're using a liquid colorant, when the oils are melted, just add the recommended amount and use your immersion blender to mix them well before you add the lye solution. But more on that in Chapter 11.

Beginner Batch 1 (2-Pound Mold)

This is a small recipe for you to start with. We suggest using a 2-pound (32-ounce; 907.2-gram), 8-bar plastic tray mold for this soap (find one online or at your local candle and soap supply store). It makes eight 4-ounce (113.4-gram) bars. We are starting with this very simple recipe, with no color, so you can concentrate on the steps of making the soap first. When you've completed this recipe without making any mistakes, you can move on to the next recipe. This recipe yields 2 pounds (32 ounces; 907.2 grams).

Here's what to put in SoapCalc:

Weight of Oils	22 ounces
Water as % of Oils	38
Super Fat %	5

Fragrance Oz per Lb	.7 ounces (19.8 grams)
Distilled water	8.4 ounces (237.0 grams)
Lye—sodium hydroxide	3.1 ounces (87.4 grams)
Castor oil	4.4 ounces (124.7 grams) (20%)
Coconut oil	4.4 ounces (124.7 grams) (20%)
Olive oil	4.4 ounces (124.7 grams) (20%)
Palm oil	13.2 ounces (374.2 grams) (60%)
Fragrance oil	1.4 ounces (39.7 grams) (.7 ounce per pound of oils [ppo])

Here are the soap qualities:

Hardness	46
Cleansing	14
Conditioning	51
Bubbly	32
Creamy	49
Iodine	51
INS	158

Beginner Batch 2 (5×6 Mold)

This is the same recipe as Beginner Batch 1, only it's been cut down to fit a 5×6 box mold. You may also want to cut the sides of the box down to 3 inches (7.62 cm). This will make it easier to line the mold. This recipe yields 1.5 pounds (24 ounces; 680.4 grams).

Here's what to put in SoapCalc:

Weight of Oils	16 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.7 ppo
Distilled water	6.1 ounces (172.4 grams)

Lye—sodium hydroxide	2.2 ounces (63 grams)
Castor oil	3.2 ounces (90.7 grams) (20%)
Coconut oil (76 degree)	3.2 ounces (90.7 grams) (20%)
Olive oil	3.2 ounces (90.7 grams) (20%)
Palm oil	6.4 ounces (181.4 grams) (40%)
Fragrance oil	1 ounce (28.4 grams) (.7 ppo)

Here are the soap qualities:

Hardness	39
Cleansing	14
Conditioning	58
Bubbly	32
Creamy	43
Iodine	57
INS	150

Baby Your Baby Soap

We formulated this recipe especially for babies and young children. Babies 3 months old and younger shouldn't have essential oils used on them. You might want to use fragrance oil, such as the Baby Magic Type, for this soap instead. This recipe is also great for more mature skin because it's very gentle and has a lot of moisturizing properties. We usually don't add any colorants to our baby soap, but you can if you want to. A skin-safe colorant won't harm babies or young children. This recipe yields 2 pounds (32 ounces; 907.2 grams).

Here's what to put in SoapCalc:

Weight of Oils	22 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.7 ppo
Distilled water	8.4 ounces (237 grams)
Lye—sodium hydroxide	2.9 ounces (82.2 grams)

Coconut oil (76 degree)	.7 ounces (18.7 grams) (3%)
Cocoa butter	1.1 ounces (31.2 grams) (5%)
Sunflower oil	1.1 ounces (31.2 grams) (5%)
Castor oil	3.7 ounces (106 grams) (17%)
Olive oil	5.5 ounces (156 grams) (25%)
Palm oil	9.9 ounces (280.7 grams) (45%)
Fragrance oil	1 ounce (28.4 grams) (.7 ppo)

Here are the soap qualities:

Hardness	33
Cleansing	2
Conditioning	66
Bubbly	18
Creamy	45
Iodine	56
INS	128

Safety First

This soap is not tear-free. Keep it out of little ones' eyes because it will burn.

Sweetheart Soap for Dry Skin

For this gentle soap that has extra conditioning for dry skin, let's try using a soap-safe strong pink colorant. You'll add the colorant to the soap before you add the lye to the oils. Because floral fragrances can be touchy to work with, hand-stir the fragrance into the soap. Trace will come quickly, so have your mold lined and already close at hand. If you'd prefer to use another fragrance or essential oil, feel free to do so. This recipe yields 3 pounds (48 ounces; 1,360.8 grams).

Here's what to put in SoapCalc:

Weight of Oils	33 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.7 ppo
Distilled water	12.6 ounces (355.5 grams)
Lye—sodium hydroxide	4.5 ounces (126.6 grams)

Cocoa butter	1.7 ounces (46.8 grams) (5%)
Olive oil	3.3 ounces (93.6 grams) (10%)
Coconut oil (76 degree)	3.3 ounces (93.6 grams) (10%)
Castor oil	6.6 ounces (187.1 grams) (20%)
Palm oil	18.15 ounces (514.6 grams) (55%)
Fragrance oil	2 ounces (56.7 grams) (.7 ppo)

Here are the soap qualities:

Hardness	40
Cleansing	7
Conditioning	58
Bubbly	25
Creamy	51
Iodine	58
INS	143

If you make this recipe using the hot process method and want to add a little pizzazz to the finished soap, you can cover the top of the soap with pink or red dried rose petals after you've poured the soap into the mold. It makes a striking bar of soap! (You cannot put the dried rose petals on top of a cold process batch because the active lye will turn the petals brown during the gel stage.)

For this soap, we use White Roses fragrance oil. It's soft and spicier than the regular full-bodied rose fragrances.

From the Soap Pot

Many of our fragrance oils can speed trace so fast that you end up with a glob of soap on a stick. There are several ways to help slow these fast fragrance oils. You can add the fragrance oil directly to the pot of soap oils before you add the lye solution. Or you can add a little extra water to the lye. Cool temperature for lye and oils helps. Using soft oils such as olive oil helps slow the trace, too. Always hand-stir the soap after you've added a floral or touchy fragrance oil.

Lavender Bar Soap

This is a completely decadent soap. Once your lavender soap has cured, run to your bathroom, lock the door, light a candle, fill your tub with warm water, and enjoy this soap! Don't forget to hang a "Do Not Disturb" sign outside your bathroom door. This recipe yields 3 pounds (48 ounces; 1,360.8 grams).

Here's what to put in SoapCalc:

Weight of Oils	33 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.7 ppo
Distilled water	12.6 ounces (357.2 grams)
Lye—sodium hydroxide	4.5 ounces (127.6 grams)
Shea butter	1.7 ounces (46.8 grams) (5%)
Olive oil	3.3 ounces (93.6 grams) (10%)
Coconut oil (76 degree)	4.6 ounces (131 grams) (14%)
Castor oil	6.6 ounces (187.1 grams) (20%)
Palm oil	16.8 ounces (477.1 grams) (51%)
Fragrance oil	2 ounces (56.7 grams) (56.7%)

Here are the soap qualities:

Hardness	41
Cleansing	10
Conditioning	57
Bubbly	28
Creamy	49
Iodine	57
INS	145

When we color this soap, we remove about 2 or 3 cups (453.6 to 680.4 grams) of the soap base and, using a large measuring cup, mix in a soft purple (or a purple and a

lavender!) soap-safe colorant. Follow the instructions for swirling your soap in Chapter 11. After you've colored your soap and removed the part to be colored, add the fragrance.

Safety First

The strength of fragrances can vary greatly between manufacturers and vendors, so adjust the amount of fragrance you use in these recipes according to the manufacturer's recommended use. Even if it is a weak fragrance oil, please don't use more than 3 percent of the total weight of your recipe.

Choose a nice lavender fragrance oil or lavender essential oil, but know that lavender is a floral and can speed trace. Use a stainless-steel spoon, and hand-stir the fragrance into the batch. Pour the base soap into the mold and start swirling your color into the soap base. Follow the rest of the directions for swirling your soap batch.

If you don't want to swirl, you can color the batch solid with a soap-safe lavender colorant. If you used the hot process method, try sprinkling lavender buds on the top after you pour it into your mold. Be creative!

Manly Man's Soap

Soaps for men should have a nice outdoorsy or cologne fragrance, and there are many on the market today for you to choose from. Try Irish Green Tweed or Cool Water. Sandalwood is also good. This recipe yields 3 pounds (48 ounces; 1,360.8 grams).

Here's what to put in SoapCalc:

Weight of Oils	33 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.7 ppo
Distilled water	12.6 ounces (357.2 grams)
Lye—sodium hydroxide	4.6 ounces (129.9 grams)
Olive oil	3.3 ounces (93.6 grams) (10%)
Coconut oil	6.6 ounces (187.1 grams) (20%)
Castor oil	8.3 ounces (233.9 grams) (25%)

Palm oil	14.6 ounces (421 grams) (45%)
Fragrance oil	2 ounces (56.7 grams) (.7 ppo)

Here are the soap qualities:

Hardness	40
Cleansing	14
Conditioning	57
Bubbly lather	36
Creamy lather	49
Iodine	56
INS	151

Men need a higher cleansing number than most women. This bar has a higher castor oil percentage so it will be a softer bar in the beginning and will need a little extra time to cure. Thanks to the increased castor oil, this soap has lots of lather.

You can leave this bar plain and uncolored, or you can swirl it with more masculine colors. When we use the Irish Green Tweed fragrance, we swirl in green, black, and brown.

Buttery and Nice Soap

During the winter, your skin needs extra oils and conditioning, so we formulated this recipe just for winter skin. The super fat is 8 percent, the shea butter is used for its moisturizing properties, and the cocoa butter helps protect the skin and seals in moisture. This recipe yields 3 pounds (48 ounces; 1,360.8 grams).

Here's what to put in SoapCalc:

Weight of Oils	33 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.7 ppo

Distilled water	12.5 ounces (355.5 grams)
Lye—sodium hydroxide	4.4 ounces (124.2 grams)
Peanut oil	1 ounce (28.4 grams) (3%)
Cocoa butter	1.7 ounces (46.8 grams) (5%)
Shea butter	1.7 ounces (46.8 grams) (5%)
Olive oil	1.7 ounces (46.8 grams) (5%)
Coconut oil (76 degree)	4.6 ounces (131 grams) (14%)
Castor oil	5 ounces (140.3 grams) (15%)
Palm oil	17.5 ounces (495.8 grams) (53%)
Fragrance oil	2 ounces (56.7 grams) (.7 ppo)

Here are the soap qualities:

Hardness	44
Cleansing	10
Conditioning	53
Bubbly lather	23
Creamy lather	48
Iodine	54
INS	149

Safety First

Be sure anyone who might use this bar of soap is aware that it contains peanut oil.

We sometimes play around with using natural spices, herbs, and clays to color our soaps. In this soap, we usually use cocoa powder to color a part of the soap batch for swirling. We like the "in the pot" method for this so there are different shades of brown and cream as part of the swirl. Looks good enough to eat!—but don't because, after all, it's soap!

Cool, Fresh Cucumber Soap

This is a refreshing soap, perfect for hot summer days. To this soap base you add 2 ounces of fresh puréed cucumber just before you add the fragrance. What better fragrance to use than a crisp cucumber fragrance oil? We love making a green swirl in this soap, too. This recipe yields 3 pounds (48 ounces; 1,360.8 grams).

Here's what to put in SoapCalc:

Weight of Oils	33 ounces
Water as % of Oils	388
Super Fat %	5
Fragrance Oz per Lb	.7 ppo
Distilled water	12.5 ounces (355.5 grams)
Lye—sodium hydroxide	4.6 ounces (129.3 grams)
Avocado oil	1.7 ounces (45.8 grams) (5%)
Castor oil	5 ounces (140.3 grams) (15%)
Olive oil	5 ounces (140.3 grams) (15%)
Coconut oil	5.6 ounces (159.0 grams) (17%)
Palm oil	15.8 ounces (449.0 grams) (48%)
Fragrance oil	2 ounces (56.7 grams) (.7 ppo)
Puréed fresh cucumber (added to soap at trace)	2 ounces (56.7 grams)

Here are the soap qualities:

Hardness	41
Cleansing	12
Conditioning	56
Bubbly lather	25
Creamy lather	43
Iodine	57
INS	148

From the Soap Pot

When making shampoo bars, you might want to add some proteins and vitamins. Panthenol B5, honeyquat, and silk amino acid are very conditioning. Some essential oils also help correct scalp or hair problems. Check out Chapter 3 for which essential oils would be helpful for your needs. You would add these additives when you add the fragrance or essential oil.

Shampoo Bar Soap

For this shampoo bar, the super fat is higher to give the hair a little extra conditioning. And the hempseed and avocado oils used are also wonderful for the hair. This recipe yields 2 pounds (32 ounces; 907.2 grams).

Here's what to put in SoapCalc:

Weight of Oils	22 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.7 ppo
Distilled water	6.1 ounces (172.4 grams)
Lye—sodium hydroxide	2 ounces (57.9 grams)
Hempseed oil	.67 ounce (18.7 grams) (3%)
Coconut oil	1 ounce (28.4 grams) (6%)
Avocado oil	1.1 ounces (31.8 grams) (7%)
Castor oil	5.6 ounces (158.8 grams) (35%)
Palm oil	7.8 ounces (222.2 grams) (49%)
Fragrance oil	1 ounce (28.4 grams) (.7 ppo)

Here are the soap qualities:

Hardness	31
Cleansing	5
Conditioning	67
Bubbly lather	36
Creamy lather	58
Iodine	68
INS	128

Safety First

Avoid getting this soap in your eyes; it will burn.

This bar will be soft at first and may need extra time in the mold before removing it. Castor oil takes longer to saponify, and because this bar has a high castor oil percentage, the cure time will be up to 4 to 6 weeks. Letting the soap stay in the mold an extra

couple days will also be helpful when trying to remove it. It's definitely worth the wait! The castor oil is what gives this bar such an abundance of lather.

As with all fresh soap batches, this one will be soft at first, and removing it from an unlined plastic mold can be difficult. We recommend that you put the plastic mold in your freezer overnight before trying to unmold your soap. The next morning, turn the mold upside down on a piece of waxed paper. Press in the center of the mold, and the soap should release. If not, wait a few minutes and try again. Once soap has been removed from the plastic tray mold, let the soap warm up to room temperature before cutting it into bars. If the soap is frozen, it'll shatter when you cut it.

Facial Bar for Normal Skin

This chapter wouldn't be complete if we didn't include a facial bar. You can choose a single fragrance oil or blend a few together for their skin benefits. A blend we like contains .3 ounce (8.5 grams) each of Bulgarian lavender, lemongrass, and geranium essential oils. If you can find red palm oil (natural unrefined), that addition would make the bar perfect! Red palm oil is very high in 2 types of vitamin E and A and will make your soap a lovely apricot-yellow color. Super fat this bar at 8 percent. This recipe yields 2 pounds (32 ounces; 907.2 grams.)

Here's what to put in SoapCalc:

Weight of Oils	22 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.7 ppo (1 ounce; 28.4 grams) (or the essential oil blend)
Distilled water	8.4 ounces (237.0 grams)
Lye—sodium hydroxide	2.8 ounces (80.3 grams)
Evening primrose oil	.67 ounce (18.7 grams) (3%)
Rosehip oil	1 ounce (28.4 grams) (6%)
Shea butter	.67 ounce (18.7 grams) (3%)
Cupuacu butter	.67 ounce (18.7 grams) (3%)
Coconut oil	1.1 ounces (31.8 grams) (5%)
Castor oil	4.4 ounces (124.7 grams) (20%)

Palm oil	13.2 ounces (374.2 grams) (60%)
Fragrance oil	.9 ounce (25.5 grams) for essential oil and 1 ounce for fragrance oil (28.4 grams) (.7 ppo) (You will always use less essential oil or essential oil blend than fragrance oil.)

Here are the soap qualities:

Hardness	31
Cleansing	5
Conditioning	67
Combined lather	94
Iodine	68
INS	128

Finishing Your Soap Bars

Once your soap has had a day or two to harden, it will be time to give it a finished and professional look, no matter if you're keeping it for yourself, giving it as a gift, or selling it.

To even out any uneven edges and sides, we use a soap planer. If you don't have a planer, you can use something like a cheese cutter. Some soap-makers even use a potato peeler. You may also want to bevel the edges of your soap to take off the sharp edge. It's completely up to you how you want to finish the bars.

Using a soft cloth removes any little bits that may be on the surface of the soap, and the cloth also gives the soap bar a nice shine. After you've cleaned and polished your soap, place the bars back on the drying rack or box and let them continue to cure.

If you've decided to use the hot process method and added rose petals or lavender buds to the top of your soap bar, you won't be able to use a planer to even up the edges. So instead, cut the soap using a wavy soap cutter. As a bonus, this can hide uneven cuts!

To prevent our soap from getting nicks and dents, we use shrink-wrap tubing to protect it. All you have to do is cut the shrink-wrap .5 inch longer than the soap on each end. You want the edges of the wrap to only cup over the ends of the soap bar. Slide the soap into the shrink-wrap tube, center it, and, using a hairdryer on high or a heat

gun, shrink the wrap over the soap. Don't hold the dryer or heat gun too close to the soap bar, or you'll burn a hole in the wrap. Leave the ends open so the soap can continue to evaporate the excess water.

After you've shrink-wrapped your soap, you could package it in soap boxes. These are very handy for putting the labels on and offer a nice space on the back of the box for the ingredient label. These boxes can be expensive, so you might want to buy them in bulk for discount. If you don't want to go the box route, there are hundreds of other cute and eye-catching ways to package your soap.

Soap Stats

The shrink-wrapping also prevents the soap from absorbing all the smells in the air such as cigarette smoke. If you're a smoker, you may not be able to smell the cigarette smoke, but nonsmokers will. The same is true for pet odors and hairs.

A Little Soap Humor

We are both part of several Yahoo! soap-makers lists, and those groups like to have fun making soapy songs or soapy raps. One afternoon we got to talking about the warning labels we put on our soap. You know the kind—"if irritation occurs, discontinue use." These are no-brainers, but we still have to have them on the labels.

One of the members started being very creative with her warnings. She came up with, "If soap gets in mouth, stop cussing." This had everyone laughing. Before we knew it, others were joining in with other funny warnings, like "If gets in eyes, shut your eyes next time!" or "Of course it tastes bad—it's soap!"

Soap-making is fun, and we soap-makers have fun talking with each other about all types of soap projects, including humorous labeling and funny stories of mishaps.

The Least You Need to Know

- For soap-making success, have everything you need ready and waiting before you start.
- You can blend together essential oils and fragrance oils to create unique and personal scents.
- Be creative and add extra goodies to your soap using additives such as seeds or jojoba beads to exfoliate the skin. Just add them at trace!

Chapter 9

Goat Milk Soap

In This Chapter

- The benefits of goat milk soap
- Preventing your goat milk soap from discoloring
- Two great recipes for goat milk soap

Milk has long been reputed to be a rejuvenator and moisturizer for the human skin. Even Cleopatra bathed in full tubs of milk to keep her skin soft and youthful!

Soap made with milk is one thing, but soap made with goat milk is quite something else. It's ultra gentle and perfectly suited for delicate and sensitive skin.

The Basics of Goat Milk Soap

When making 100 percent goat milk soap, any recipe you have will do. You'll simply substitute goat milk for the water called for in the recipe. Beyond that, making soap with goat milk is a little different from making soap with water—but it's so worth the extra trouble!

Not everyone will have the luxury of having fresh goat milk, so if this is the case with you, you'll have to use either canned or powdered milk. Before Zonella found her local goat farm, she used canned and powdered milk. You can use the canned milk straight, or you can dilute it. The powdered milk will have directions on the package, or you can mix 1 ounce (28.35 grams) milk to 8 ounces (803.7 grams) water.

From the Soap Pot

Look for goat milk in the canned-milk section of your grocery store. For fresh goat milk, look for a local goat farm in your area. You might also find a health food store in your area that carries fresh goat milk.

Goat milk soap will turn wheat-colored if it isn't put in a refrigerator or freezer. The hotter it gets, the darker it will go. If you prefer your soap to be white, put it in the refrigerator as soon as you pour it in the mold.

Also, soap made with canned and powdered milk won't be as white as soap made with fresh milk.

Making Goat Milk Soap

As with any other kind of soap, you need to assemble the equipment you'll need ahead of time. After you start, you won't have time to go look for something! Here's what you'll need (turn back to Chapter 1 if you need a refresher on these items):

- Safety glasses
- Thin latex gloves
- Scale
- Plastic pitcher
- Cereal bowl–size glass or plastic bowls (for oils and butters)
- Long-handled stainless-steel or plastic spoon
- Meat or candy thermometer
- Immersion blender
- Freezer paper
- Mold
- Stove

100 Percent Goat Milk Soap

The goat milk in this recipe is used frozen. That helps the milk/lye solution cool faster and prevents the milk from getting as hot from the heat of the lye. When the milk gets hot, the sugars in it turn dark, making the soap brown. That's also why the soap goes through gel in the refrigerator. This recipe yields 15.64 ounces (443.4 grams).

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	34
Super Fat %	10
Fragrance Oz per Lb	.7
Goat milk	2.74 ounces (77.691 grams)
Lye—sodium hydroxide	1.412 ounces (40.023 grams)
Palm oil	6.6 ounces (187.107 grams) (60%)
Coconut oil	1.1 ounces (31.184 grams) (10%)
Castor oil	2.2 ounces (62.369 grams) (20%)
Sunflower (High Oleic)	1.1 ounces (31.184 grams) (10%)
Cucumber-mint fragrance oil	.481 ounces (13.640 grams) (.7 ppo)

Here are the soap qualities:

Hardness	39
Cleansing	7
Conditioning	59
Bubbly	25
Creamy	49
Iodine	58
INS	142

Soap Stats

There's a big difference between high-oleic and regular sunflower oil, so when putting this recipe in SoapCalc, be sure to click the right one.

Freeze the goat milk before you begin making this soap. Do this with whichever type you use—canned, powdered, or fresh. You want it frozen solid. Measure the 2.74 ounces (77.691 grams) of goat milk into a zipper-lock bag, and lay it flat in the freezer. Right before you add it to the recipe, drop the bag on the counter or the floor a few times to break the frozen milk into pieces. (This works better than hitting it with a hammer, which might break the bag and cause a big mess.)

Always put on your gloves and safety glasses before you begin.

1. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it, but using a cooking or silicone mold spray will help the soap release from the mold easier. Check your refrigerator, and clean out a spot to put it when the time comes.

Safety First

Remember to use and wear the appropriate safety equipment when you're making soap.

2. Weigh the fragrance oil, and set it aside.
3. Weigh the lye, and set it aside. Be sure it has a lid on it so it won't spill.
4. Weigh all the oils, and place in the stockpot. Set the pot over low heat, and heat until all the oils are melted. Remove from heat, and set aside to cool to 95°F.
5. When the oils reach 95°F, remove the milk from the freezer, and drop it on the counter to break into pieces.
6. Place the frozen pieces of milk into the container you've set aside to hold the lye/milk mixture. Pour the lye over the frozen pieces of milk, and stir slowly until all the milk and lye are dissolved. Don't rush this step; it's very important that all of the lye and milk dissolve.
7. When the lye/milk are dissolved, slowly add them to the cooled oil mixture, and blend with a spoon.
8. Add the fragrance oil, and stir to combine. The cucumber mint doesn't accelerate the soap to trace, so you can use the immersion blender if you like. If you're going to use a fragrance that accelerates the trace, stir with a spoon.
9. As soon as the soap begins to thicken, pour it into the prepared mold. Because of the high sugar in the milk, the soap will turn dark if you allow it to go into gel mode. (The soap gets very hot when it starts to saponify.)
10. If you don't want your soap to darken, place it in the refrigerator as soon as you pour it into the mold. (Don't have any cut onions or anything else that has a strong odor in the refrigerator, or your soap will absorb the odor!) The cooler the soap, the lighter it will be. Leave the mold in the refrigerator for 24 to 36 hours. Thirty-six hours is better because it's less likely to be lye-active after that long, and the additional cooling time takes some of the moisture out of the soap.

From the Soap Pot

If you don't have a refrigerator handy to put the soap in, you can place a fan to blow on the soap to help keep it cooler. But do not insulate. It even helps to elevate the mold by putting a support under each corner so the air from the fan can get under the mold, too, and help keep the soap cooler.

11. Remove the soap from the mold, cut into bars, and allow to dry. You may have lye activity up to 48 hours after pouring into the mold. That's okay, and it'll eventually settle down.

Because this soap has 20 percent castor oil, it needs to cure for 4 to 6 weeks before using. The soap won't hurt you if you use it right away; it just won't be as moisturizing. It just takes the added time for the lye to make the castor oil let go of its wonderful moisturizing qualities. But it's well worth the wait.

50 Percent Goat Milk/50 Percent Water Soap

This recipe is a bit easier and less time-consuming than the 100 Percent Goat Milk Soap recipe earlier in this chapter because you don't have to freeze the milk first. This recipe yields 15.7 ounces (445.1 grams) of soap.

Here's what to put in SoapCalc:

Weight of Oils	11 ounces
Water as % of Oils	38
Super Fat %	8
Fragrance Oz per Lb	.7 ppo
Distilled water	1.37 ounces (38.840 grams)
Lye—sodium hydroxide	1.41 ounces (40.023 grams)
Goat milk	1.37 ounces (38.840 grams)
Palm oil	6.6 ounces (187.107 grams) (60%)
Coconut oil	1.1 ounces (31.184 grams) (10%)
Castor oil	2.2 ounces (62.369 grams) (20%)
Sunflower (high oleic)	1.1 ounces (31.184 grams) (10%)
Cucumber-mint fragrance oil	.48 ounce (13.640 grams) (.7 ppo)

Here are the soap qualities:

Hardness	39
Cleansing	7
Conditioning	59
Bubbly	25

Creamy	49
Iodine	58
INS	142

Always put on your gloves and safety glasses before you begin.

1. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it.
2. Weigh the fragrance oil and set aside.
3. Weigh the water, and add the lye. Stir until dissolved.
4. Weigh the milk, and set it aside in its own container.
5. Weigh each oil and add to the pot. Set over low heat, and heat to 95°F. If you get the oils too hot, let them cool to the proper temperature.
6. When the oils are cooled to 95°F, pour in the fragrance oils and blend with the immersion blender. Or if you like, you can wait until the soap traces to add the fragrance.
7. Add the milk to the lye/water mixture, stir, and immediately pour into the oils. Don't allow the lye/water/milk to set for any time, or it will begin to turn orange and smell. As soon as you add the milk to the lye/water mixture, add it to the oils.
8. Blend with the immersion blender until the soap reaches light trace (just a slight thickening). Change to a spoon or spatula, so you can feel the soap get thicker. You want the soap just a little past light trace. If you're going to use another fragrance oil, use a spoon to stir, not an immersion blender. The immersion blender brings the soap to trace faster, and the fragrance oil accelerates it, too. The soap will zoom right on past light trace and be too firm to pour into the mold.
9. Pour the soap into the lined mold, and place into the refrigerator for 24 to 36 hours.
10. Remove the soap from the mold, cut into bars, and allow to dry. Let at least 4 weeks go by before you use the soap. If you wait, it will be so much more moisturizing than when first made.

Castor oil is the hardest oil to saponify, and it will take up to 4 weeks for the lye to make the castor oil give up its good qualities to the soap.

In the past I have added castor oil to the lye/water mix instead of adding to the oils in the pot. This has proven to make the soap bars even harder. If you decide to try this, heat all your oils except for the castor oil. Save it, and add it to the lye/water solution, stirring well, just before you add the solution to the cooled oils.

The Least You Need to Know

- There's an easy way to keep your goat milk soap from turning brown. The secret is to keep the milk cold. Very cold. Frozen, even.
- We have recipes for you using 100 percent and 50 percent goat milk. Which do you want to use?
- It's important to read all instructions, lay out all your equipment, and get all your safety gear in place when making soap.

Chapter 10

Liquid Soap

In This Chapter

- Formulating liquid soap using SoapCalc
- Easy instructions for making liquid soap
- Recipes for household and laundry soap
- Shower gel and shampoo recipes
- Recipes for facial and hand soaps

Liquid soap is so much fun to make. Although it does take a lot of time to cook and dilute, don't be afraid to try this type of soap. It's very easy once you get the hang of it.

In this chapter, you learn an easy way to make a basic liquid soap you can use for many purposes, as well as some terrific shower gels and shampoos for every type of skin and hair.

Using SoapCalc to Formulate Your Soap

Before you start making your soap, always check your recipe in SoapCalc. This is a very important habit to get into, and one we always advise new

soap-makers to do. Anyone can make a mistake or enter an incorrect number, and checking the recipe makes good soap sense, no matter who wrote it.

All liquid soap is made basically the same way, so this formula works for any kind of liquid soap. Here's what to put in SoapCalc:

Type of Lye used	KOH
Weight of Oils	ounces
Water as % of Oils	80
Super Fat %	–13

The rest of the settings for the laundry soap and shower gels are different, so you'll enter the specifics when you get to those recipes, but this is the basic setup for liquid soaps.

When you've put in all the information, you'll be ready to formulate or check your recipe. It's as easy as that!

Increasing and Decreasing Batches

It's easy to increase or decrease the size of a batch of liquid soap once you know the percentage of each oil. Just remember that the weight of your paste (the oils and lye) is half of the total weight of your batch. So to find out how much paste you need, you divide the total weight of your desired finished batch by 2. Let's say you want 32 ounces (907.2 grams) of shower gel. 32 ÷ 2 = 16. So for 32 ounces of shower gel, you'll need 16 ounces (453.6 grams) of paste.

Soap Stats

Household detergent was introduced and produced in the United States in the 1930s. It became popular after World War II.

Now, to figure out the total weight of oils you need, divide your number by 2 again: 16 ounces (453.6 grams) ÷ 2 = 8. The total weight of oils for your 32-ounce batch is 8 ounces (226.8 grams). This is the number you enter for Total Weight of Oils on SoapCalc. Then you can add in the individual oils and their percentages in the oil columns. Click the Calculate Recipe button, and you're done!

Let's try another one. Say the recipe is written for a 64-ounce (1,814.4-gram) batch of liquid soap, and you want 256 ounces (7,257.6 grams). 256 ÷ 2 = 128 ounces (3,628.8 grams). This is both the paste weight and the dilute water weight. Now, divide by

2 once again to get the total weight of oils. 128 ÷ 2 = 64 ounces (1,814.4 grams). Type 64 in the Total Weight of Oils box in SoapCalc. Then, again, add the oils and their percentages in the oil column and calculate the recipe.

Now that we have our basics, let's make some soap!

Making Liquid Soap and Shampoo

You'll need certain supplies for making any kind of liquid soap, shower gel, or shampoo. Here's what you'll need (turn back to Chapter 1 if you need a refresher on these items):

- Safety glasses
- Thin latex gloves
- Scale
- Immersion blender
- Meat or candy thermometer
- Stove
- Cereal bowl–size glass or plastic bowl
- Plastic pitcher
- Large stainless-steel stockpot with a solid stainless-steel lid (no plastic handles or knobs), or aluminum foil for cover
- Long-handled stainless-steel or plastic spoons
- Plastic funnel
- Plastic bottle to store the soap

You'll notice that liquid soap is made using potassium hydroxide lye instead of sodium hydroxide, the kind of lye used for bar soap. Potassium hydroxide comes in flake or diamond-shape pieces. With this type of lye, your oil won't become solid and hard, and the soap remains in a liquid form. Liquid soap also has a lower pH than bar soaps, which helps the liquid soap hold together. Borax is used to neutralize any leftover lye and lower the soap's pH.

Safety First

If the pH is too high, your soap will separate. Same is true if the pH is too low. It's best to keep the pH around 9.5. You'll know your soap has separated when the bottom is opaque and the top is clear. It can take a couple days or weeks for this to happen. There's no way to save a batch of liquid soap if it has separated. You have to toss it out and start over.

Although there are several products to choose from to thicken your shower gels, our favorite is HEC (hydroxyethyl cellulose). This natural product is made from polymer cellulose, is water soluble, and stays clear. You can also use citric acid, although it can make the end product cloudy. Boric acid is another choice, but HEC is still our favorite.

You'll need a 1-gallon (128-ounce; 3628.8-gram) container to store your Basic Household and Laundry Soap. An empty used laundry detergent bottle that's been cleaned also works. What won't work, however, is a plastic milk jug. The plastic is too thin, and the soap will soon leak out.

For shower gel storage, we recommend 8-ounce (226.8-gram) or 16-ounce (453.6-gram) PET-type plastic bottles. These bottles are made from recycled plastic. You can find them online at several of the venders we list on Appendix D.

Making Household and Laundry Soap

At less than $5 per batch (depending on where you get your ingredients), homemade liquid soap is not only a fantastic bargain, but it also does a great job cleaning everything from your clothes to your kitchen, bathroom, and walls. Your stovetop will shine like new when you clean it with this soap, and it's excellent for hand-washing dishes. Don't try it in your dishwasher, though—unless you're planning on mopping your floor that day!

Soap Stats

For some reason, spiders don't like coconut oil. After I'd been using this soap to clean my tile floors, I noticed I no longer saw spider webs in the corners of ceilings. We live in the country, so I used to find a lot of spiders who made their way into the house. Now I hardly ever see them or any evidence they've been around.

As a laundry detergent, there's nothing better. You'll get 64 loads of laundry out of this batch in hard water and 128 loads of clothes in soft water—and it's biodegradable, so it can be used in front-load washers. This soap also rinses completely out of your clothes and removes all the buildup that's been left by store-bought detergents. You'll also notice that your clothes are softer and no longer need fabric softeners or dryer sheets—another great way to save a few pennies!

Please be sure to read all the instructions before you start. And remember, some oils are thicker and therefore weigh more than others, so you must always weigh—not measure—all ingredients.

Basic Household and Laundry Soap

You'll love this all-around soap and find new uses for it all the time. This recipe yields 1 gallon (128 ounces; 3,628.8 grams; 3.78 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	32 ounces (908.8 grams)
Water as % of Oils	80
Super Fat %	–13
Fragrance Oz per Lb	(See the later "Scenting Your Household and Laundry Soap" section.)
Coconut oil (76 degree)	8 ounces (226.7 grams) (25%)
Palm kernel oil	8 ounces (226.8 grams) (25%)
Lard	16 ounces (276 grams) (50%)
Distilled water (for lye)	25.6 ounces (725.7 grams)
Lye—potassium hydroxide	8.1 ounces (230.7 grams)
Distilled water (for dilution and borax)	64 ounces (1,814.4 grams)
Borax	2.5 ounces (70.9 grams)
Fragrance oil (if desired)	1.5 to 3 ounces (42.5 to 85.0 grams) (This is added after the cook and dilution.)

For more cleaning power, you can increase the borax. We've increased the borax to as much as 8 ounces. But a word of warning: if you plan to use the soap to mop your floors and you have pets, don't increase the borax to more than 3 ounces. It may cause irritation to your pet's feet. If your pet is chewing on its feet, decrease amount of borax. And always rinse the floors after mopping with this soap.

Always put on your gloves and safety glasses before you begin.

1. Place the plastic pitcher on the scale, and push the tare button to zero out the weight of the pitcher. Weigh the coconut oil in the pitcher and pour into the pot.
2. Weight the palm kernel oil and pour into the pot.

3. Set the pot of oils over medium-low heat. If you're using a candy thermometer, attach it to the side of the pan now.
4. While the oil is heating, put the plastic bowl on the scale and zero out the weight of the bowl. Weigh the potassium hydroxide in the bowl. Set aside.
5. Place a pitcher on the scale, zero out the weight of the pitcher, and weigh the distilled water. Set aside.

Safety First

Always slowly add the lye to the water, *never* the other way around. Doing it the other way around can cause a volcanic reaction.

6. Check the temperature of the oils. When the oil has reached 160°F (71°C), it's time to mix the lye and water. Slowly add the lye to the pitcher of water and stir. You will hear a "swoosh" as the lye dissolves in the water. Stir the mixture until all the lye has dissolved. Do not put your face close to the pitcher. The vapor from the lye can burn your eyes and lungs.
7. Keeping the pot on the burner still set on medium-low, slowly pour the lye/water mixture into the batch of oils. Using an immersion blender, blend until the oils and water come together. Bring the mixture to a thick trace by blending for a few minutes and then stopping for a few minutes. Be patient; bringing the mixture to a thick trace takes some time—sometimes up to 45 minutes! When it reaches thick trace, it will look like very thick pudding.

8. Remove the blender and set it aside when the soap has become too thick to stir. Remove the pot from the heat and let it sit on the counter while the soap continues to harden into a paste. This can take up to 30 minutes.
9. While you're waiting for the soap to form a hard paste, preheat the oven to 200°F (93°C). When the soap has reached the hard paste stage, cover the pot with the lid or aluminum foil, and put the pot in the oven for 4 hours or until the paste is transparent. (Remove a little bit of paste and spread it out over a piece of paper or a plate to test this. Not all paste will be completely transparent.)

From the Soap Pot

Just as your soap is starting to come to trace, you might notice a little thickening and foam around the edge of the pot. This is perfectly normal.

10. Place the plastic bowl on the scale, zero out the weight, and weigh the borax. Set aside.
11. Place the pitcher on the scale, zero out the weight, and weigh 4 ounces distilled water. Pour the water into a stainless-steel pan and add the borax. Stir, and place on the stove over medium heat. Bring to a boil and continue a simmering boil until the borax is completely dissolved.
12. Weigh the rest of your water in the pitcher on the scale, and pour it into another pan. Set over high heat, bring to a boil, and add it to the soap paste.

Soap Stats

You don't have to dilute the paste the same day you make it. You can leave it out overnight to dilute the next day. You can also put it in a baggie and freeze it until you're ready.

13. Slowly pour the borax mixture into the paste, put the lid back on, set the diluted mixture over medium heat, and let it all melt down. Keep a close watch on this because it might boil over, or you can put the burner on low and check on it every 30 minutes.
14. When the soap is completely melted, remove it from heat. Let it cool down in the pot for at least an hour. The sides of the pot should feel only slightly warm to the touch.
15. Add the fragrance, if desired, and stir to thoroughly combine. When the soap has completely cooled, pour it into your plastic bottles.

Another Easy Household and Laundry Soap

We love making this soap with 100 percent coconut oil (76°F). It costs a little bit more, but you may find it worth it because you won't have to buy palm kernel oil, too. You can use LouAna coconut oil from your local grocery store. This recipe yields 1 gallon (128 ounces; 3,627.2 grams).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	32 ounces (907.2 grams)
Water as % of Oils	80
Super Fat %	–13
Fragrance Oz per Lb	(See the "Scenting Your Household and Laundry Soap" section.)
Coconut oil (76 degree)	32 ounces (907.2 grams) (100%) (Don't forget to add the borax when you dilute the paste!)

Follow the same directions as you did for the Basic Household and Laundry Soap, using the amount of water and potassium hydroxide SoapCalc calls for in this recipe.

From the Soap Pot

You can also use the soap paste undiluted for cleaning hard surfaces. Just pinch off a little of the paste, and using a wet rag, clean that baked-on grease off your vent hood or the bottom of your pots and pans.

Scenting Your Household and Laundry Soap

Scenting this type of soap is done a little differently. You use less scent because fragrance and essential oils can leave oil spots on your clothes if you use too much. You also may not want the scent in your laundry soap so it won't overpower your perfume or cologne.

If you're using a fragrance oil whose recommended use is .5 ounce (14.2 grams) fragrance per 1 pound soap, then use 1 ounce (28.4 grams) for these recipes. If the fragrance oil is recommended at 1 ounce (28.4 grams) per 1 pound soap, use a total of 2 ounces (56.7 grams) for these recipes. If you like more scent, increase it another 1 ounce (28.4 grams); if you don't like it that strong, decrease the amount. We usually use 3 ounces (85.05 grams) fragrance oil in laundry soap, but you can make it as strong or mild as you like. You also might like orange essential oil for its cleaning properties, but know that it will make the soap very cloudy-looking.

Making Shower Gels

To make shower gel, you follow the basic step-by-step directions for the liquid soap. The only difference is the amount of distilled water, lye, borax, and additives you may want to add.

From the Soap Pot

Remember that the total weight of oils, lye, and water will make the paste that you'll dilute into the finished product at a ratio of 1:1. That means 1 ounce paste to 1 ounce water. If your paste weighs 32 ounces, you'd dilute with 32 ounces (907.2 grams) water and 1 ounce (28.35 grams) borax. This would make the total finished product 65 ounces.

For shower gels and shampoos, we've found that a low cleansing number is best so they don't dry out your skin or hair. We cannot super fat liquid soaps the way we do bar soap, so that number is changed by lowering the percentage of the three cleansing oils—coconut, palm kernel, or babussa oil.

When you're lowering the cleansing oil percentages on SoapCalc, the most important thing to remember is that you don't want to have your iodine number go over 70—that's the magic number. Let's say you lower the coconut oil from 14 to 8 percent. You will then need to increase one of the other oils in the recipe by 6 percent and recalculate the recipe. If, after you've recalculated the recipe and the cleansing is still too high, lower the percentage of the coconut oil again and raise the percentage of another one of the oils in the recipe.

For those in England and in Europe, where the use of borax isn't allowed for skin products, you can use citric acid instead to neutralize any leftover lye. Citric acid also lowers the pH. The ratio is the same as for borax.

Basic Shower Gel

This small, basic recipe is terrific for getting you started making shower gel. This recipe yields 32 ounces (907.2 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	80
Super Fat %	–13
Fragrance Oz per Lb	(See the "Scenting Your Household and Laundry Soap" section.)
Castor oil	2.6 ounces (72.6 grams) (32%)
Coconut oil (76 degree)	1.1 ounces (31.7 grams) (14%)
Olive oil	2.4 ounces (68.0 grams) (30%)
Palm oil	1.9 ounces (54.4 grams) (24%)
Distilled water (for lye)	6 ounces (170.1 grams)
Lye—potassium hydroxide	1.8 ounces (50.8 grams)
Distilled water (for borax)	2 ounces (56.7 grams) plus 1.6 ounces (45.4 grams) (for diluting paste)
Borax	.5 ounce (13.6 grams)
HEC (or other thickener)	.5 ounce (13.6 grams)

Here are the soap qualities:

Cleansing	10
Conditioning	69
Bubbly	38
Creamy	47
Iodine	66
INS	133

Always put on your gloves and safety glasses before you begin.

The basic instructions for shower gels are similar to the laundry soap—just the ingredients and measurement ratios are different. Please follow steps 1 through 9 of the Basic Household and Laundry Soap instructions and then come back here to finish your shower gel.

10. Put a small plastic or glass bowl on the scale, zero out the weight, and weigh out .48 ounce (13.6 grams) borax or citric acid. (This is to neutralize any lye that may be left in the gel.) Set it aside for now.

11. Put a plastic pitcher on the scale, zero out the weight, and weigh 30 ounces (850.5 grams) distilled water. Add the borax or citric acid to the water, and stir.
12. Put the pot with the paste back over medium heat, and add the distilled water solution to the paste.
13. When the paste has completely melted, remove it from the heat. Let it cool until the sides of the pot only feel warm, not hot, to the touch.

From the Soap Pot

To help speed the melting stage, boil the distilled water. Add a few extra ounces to compensate for evaporation while bringing it to boil. Weigh the amount of water your recipe calls for before you pour it into the soap pot.

14. Put a plastic bowl on the scale, zero out the weight, and weigh the HEC. Set aside.
15. Weigh 2 ounces (56.7 grams) very warm distilled water. Add to the thickener, and stir to completely dissolve. Add the thickener to the soap pot and, using an immersion blender, incorporate the mixture. If you're using HEC, the mixture will thicken on its own. (If you're using GuarCat as your thickener, you'll need to continue with the blender until the mixture thickens.)
16. Once the mixture has thickened, weigh any other additives you desire, including fragrance or essential oil. Add these to the soap, and stir to incorporate fully.
17. Let the gel cool completely. This will take several hours. Pour the finished soap into bottles.

After you've finished making soap, wipe any oils from your pots and spoons with a paper towel before you load them into your dishwasher. Then pour 1 ounce (28.4 grams) or more vinegar in the Jet-Dry reservoir. This will cut any bubbles caused by the oil residue.

Shower Gel for Normal Skin

This recipe is great for busy families who have normal skin and want a shower gel with a little more cleansing power. It lathers up a storm when used with a bath pouf or wash cloth. This recipe yields 65 ounces (1,842.8 grams; 1.92 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	16 ounces
Water as % of Oils	80
Super Fat %	–13
Fragrance Oz per Lb	(See the "Scenting Your Household and Laundry Soap" section.)
Castor oil	5.6 ounces (158.8 grams) (30%)
Coconut oil (76 degree)	2.2 ounces (63.5 grams) (14%)
Cocoa butter	.5 ounce (13.6 grams) (3%)
Olive oil	4 ounces (113.4 grams) (25%)
Palm oil	3.7 ounces (104.3 grams) (28%)
Distilled water (for lye)	12.8 ounces (362.9 grams)
Lye—potassium hydroxide	3.6 ounces (102.1 grams)

After the soap has been cooked:

Distilled water (for borax)	32 ounces (907.2 grams) plus 2 ounces (56.7 grams)
Borax	1 ounce (28.35 grams) (1.5%)
HEC (or other thickener)	1 ounce (28.35 grams) (1.5%)
Fragrance or essential oil	1 ounce (28.35 grams) (1.5%)

Here are the soap qualities:

Cleansing	10
Conditioning	69
Bubbly	37
Creamy	48
Iodine	65
INS	136

Cooking time for hard paste: 5 or 6 hours

Shower Gel for Mature Skin

This is the recipe most popular with women who are still pretty active but who also have delicate skin. With the cleansing of 5, it gets you clean while it conditions. This recipe yields 64 ounces (1,814.4 grams; 1.9 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	16 ounces
Water as % of Oils	80
Super Fat %	–13
Fragrance Oz per Lb	124
Castor oil	5.6 ounces (158.8 grams) (35%)
Coconut oil (76 degree)	1.3 ounces (36.3 grams) (8%)
Cocoa butter	1.3 ounces (36.3 grams) (8%)
Olive oil	5.6 ounces (158.8 grams) (35%)
Palm oil	2.25 ounces (63.5 grams) (14%)
Distilled water (for lye)	12.8 ounces (362.9 grams)
Lye—potassium hydroxide	3.5 ounces (99.1 grams)

After the soap has been cooked:

Distilled water (for borax)	32 ounces (907.2 grams) plus 2 ounces (56.7 grams)
Borax	1 ounce (28.35 grams) (1.5%)
HEC (or other thickener)	1 ounce (28.35 grams) (1.5%)
Fragrance or essential oil	1 ounce (28.35 grams) (1.5%)

Here are the soap qualities:

Cleansing	5
Conditioning	74
Bubbly	37
Creamy	50

Iodine	70
INS	123

Cooking time for hard paste: 5 to 6 hours.

Shower Gel for Sensitive Skin

This shower gel is excellent for toddlers, the elderly, cancer patients, or anyone who has very dry skin. To add extra skin healing, use sunflower oil that's been infused with the herb calendula. Calendula is also great for preventing and soothing diaper rash. This recipe yields 42 ounces (1,190.7 grams; 1.2 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	10.5 ounces
Water as % of Oils	80
Super Fat %	–13
Fragrance Oz per Lb	(See the "Scenting Your Household and Laundry Soap" section.)
Castor oil	2.5 ounces (70.9 grams) (25%)
Coconut oil (76 degree)	.3 ounce (8.5 grams) (3%)
Cocoa butter	.5 ounce (14.2 grams) (5%)
Olive oil	3 ounces (85 grams) (30%)
Sunflower oil	.5 ounce (14.2 grams) (5%)
Palm oil	3.2 ounces (90.7 grams) (32%)
Distilled water (for lye)	8 ounces (226.8 grams)
Lye—potassium hydroxide	2.2 ounces (61.7 grams)

After the soap has been cooked:

Distilled water (for borax and diluting)	20.2 ounces (572.7 grams) plus 2 ounces (56.7 grams)
Borax	.6 ounce (17 grams) (1.5%)

HEC (or other thickener)	.6 ounce (17 grams) (1.5%)
Fragrance or essential oil	.6 ounce (17 grams) (1.5%)

Here are the soap qualities:

Cleansing	2
Conditioning	72
Bubbly	25
Creamy	47
Iodine	72
INS	120

Safety First

Do not use essential oils in products for babies 3 months old or younger because they can't tolerate the essential oils. Essential or fragrance oils also shouldn't be used on cancer patients while they're going through chemotherapy.

Cooking time for hard paste: 5 or 6 hours.

This recipe has a high percentage of olive oil, so it thickens nicely with less HEC. The olive oil reacts with the borax and thickens the soap.

Even though we have it listed here, you can omit the HEC in this recipe if you like. If you decide later that you want it thicker, reheat the soap to 110°F and add the HEC dissolved in 2 ounces (56.7 grams) almost-hot distilled water and add to the soap. Incorporate it well using an immersion blender, and let cool.

Making Shampoos

Shampoos are made just like the shower gels, but they also include a few other conditioning ingredients, namely vitamin B_5 (liquid form; also called DL Panthenol B5), silk amino acid, and honeyquat. These are basic conditioning ingredients. As you get more shampoo-making experience, you might want to add others as well or adjust these to fit your hair type better. You will also need a much lower cleansing number. Through trial and error, we finally worked out the best cleansing numbers for each hair type.

From the Soap Pot

It's important to use the liquid type of DL Panthenol B5 for the shampoo recipes. We've found the powdered form too tricky to work with and can cause the shampoo to separate.

These homemade shampoos aren't super fatted, so you'll need to follow with a good conditioning rinse. Don't worry—we give you a recipe later in this chapter!

Shampoo for Normal Hair

This shampoo has a cleansing of 2, which you might think is too low. It really isn't—remember, you can't super fat liquid soap. This recipe works very well cleansing normal hair and removing any buildup and pollution. This recipe yields 32 ounces (907.2 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	80
Super Fat %	–13
Castor oil	2 ounces (56.7 grams) (25%)
Coconut oil (76 degree)	.24 ounce (6.8 grams) (3%)
Avocado oil	.4 ounce (11.34 grams) (5%)
Olive oil	1.6 ounces (45.4 grams) (20%)
Hemp oil	.2 ounce (4.5 grams) (2%)
Palm oil	3.6 ounces (102.1 grams) (45%)
Distilled water (for lye)	6 ounces (170.1 grams)
Lye—potassium hydroxide	1.8 ounces (49.6 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Vitamin B_5	.3 ounce (8.5 grams) (1%)
Silk amino acid	.64 ounce (18.2 grams) (2%)
Honeyquat	1 ounce (28.4 grams) (3%)
Fragrance oil	.5 ounce (14.7 grams) (1.5%)

Here are the shampoo qualities:

Cleansing	2
Conditioning	69
Bubbly	25
Creamy	50
Iodine	70
INS	123

Always put on your gloves and safety glasses before you begin.

Follow the Basic Household and Laundry Soap instructions 1 through 9. Then follow the Basic Shower Gel instructions 1 through 8. You will add the conditioning ingredients just before you add the thickener.

Shampoo for Dry, Limp Hair

This recipe has a cleansing of 1 and increased additives to add more conditioning, and after using it, your hair will be more manageable and shiny. For extra shine and control, you could increase the honeyquat. You can also substitute shea butter for the cupuacu butter. This recipe yields 32 ounces (907.2 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces
Water as % of Oils	80
Super Fat %	–13
Castor oil	2 ounces (56.7 grams) (25%)
Coconut oil (76 degree)	.08 ounce (2.3 grams) (1%)
Avocado oil	.4 ounce (11.34 grams) (5%)
Olive oil	1.4 ounces (38.6 grams) (17%)
Hemp oil	.2 ounce (4.5 grams) (2%)
Cocoa butter	.24 ounce (6.8 grams) (3%)
Peach kernel oil	.2 ounce (4.5 grams) (2%)
Cupuacu butter	.24 ounce (6.8 grams) (3%)

Palm oil	3.4 ounces (95.3 grams) (42%)
Distilled water (for lye)	6 ounces (170.1 grams)
Lye—potassium hydroxide	1.7 ounces (49.2 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Vitamin B_5	.5 ounce (14.7 grams) (1.5%)
Silk amino acid	.64 ounce (18.2 grams) (2%)
Honeyquat	.64 ounces (18.2 grams) (2%)
Fragrance oil	.5 ounce (14.7 grams) (1.5%)

Here are the shampoo qualities:

Cleansing	1
Conditioning	69
Bubbly	24
Creamy	51
Iodine	70
INS	122

Follow the Basic Household and Laundry Soap instructions 1 through 9. Then follow the Basic Shower Gel instructions 1 through 8. You will add the conditioning ingredients just before you add the thickener.

Shampoo for Slightly Oily Hair

If your hair is only slightly oily, this is the perfect recipe for your type of hair. It has a little more cleansing than the normal hair shampoo but a lot lower cleansing than the oily hair shampoo. This recipe yields 32 ounces (907.2 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	80
Super Fat %	–13
Castor oil	2 ounces (56.7 grams) (25%)
Coconut oil (76 degree)	.4 ounce (11.34 grams) (5%)
Avocado oil	.4 ounce (11.34 grams) (5%)
Olive oil	1.6 ounces (45.4 grams) (20%)
Hemp oil	.2 ounce (4.5 grams) (2%)
Cocoa butter	.24 ounce (6.8 grams) (3%)
Palm oil	3.2 ounces (90.7 grams) (40%)
Distilled water (for lye)	6 ounces (170.1 grams)
Lye—potassium hydroxide	1.8 ounces (49.8 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Vitamin B_5	.3 ounce (8.5 grams) (1%)
Silk amino acid	.64 ounce (18.2 grams) (2%)
Honeyquat	.64 ounce (18.2 grams) (2%)
Fragrance oil	.5 ounce (14.7 grams) (1.5%)

Here are the shampoo qualities:

Cleansing	4
Conditioning	67
Bubbly	26
Creamy	49
Iodine	69
INS	126

Follow the Basic Household and Laundry Soap instructions 1 through 9. Then follow the Basic Shower Gel instructions 1 through 8. You will add the conditioning ingredients just before you add the thickener.

Shampoo for Oily Hair

This shampoo removes the excess oil, buildup, and pollution from your hair. Be sure to follow it with a light conditioner. This recipe yields 32 ounces (907.2 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	80
Super Fat %	–13
Castor oil	2 ounces (56.7 grams) (25%)
Coconut oil (76 degree)	.7 ounce (20.4 grams) (9%)
Cocoa butter	.4 ounce (11.3 grams) (5%)
Olive oil	1.6 ounces (45.4 grams) (20%)
Palm Oil	3.3 ounces (92.9 grams) (41%)
Distilled water (for lye)	6.4 ounces (181.4 grams)
Lye—potassium hydroxide	1.8 ounces (50.6 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Vitamin B_5	.3 ounce (8.5 grams) (1%)
Silk amino acid	.64 ounce (18.2 grams) (2%)
Honeyquat	.64 ounce (18.2 grams) (2%)
Fragrance oil	.5 ounce (14.7 grams) (1.5%)

Here are the shampoo qualities:

Cleansing	6
Conditioning	64
Bubbly	29

Creamy	50
Iodine	63
INS	135

Follow the Basic Household and Laundry Soap instructions 1 through 9. Then follow the Basic Shower Gel instructions 1 through 8. You will add the conditioning ingredients just before you add the thickener.

Conditioning Rinse

This is a very simple conditioner you can use on your hair after shampooing. It's easy to make and leaves your hair soft, easy to comb, and manageable. This recipe yields 32 ounces (907.2 grams; .945 liters).

Distilled water	28.8 ounces (816.5 grams) (90%)
BTMS Conditioning Emulsifier	1.6 ounces (45.4 grams) (5%)
Meadowfoam seed oil (or oil of choice)	1 ounce (28.4 grams) (3%)
Optiphen Plus preservative	.3 ounce (8.5 grams) (1%)
Fragrance oil	.3 ounce (8.5 grams) (1%)

1. Put a pitcher on the scale, zero out the weight of the pitcher, and weigh out 28.8 ounces (816.5 grams) distilled water.
2. In a medium stockpot set over medium-low heat, add the distilled water.
3. In separate small containers, weigh out the other ingredients. Set them aside for now.
4. When water reaches 180°F, add the BTMS Conditioning Emulsifier. When most of the BTMS has melted, use your immersion blender to bring about a good emulsion. This may take a minute or two.
5. Remove the pot from the heat, and add the oil. Again use your immersion blender to incorporate the oil.
6. Let soap cool to 110°F. Now add the preservative and fragrance oil. Use your immersion blender to incorporate the ingredients.
7. Let cool overnight. Bottle and use.

Making Other Useful Liquid Soaps

Now that you know how to make shower gel and shampoo, how about a few recipes for liquid hand and facial soaps? Your liquid hand soap will be antibacterial because you add an across-the-board preservative that preserves the soap and kills mold, fungus, and bacteria. We recommend Optiphen ND, but read about these preservative systems and make you own choice.

Liquid Hand Soap

The cleansing in this soap is high, making it suitable to use in the kitchen before and after you handle food. If you handle a lot of garlic or onions, try adding a coffee fragrance oil to help remove their odors from your hands. This recipe yields 32.5 ounces (921.4 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	75
Super Fat %	–13
Castor oil	2 ounces (56.7 grams) (25%)
Coconut oil (76 degree)	1.6 ounces (45.4 grams) (20%)
Olive oil	1.6 ounces (45.4 grams) (20%)
Palm oil	2.8 ounces (79.4 grams) (35%)
Distilled water	6 ounces (170.1 grams)
Lye—potassium hydroxide	1.8 ounces (52.3 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Optiphen ND Preservative	.3 ounce (8.5 grams) (1%)
Fragrance oil	.3 ounce (8.5 grams) (1%)

Here are the shampoo qualities:

Cleansing	14
Conditioning	60
Bubbly	36
Creamy	45
Iodine	59
INS	147

Safety First

This soap will burn if it gets in the eyes, so be careful to avoid the eye area. If soap does get in eyes, flush with lots of cool water.

Follow the instructions just like you did for making shower gels.

Liquid Facial Soap for Normal Skin

Handcrafted soaps, both bar and liquid, will completely dissolve all makeup, leaving your skin totally clean. Be sure to follow with by splashing your face with cool water to close your pores and add a light moisturizer. To add even more skin-loving benefits, use an essential oil blend that will best suit your skin needs. This recipe yields 32.5 ounces (921.4 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	75
Super Fat %	–13
Castor oil	2.8 ounces (79.4 grams) (35%)
Coconut oil (76 degree)	.4 ounce (11.3 grams) (5%)
Olive oil	2 ounces (56.7 grams) (25%)
Cocoa butter	.4 ounce (11.3 grams) (3%)
Palm oil	2.6 ounces (72.6 grams) (32%)
Distilled water	6 ounces (170.1 grams)
Lye—potassium hydroxide	1.8 ounces (52.3 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Optiphen ND preservative	.3 ounce (8.5 grams) (1%)
Fragrance oil	.3 ounce (8.5 grams) (1%)

Here are the shampoo qualities:

Cleansing	4
Conditioning	72
Bubbly	35
Creamy	54
Iodine	54
INS	124

Follow the instructions just like you did for making shower gels.

Liquid Facial Soap for Teenagers

For better results and clearer skin, use a single essential oil or make a blend from these oils: elemi, bay rum, bergamot, cedarwood, sandalwood, coriander, geranium, pink grapefruit, tangerine, yarrow, tea tree, patchouli, litsea, and juniper. You only need .3 ounce essential oil or blend. This recipe yields 32.5 ounces (921.4 grams; .945 liters).

Here's what to put in SoapCalc—remember to adjust the Type of Lye used, Weight of Oils, Water as % of Oils, and Super Fat % categories as instructed earlier in this chapter:

Weight of Oils	8 ounces (226.8 grams)
Water as % of Oils	75
Super Fat %	–13
Castor oil	2.0 ounces (56.7 grams) (25%)
Palm kernel oil	2.7 ounces (63.5 grams) (28%)

Olive oil	2.0 ounces (45.35 grams) (25%)
Sunflower oil (high oleic)	1.1 ounces (31.8 grams) (14%)
Shea butter	.64 ounce (18.1 grams) (8%)
Distilled water	6.4 ounces (181.4 grams)
Lye—potassium hydroxide	1.3 ounces (37.0 grams)

After the soap has been cooked:

Distilled water (for borax and dilution)	16 ounces (453.6 grams)
Borax	.5 ounce (14.7 grams) (1.5%)
HEC	.5 ounce (14.7 grams) (1.5%)
Optiphen ND preservative	.3 ounce (8.5 grams) (1%)
Essential oil	.3 ounce (8.5 grams) (1%)

Here are the shampoo qualities:

Cleansing	6
Conditioning	64
Combined lather	79
Iodine	63
INS	135

Follow the instructions just like you did for making shower gels.

The Least You Need to Know

- Even though making liquid soap is advanced soap-making, we've made it simple and easy!
- Throw out the store-bought laundry soap and make your own all-natural version—it's easier than you think!
- You will find so many uses for these homemade liquid soaps!
- Weigh twice, pour once: precise measurements are the key to perfect liquid soap.

Part 3 Getting Creative with Your Soap

Soap-making is so much more than just throwing together a bunch of oil, water, and lye. Soap-makers like to be very artistic and creative, making beautiful bars of soap. And why not, when you consider what amazing things you can do with a batch of soap! Don't limit yourself to plain white or one-color soap. Shakespeare said, "If music be the food of life, then play on." And we say, "Being creative in our craft brings so much color to the world."

Adding color, making swirls, and embedding objects are just some of the ways you can make your soap bars art and uniquely yours. In Part 3, we hope to inspire you and jump-start your creative side. Start with adding a colorant. Then try swirling color into the soap. Once you've mastered those steps, you can add embeds. Let your imagination run wild—and have fun!

Chapter 11

Coloring Your Soap

In This Chapter

- Types of colorants for your soap
- All about swirling
- Tips for marbleizing your soap
- Colorant cautions

When I (Sally) first met Zonella, she hardly used colorant in her soap. When she did, it was either one solid color in the bar or a tiny thin little vein of swirl. I, on the other hand, jumped right in and began swirls with two, three, or even four or more colors at a time. (Needless to say, I love color!) Slowly, as I rubbed off on her, Zonella has become a little more adventurous and is now making bolder swirls—even using *two* colors at a time!

When adding color to your soap, try to match the color to the fragrance. Or if you're in a creative mood, throw in a wild group of colors. Somehow it always works out as long as you don't overstir. You just have to take the bull by the horns and get in there and swirl. Don't be shy. This is where you can really be creative and show off a little.

In this chapter, you learn about the different colorants you can use and how to use them to do one or more color swirls. This is the fun part of soap-making—well, *one* of the many fun parts!

Types of Colorants

Many types of colorants on the market today are made for coloring soaps. Before you buy a soap colorant, be sure it's right for the type of soap you're making. Most liquid soap colorants tend to stay true to color in melt-and-pour soap but mutate in cold process or hot process soap. Some liquid colorants are specially made for the high-pH types of soap. Oxides stay true in any type of soap, and you can blend them together to make more colors.

In this chapter, we dig into all the different types of colorants, including spices and clays. Look around your kitchen, and you're sure to find some spices you can use to color your soap.

I blend my own oxides and soap-safe dyes to create many pastel, bright, and neon colors I call "Berry-Liscious." In addition, I also like Select Shades. You will have to try different ones until you find your favorite.

Liquid Colors

Liquid soap colorants are very convenient to use and less messy than some of the other types of colorants. You can find these colorants online or at many of your local supply stores.

One of my favorite brands, Select Shades, offers eight basic shades. Using their online color chart, you can easily create many colors. Some of their colors will mutate in cold and hot process soap. I found that out recently when I thought I was making a beautiful blue swirl through a white soap base with Cool Water for men as the fragrance. Within minutes of finishing my swirl, the beautiful blue swirl started turning pink! In the end, it had turned a pinkish-purple and no longer looked like a man's soap. It is the high pH of cold and hot process that causes this sort of color change. Still, these are really nice colorants and I use them for many projects.

Other liquid colors are just that—greens, yellows, blues, etc.—and you have to buy each color. From this type of colorants I've used the Peacock colors and enjoyed working with them. They are vivid and stay true to color. However, they can be expensive. Even though they are very concentrated, it takes more than a few drops to

have the vivid colors once the soap has saponified. It's also impossible to buy only one or two colors. They're so pretty, you'll want to buy every color available!

You can also use Peacock colorants in liquid soaps, lotions, and creams as well as in bar soaps.

Oxides for Colorants

Oxides are powder colorants, now made in a lab for sanitary reasons, but they are exactly duplicated from the natural oxides that were once mined from the earth. Micas and oxides are the only colorants approved by the FDA. Even though the oxides are messy, they're what I use most of the time. I can blend them with white titanium dioxide (TD) to lighten the color to a pastel or add a touch of black to make the color darker. You can even mix together colors to make even more colors. The possibilities are endless.

Oxides stay pretty true to color no matter what type of product they're used in. Mineral makeup is made with the very same oxides and micas you'll use in soap. The use rate for oxide colorants is about 1 teaspoon (5 ml) per pound of soap.

You can also find soap-safe neon colorants. Like oxides, these neon colors don't change and are also in a powder form.

Once you've chosen or blended the color you want, you have to "wet" the oxide with glycerin or some of the oil from your soap batch so the oxide dissolves before you add it to your soap batch or add the soap for coloring to the oxide. If you skip that step, you'll have little clumps of color in your soap instead of even color throughout. The colors in the final soap stay pretty true to what you see while you're making the soap.

You can use oxides in liquid soap, bar soap, lotions, creams, and types of makeup.

Micas

Micas are also a powder, now being made in labs for sanitary reasons, and are exact duplicates from the natural mica that was once mined from the earth. They come in beautiful colors, but they don't do well in cold process, hot process, or liquid soap because the high pH causes the mica to morph in color and lose its sparkle.

From the Soap Pot

For more information on making your own makeup, check out our companion book, *The Complete Idiot's Guide to Making Natural Beauty Products* (Alpha Books, 2010).

Micas do work well in most melt-and-pour soaps as well as in lotions, creams, and other bath and body products. Micas are also used in mineral makeup for lipsticks, blush, and eye shadows among many other products.

Natural Colorants

Many natural cosmetic-grade clays can be used for coloring your soaps while adding extra benefits for the skin. Clays are available in yellow, green, red, rose, white, pink, and coral, just to mention a few. But did you know you can also go to your spice cabinet and find many useful colorants?

Color	Colorants
White	Titanium dioxide, kaolin clay
Yellow	Ground calendula petals, curry powder, safflower, turmeric (gold), saffron
Yellow-orange	Annatto seed (steep in oil first), carrots (shredded or ground), pumpkin (puréed)
Green	Alfalfa (medium), chlorophyll, cucumber, henna (ground), kelp/seaweed, sage, spinach
Blue-green	Spirulina
Blue	Indigo root (can stain), poppy seeds (blue-gray to dark specks)
Red	Moroccan red clay, rose pink clay, cochineal powder, madder root (rosy red-purple)
Purple	Alkanet (steep in oil first), rattan jot (lavender to purple)
Tan to brown	Coffee/coffee grinds, cocoa powder, cinnamon (can irritate), cloves, comfrey root, milk, rosehip seeds

Safety First

Do not use crayons to color your soap. Use only colorants approved for use in soap, or use natural ingredients such as cocoa powder.

For a solid-colored batch of soap, you can add the colorant to the oils after you've removed them from the heat. There's no real rule to follow for how much to use. It all depends on the size of your batch, the colorant you're using, and how intense or light you want the finial color to be. For most colorants, it's 1 teaspoon per 1 pound of soap. You'll have to add it to the oils and see if that's enough color for what you want.

Keep in mind, too, that the color will be lighter after you've added the lye/water to the oils.

The Basics of Swirling

This is the fun part. You can be very colorful and swirl four or five colors or be more conservative and swirl only one or maybe two. Be creative and have fun, no matter how many colors you choose.

To create beautiful swirls, you must be quick and light-handed. Overdoing it will only make a mess.

Once you've chosen your colorant, you'll want to have it ready for when the soap comes to light trace. You won't have time at that point to measure out the colorant or anything else, so do it ahead of time. The soap continues to set up even though you've stopped stirring or blending it.

The next thing you'll have to decide is how you're going to swirl—in the pot or in the mold. I like both ways, but if I'm using more than one color, I use the in-the-mold method. Swirling in the mold gives you time to drag the color into designs.

If you're going to swirl in the mold, you'll need a "swirling tool." I use a dowel rod about the size of a pencil, cut to 12 to 18 inches long. Some people use a small spatula, while others use stainless-steel forks. Use what works best for you and gives you the effect you're looking for.

Safety First

As always, before you begin, be sure to put on your safety glasses and latex gloves.

The Blind Swirl

Even a soap that will turn dark because of the fragrance oil can be swirled. We call this a *blind swirl*. To do this type of swirl, you use titanium dioxide (TD) or kaolin clay.

When you reach light trace, before you add the fragrance, remove about a third of the soap base and pour it into a big measuring cup that already has the dissolved TD or clay in it. Stir the colorant into the soap.

You'll need to use around 2 teaspoons TD or clay per 1 cup soap base, depending on how dark the fragrance will turn the soap. The more vanilla there is in a fragrance, the darker the soap will be.

The In-the-Pot Swirl

For this method, remove the amount of soap to be colored and stir in the colorant well. Next, add the fragrance to the base soap in the pot and stir until the fragrance is well incorporated into the soap base.

Next, pour the soap into the pot and give it a light, quick stir. Don't overdo it! Then slowly pour your soap into your mold.

As the soap cures, the uncolored part will start to darken, and your white soap swirls will become more visible. This method works beautifully with any color, not just with a blind swirl.

The In-the-Mold Swirl

For this method, you pour the soap base into the mold. Holding your hand above the mold and raising it higher and lower as you pour, dribble and trickle the soap using a grid pattern or any sort of pattern you choose. Then, drag your swirling tool through the soap, making whatever design you like.

Again, don't overdo this. The less you mess with it, the better your swirl will turn out.

The White-on-White Swirl

You can also swirl your white-colored soap into the base to create a beautiful white-on-white soap bar. Bars of soap are never really white (unless you use TD to make it so); they're more of a whitish-cream color, so doing this swirl makes a really pretty bar of soap.

You can also do this same type of swirl with soap that doesn't discolor or only slightly discolors.

Swirling Your Soap

Now let's get down to business—and have some fun!

Before you even start your soap batch, decide on your color (or colors). I usually try to match the colors with the name of the fragrance. Then you can prepare the colorant and have it ready and waiting in a container (I like to use a 4-cup measuring cup for

this) to add to the soap later. Have your mold already lined and close by. You'll have to work quickly before the soap sets up and becomes hard.

Here's what to do:

1. In a large measuring cup, add about 1 or 2 teaspoons of colorant. If your colorant is a powder, you'll need to wet it, either with glycerin or the oil from your soap batch. You don't need a lot, just enough to cover the powder well. Let it sit a minute and then stir it well, making sure it has all dissolved.
2. Add the lye/water to the oils and, using an immersion blender, blend until the soap base reaches light trace.
3. Remove a quarter to a third of the soap base, and add it to the prepared colorant. Stir well, making sure all the soap is evenly colored.
4. Now add the fragrance oil and hand-stir until it's blended.
5. You have to work quickly now. Pour the colored soap into the pot, and give it a quick stir. Don't overdo it!
6. Gently pour the soap into the mold. Cover with wax paper, and leave for 48 hours.

Some people like to use a wooden lid for their mold. That's fine, but you'll still need to cover the soap with waxed paper before you place the lid on top.

Swirling in the Mold

Prepare your mold and colorant just like you would do if you were going to swirl in the pot. (See steps 1 through 3 from the "Swirling Your Soap" section.) Then continue:

4. Add the fragrance to the soap base still in the pot. Hand-stir, and when it's totally incorporated, pour the base soap into the mold.
5. Holding your hand at different heights above the base, pour or drizzle the colored soap into the base soap, making a design or a grid.
6. Using your swirling tool or a stainless-steel fork, drag the colored soap through the soap base, making a nice design as you go. Once again, don't overdo this or you may end up with a mess. Keep it light and feathery.

7. Cover with waxed paper, and leave for 48 hours.

This is the hardest part, but no peeking! The finished product will be worth the wait.

Swirling Two Colors

To be able to swirl two or more colors, the soap batch has to be at least a 3-pound (1020.6-gram) batch. The larger the soap batch, the prettier a two- or more-color swirl will be. Color combinations can be as simple as two soft pastels or two bright neon colorants.

To swirl, follow the same directions as for a single-color swirl. But instead of removing 1½ to 2 cups (340.2 to 453.6 grams) of soap from the base, remove 3 or 4 cups (680.4 to 907.2 grams) and divide it between two measuring cups that already contain the colorants. You don't have to pour the colored soap into the mold with one cup in each hand, although it is fun to do it that way. You could also use a ladle to scoop.

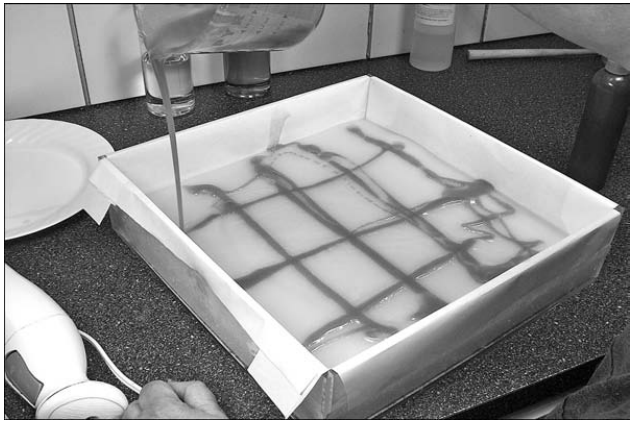
Remember, for swirling in the mold, to hold the measuring cup at different heights while pouring, so the colored soap will go all the way through the base soap in the mold.

Marbleizing

Marbleizing is an in-the-mold swirl. You can use one color or two, but we don't recommend doing more than that, or you could easily end up with an ugly mess.

To marbleize your soap, you'll pour the base into the mold. With your colored soap ready, start pouring in even lines lengthwise with 1 or 2 inches of space between the

lines. Next, pour even lines going across your mold, perpendicular to your first lines. Sometimes you can use a second color for these lines.



After you've poured your grid of color, start dragging your swirling tool down the lines lengthwise. Do the same with the lines going horizontally. Now make a few circles, dragging both colors.

When you're satisfied with your design, cover with waxed paper and leave it 48 hours.

Pitfalls to Avoid

Now that we've learned what to do when coloring soap, let's look at what *not* to do. Working with oxides can create beautiful swirls and colors for your soaps. However, using too much oxide can cause a few problems.

For example, black can stain washcloths if you use too much, so don't use it heavily. Black oxide would be better to use as an accent color instead of as the main color swirl, unless you do the swirl as a thin line.

The next potential troublemaker is red oxide. Red is one of my favorite colors, but I learned a valuable lesson about using too much of it when I made a special batch of soap for my husband. He grew up in London during the 1960s, so for his birthday one year, I decided to make a batch of soap and color it with a paisley design in his favorite fragrance oil, sandalwood. Sandalwood turns the soap medium-dark brown, which makes a perfect background color for English paisleys. The fragrance was not one that speeds trace, but to be sure I'd have enough time to create my her design, I added 2 ounces (56.7 grams) extra water and increased the olive oil in the recipe.

For the design I used red oxide, blue ultramarine, yellow oxide, green oxide, orange oxide, and black oxide. I wanted the red to stand out and help make the paisley design more visible, so I used a little extra red oxide. That was my mistake. After I had completed the swirl, I was very pleased with how it looked. You could actually see the paisleys!

When the time came to cut the soap, I couldn't wait any longer to show it to my husband. He was very impressed with my artistic talent, and grabbed one of the paisley soap bars and headed to the shower. And that's when I learned a valuable lesson: too much red oxide can be a problem.

When the bar of soap got really wet in the shower, the red oxide turned loose and turned the water a bright red, just like blood. At first he thought he'd cut himself. But it was just the red oxide. Let this be a lesson, and make a note not to overdo the red oxide. It can cause a panic!

A few months later, I gave a bar of that same soap to our friend KC, but this time, I warned him the water might turn red due to the red oxide. Sure enough, even after months of curing, the shower water turned bright red when it hit the soap.

No matter how long you let the bar cure, if you have used too much red oxide, you'll have a "bloody" mess! So use about half of the red oxide you'd normally use to color the soap. Or don't, and watch the panic ensue!

The Least You Need to Know

- Making pretty swirled designs in your soap is easy once you know the basics.
- There's no magic involved in coloring soap. But there are things to keep in mind.
- By using colorants and a little imagination, you can turn your bars of soap into small works of art!

Chapter 12

Taking Your Soap to the Next Level

In This Chapter

- Making layers in your soap
- Having fun with cutouts, curls, and confetti
- Adding pizzazz with plaids

We've said it before, but it bears repeating: experiment with soap-making. Try different colors. Play with new techniques. Go online and visit soap-maker groups and websites. All the things being done with soap these days are pretty amazing. Soap-makers have been pushing the creative envelope and the results are stunning.

In this chapter, we give you a few ideas and techniques so you can begin to think creatively and really see what you can do with your soaps.

Making Layered Soap

When I pour my cold process soap in layers, I usually make three different layers using three colors and three scents. I also use a log mold to show off the layers.

To make the three different batches of soap, you have to adjust the original recipe. First, divide the amount of total oils by 3. Then, use SoapCalc to formulate the ⅓ recipe you'll use to make all three layers.

My log mold's total weight of oils is 54 ounces (1,530.9 grams). So dividing 54 by 3, that means each of the three layers' total weight of oils is 18 ounces (510.3 grams).

After you've lined your mold, you make each layer one right after the other. You want the soap you just poured into the mold to become hard before you pour in the next layer, but you don't want it to go into gel stage before you've finished pouring all three layers.

From the Soap Pot

The usual use amount of oxides is 1 teaspoon (5 milliliters) per pound of soap but when you are doing a blind swirl you increase the amount of titanium dioxide so that the swirled (white) soap stays very white.

Let's see how this all works with our Coffee Mocha Delight cold process soap.

Coffee Mocha Delight

You'll make three batches of soap for this recipe, each one a different color and fragrance. We start out with a blind swirl, a white/creamy color layer with a vanilla fragrance. To this layer you'll add 2 teaspoons (10 milliliters) to 1 tablespoon (15 milliliters) titanium dioxide (TD) and remove 1 cup (237 milliliters) soap before you mix in the fragrance oil to keep the soap from going dark. The second layer will be a dark chocolate-brown color with chocolate fragrance oil. The third layer will be white/cream with a chocolate color swirl and a coffee fragrance.

Here's what to put in SoapCalc:

Weight of Oils	18 ounces
Water as % of Oils	38
Super Fat %	5
Fragrance Oz per Lb	.7 ounce
Distilled water	6.8 ounces (193.9 grams)
Lye—sodium hydroxide	2.4 ounces (66.7 grams)

Cocoa butter	1.3 ounces (35.2 grams) (7%)
Peach kernel oil	1.8 ounces (51 grams) (10%)
Coconut oil	2 ounces (56.1 grams) (11%)
Olive oil	2.7 ounces (76.5 grams) (15%)
Castor oil	3.6 ounces (102.1 grams) (20%)
Palm oil	6.7 ounces (188.8 grams) (37%)
Fragrance oil	1.1 ounces (31.2 grams) (.7 ppo)

Here are the soap qualities:

Hardness	35
Cleansing	8
Conditioning	63
Bubbly	26
Creamy	45
Iodine	64
INS	136

From the Soap Pot

To keep cocoa butter from becoming grainy when you're melting it, don't melt it all the way. When the butter is just about totally melted, remove it from the stove or microwave and hand-stir it until it has finished melting. You can also save cool-down time for your batch of oils by melting the cocoa butter before you add it to the pot of oils. You won't have to get your oils as hot over the burner because it takes longer to melt cocoa butter than most of the other hard oils.

Always put on your gloves and safety glasses before you begin.

1. Weigh all three amounts of water, and have each amount in its own pitcher.
2. Do the same with the sodium hydroxide.
3. Slowly add the lye to the water for each batch. Stir each one until the lye has dissolved. Set them aside to cool.
4. Next, weigh the oils, each in its own pot.

5. Weigh the cocoa butter, and melt it in the microwave set on low power so it doesn't burn. Do this with each batch of butter, and pour into the pots with the oils. Or you can melt it on your stove top over low heat. Don't let the cocoa butter totally melt over the heat. Remove it from either the microwave or stove top before it has totally melted. It will continue melting while you stir it.
6. Weigh the rest of your oils and pour them into the pots. Give each pot a stir, and set them aside for now.
7. In a small measuring cup or other glass container, weigh the three fragrance oils. You'll need 1.1 ounces (31.2 grams) each of vanilla, chocolate or mocha, and coffee fragrance oils.
8. Line your mold with freezer paper (shiny side up), following the directions in Chapter 5. If you're using a plastic tray mold, you don't need to line it.

When the lye has cooled down to about 90°F, it's time to put together the soap.

Here's how to make the first layer:

1. In a measuring cup, add 1 tablespoon (15 milliliters) TD and about 3 tablespoons (45 milliliters) oil from your soap pot or glycerin. Stir and let the oxide dissolve.
2. Slowly pour one pitcher of lye/water solution into one pot of soap oils. Use an immersion blender to incorporate the lye and the oils. Just as you see the soap base is starting to thicken, remove about 1½ cups of the base and add it to the TD in the measuring cup. Using a small stainless-steel or plastic spoon, stir the soap until the colorant is spread evenly.
3. Working quickly, add the fragrance oil to the soap base in the pot. Hand-stir until all the fragrance is incorporated.
4. Pour the colored soap back into the pot. Give it a quick stir—don't overdo it—and pour the first layer of your soap into the mold. Don't worry that you can't see the color right now. Over the next week or two, the vanilla fragrance will darken the soap that doesn't have the TD and create a strikingly beautiful layer. Leave the mold to stand and let this first layer harden enough for the next layer. By the time you're ready to pour the next layer, this layer should be firm enough to support it.

Soap Stats

Fragrance oil with vanilla in the formula always turns the soap from tan to a dark brown, depending on the vanilla content.

5. Again using a measuring cup, add 1 heaping teaspoon dark-brown oxide mixed with a pinch of black oxide or cocoa powder and 3 tablespoons soap oil or glycerin. Stir until it dissolves.
6. As in step 2, slowly pour the lye into the oils. Blend with the immersion blender until the soap base begins to thicken. Remove about 1½ cups soap and add it to the oxide or cocoa powder. Stir well until the soap base is evenly colored.
7. Repeat steps 3 and 4. This time, stir in the colorant to color all the base soap and use the chocolate or mocha fragrance oil.
8. Gently touch the top of the first layer to be sure it's hard enough to support the second layer. If it is, pour in the second layer.
9. For the third layer, repeat steps 1 through 4. Use 1 teaspoon dark-brown oxide or cocoa powder to color about 1½ cups soap base. The fragrance for this layer is coffee. Before you pour the colored soap back into the pot, add 2 teaspoons TD, already dissolved in oil, into the soap base so it stays white/cream color. Then add your coffee fragrance and stir well. After you've stirred the color evenly into the soap base in the measuring, pour it back into the pot. Quickly stir and then pour it on top of the second layer.
10. Cover top of soap with waxed paper, and leave it for 48 hours.

There's no end to the layers and colorants you can do. Be creative and try different methods. The base soap recipe can work with any colorants or fragrance oils you want to use. And you're not limited to always making three layers. Do however many you want!

From the Soap Pot

Even coffee fragrance oil may contain some vanilla. When making the Coffee Mocha Delight soap, add some titanium dioxide to the soap base to keep it white/creamy in color. If you don't want to swirl the top layer, you could use a little ground coffee, already brewed and removed from the filter, in the layer for a speckled effect.

Making Cold Process Embeds

Embeds are shapes and pieces of cold process soap and other items you can insert into a larger soap batch. You can arrange them so you have one in each bar of soap or many scattered throughout the mold. With melt-and-pour (M&P) soap, you can

embed cutout shapes made with M&P soap or even embed small toys to amuse your children. You can use hot process soap to make embeds, but it becomes brittle and hard, and that makes it difficult to cut shapes out of. Cold process soap is still soft enough when it comes out of the mold for you to easily cut shapes. You can cut shapes with a knife and cut the shapes freehand or use small cookie cutters. It's fun to do and adds art and interest to the soap bars.

To make cold process embeds, you need either a box or a log mold. Line the mold, and make a small 1- or 2-pound batch of soap. Don't use a water discount for the soap batch. Instead, use full water so you can cut the soap easily. Color it or not—it's up to you and what you want to create. Using a log mold for this project will show off the soap layers better when it's cut into bars.

Sometimes I cut the soap into strips or shapes using a cheese slicer and then a knife to cut the strips. Other times I use small cookie cutters to cut hearts, doves, or trees. The possibilities are endless. Be creative and let your imagination go! For Valentine's Day, for example, you could make X's and O's for hugs and kisses and embed them in a soap fragranced with a duplication of your favorite perfume.

From the Soap Pot

Once cold process soap has already been through saponification, it won't be effected when it's used as an embed in a freshly poured batch of cold process soap going through its saponification. It will not melt or change. On the other hand, I've used M&P soap for embeds in cold process soap and had mixed results. Some worked well when the mold was simply left on the counter to saponify, but when I used the oven to speed up the saponification, the heat melted the M&P embeds. Lesson learned.

Making Cutouts

If you're going to go the cookie cutter route, you won't want to pour the soap thicker than the height of the cookie cutter.

Once you've made, colored, and poured your soap, let it go through saponification. Then remove the soap from the mold.

For the next part you'll want to have on latex gloves in case the lye is still active.

While the soap is still soft, cut out the shapes and gently move them to a cookie sheet for drying and hardening. Give them a day or two before you insert them in a batch of soap.

Making Curls

Curls are made the same as cutouts, but you'll use a long box or a log mold and pour the soap only about ¼ or ½ inch thick. After the soap has gone through the gel stage and has cooled down enough to handle—but is still warm—you'll make your curls.

With gloves on, cut strips the height of the soap or soap layer you're going to use the curls in. Gently bend the strips of soap around a pencil to help curl it. Set the soap curl on a cookie sheet to dry and harden. Continue to do this until you have as many curls as you need. Let them harden for a couple days before use.

Making Plaids

For plaids, you'll follow the same directions as for cutouts and curls, but instead of cutting the strips the height of the soap bars, cut them in thinner strips so you can lay out a plaid or checked pattern. The strips should be as thin as you can make them. Try for about ⅛ inch thick. Repeat the layer at least three or four times so you achieve a nice plaid pattern in the soap.

The first layer will be short pieces the width of the mold. Lay these pieces all the way down the mold. The second layer will be the long pieces going the length of the mold. Repeat this until the mold is full. Then gently pour in your soap base. Cover and wait 48 hours before removing from the mold.

You can also make plaid melt-and-pour (M&P) embeds this same way.

Making Confetti

Soap confetti is very simple to make. Just cut up a few bars of different-color soap into tiny pieces, and throw them into the soap batch just before you pour the soap into the mold.

Making Stained-Glass M&P Pieces

The addition of stained-glass M&P pieces makes a striking bar of soap. And they're easy to do.

Melt a couple ounces of clear M&P soap base, coloring each one with a bright liquid colorant. Pour a thin layer of one color into one container. Wait about 5 to 10 minutes for the soap to set up and then remove it and cut it into pieces—squares, diamonds, or whatever shape you want. Repeat this until you have all the colors you want to use.

After you've made your CP soap and are ready to pour it into the mold, add your stained-glass pieces and stir. Pour the soap into the mold, cover, and let set for 48 hours.

One of my favorite soap batches contained stained-glass pieces. I made bright green, red, bright blue, and orange M&P pieces, all fragranced with lemon fragrance oil. I then made CP soap and colored it a light sun yellow, also using lemon fragrance oil. I threw all the different-colored M&P pieces into the soap, stirred them around, and poured the batch into the mold. When the bars were cut, the stained-glass pieces made a very colorful and lovely bar of soap. (See Chapter 13 for lots more on M&P soap.)

Tips for Laying Embeds in the Mold

For certain effects, you may have to choose between using a flat slab mold or a log mold.

With the slab mold, you need to mark where the cut lines for the bars will be so you can center the embeds properly. Having a slab mold that already has slits in the wood for the knife makes it a lot easier to see where the cuts will be. Otherwise, you can use a ruler and mark the cut lines on the sides of the mold. Then use string and make the grid, taping the string to each side of the mold exactly where the soap will be cut. When it comes time to pour your soap into the mold, be very careful not to pour it on the strings. It's best to pour at light traces. From that point on, you have to work quickly to get all your embeds placed in the mold before the soap sets up and becomes too hard.

With log molds, you cut the soap bars from the end and make slices—like cutting butter into patties. You start by pouring the soap at medium trace so it can support the weight of the embeds. If you pour at light trace, most of, if not all, the embeds will sink to the bottom of the mold. So to avoid this, pour some of the soap base and then sprinkle or layer the embed pieces, depending on the effect you're going for. Then continue pouring, sprinkling, and pouring again until the mold is full.

The Least You Need to Know

- Love striped soap? It's easier to make than you might think. You can even make plaid soap.
- Adding embeds enables you to personalize your soaps to fit whatever décor you have.
- You can make beautiful soaps with special occasion or holiday embeds. These are great to give as gifts!

Chapter 13

Fun with Melt-and-Pour Soap

In This Chapter

- All about melt-and-pour soap
- Finding and using molds
- Tips for coloring and scenting melt-and-pour soap
- Fun projects for melt-and-pour soap

If you've not worked (or played!) with melt-and-pour (M&P) soap yet, what are you waiting for? There are many things you can do with M&P soap such as pouring a layer of M&P soap on top of hot process soap for a dramatic effect. I once saw a very pretty bar of soap that had, as the bottom layer, a cold process soap, topped with a layer of hot process soap, and on top of that had a third layer of M&P soap. You can add colored pieces of M&P cold process soap to make an interesting stained-glass look, as we did in Chapter 12 with cold process soap.

Many soap-makers use M&P to create embeds, or add-in pieces, for their cold or hot process soap bars. Because M&P soap is already a finished soap, it's not affected by saponification when added as embeds to cold or hot

process soap. The only thing you can't do when you have M&P embeds in cold process soap is to place the mold in an oven for the gel stage. The soap will get too hot and melt the embeds. Just leave the mold on a counter or in the refrigerator and let the soap go through gel stage normally.

M&P is also kid-friendly. Because there's no lye involved, under parental supervision children can enjoy making fun soapy projects. Bath time is a lot more fun when they get to use a soap they helped to make!

The Basics of M&P Soap

M&P soap is what it sounds like: you *melt* it and then *pour* it into a mold. It sets up quickly, doesn't need a cure time, and is ready to use as soon as it comes out of the mold. Easy, fast, and artsy!

Many types of bases are sold for M&P soap, from clear to opaque. Some bases have shea butter, and others contain olive oil and aloe. You can even buy goat milk M&P. Read the label ingredients and decide which type you'd like to use. A brand called SFI(c) seems to be the favorite among serious M&P soap-makers.

Soap Stats

Many M&P soap bases aren't soap at all but made with detergent. Some don't even have real glycerin in the base.

There are several ways to melt the soap base, including in your microwave oven. Set the power to medium, and use short cook times until the base has melted—try 30-second bursts at 50 percent power. You might have to heat it a few times until the base is completely melted. Be careful not to let the soap base boil, though. Boiling can cause the soap to become brittle and prone to cracking.

The favored method for melting the soap base is in a double boiler with the lid covering the pot with the soap over medium-low heat. Again, don't let the soap base come to a boil.

Either method you use for melting your base is fine. You won't need to stir the soap, but you might want to push the clumps around to help them melt.

M&P Soap Molds

You can use many different containers as a mold for your M&P soap—the commercial plastic or silicone molds work fine, too, of course. Plastic food storage containers, PVC pipe, plastic candy molds, tart molds, and even empty, clean food containers

work. There are also sprays that help the soap release more easily from the molds, or you can use a vegetable spray like PAM.

Plastic molds are cheap and easy to work with. But don't grab any old plastic mold. Be sure you have a thick plastic mold made for soap. Many use plastic candy molds, but after a few uses, these molds start cracking and leaking. Some tray molds make eight 4-ounce (113.4-gram) or single soap molds.

Another option is a 3-D mold. Go online and look at all the beautiful 3-D silicone molds available. (We've listed a few websites for these molds in Appendix D.)

Soap Stats

I once used a 3-D silicone mold of an angel on a soap bar. I poured the angel with white M&P. Once that part had set up, I melted more of the white M&P base, added pink colorant, and then poured the "bar" part of the mold. Once it was set, I carefully removed the soap. Using a silvery white mica called Sparks and an eye shadow brush, I dusted the angel with the mica. This enhanced all the details of the angel and made a beautiful bar of soap.

M&P Colorants, Additives, and Scents

You can use any colorant designed for soap in M&P soaps. Cosmetic-grade oxide and micas are also safe for coloring M&P soap.

You can use liquid soap colorants, but be sure they're soap-safe before adding to the M&P base. It only takes a drop or two to color the soap. Because M&P soap base is already a completed soap, what you see is what you get.

Many beautiful oxides and micas are available to color M&P soap. They come as a dry powder, so you'll need to wet the oxide or mica with a little oil or glycerin before you add it to the M&P soap base. It only takes a little colorant to color this type of soap.

Safety First

Please do not use crayons for coloring M&P soap. They are not intended for this purpose.

You can also use the oxides and/or micas dry and rub them on the soap after it has come out of the soap mold. Use your finger or a makeup brush to rub the micas onto the soap, or for more detailed work, try a thin paintbrush or an eyeliner brush.

You can also use natural herbs, ground spices, and cosmetic clays listed in Chapter 11 to add color to your M&P soap. Additives such as shea or cocoa butter are wonderful additions, too. Oatmeal ground to a very fine powder is a nice additive for a facial bar. It will help to gently exfoliate the skin.

Chamomile and calendula are the only dried flowers that will retain their color when added to the M&P soap. All other dried flowers will turn brown and yucky.

Start by using 1 teaspoon of your chosen additive per 1 pound of soap. If that's not enough, you can increase the amount, but don't use more than 1 tablespoon per pound.

With all skin- and soap-safe fragrance and essential oils, the recommended amount to use is 1 to 3 percent per pound. We've found that you use less with M&P than you do with cold or hot process soap. Add the scent just before you pour the soap into the mold. If you're only making one bar of soap at a time, use ¼ teaspoon (1.25 milliliters) of fragrance. Any more than that will be too strong.

Fun M&P Projects

You can make many fun projects with M&P soap base. Let your imagination run wild! Following are a few fun projects to get you started.

Making Soap Paints

For fun soap projects, you may want to make your own soap paints. This is very easy to do using micas, and the colors look beautiful and bright.

Here's what you need:

- Clear or light liquid dish soap
- Clear M&P soap base
- Mica or oxide colors
- Glycerin
- Alcohol (This helps the paint dry after you've painted with it.)

Make very small amounts of paint at a time so it doesn't dry out.

Start with 1 tablespoon (15 milliliters) liquid dish soap (or our Basic Household and Laundry Soap from Chapter 10!). Add 1 teaspoon (1.25 milliliters) glycerin and ½ to 1 teaspoon (2.5 to 5 milliliters) alcohol, and stir until well blended. Add a very small amount of the mica or oxide at a time, and stir until the colorant has evenly colored the base. If that's not enough color, add a little more until you reach the desired shade.

Use a paint brush to apply the paint to your soap. And for a little more pizzazz in your soap paint, add a little very fine glitter to the paint.

Making Soap Bar Embeds

Making embeds is fun and easy. You can make strips or even cut out shapes to put in soap you make later. Small cookie cutters are great to use for making embeds. Let your creative side loose and have some fun!

Choose your design and decide what color you want it to be. Melt and color your M&P soap base. Pour the soap into a small container until it's ¼ inch to ½ inch deep. Let the soap sit for about 5 minutes. Remove and, using the cookie cutters or a knife and template, cut out your shapes. You can now start making your soap bars.

To make a geometric design with M&P soap base, pour the cutouts as thick as the bar of soap will be so your design will be all the way through the soap bar. Most bars of soap are 1 to 1¼ inch thick, so pour the soap base for your cutout shapes accordingly. It will take more time for the thicker soap to set.

Safety First

Don't let the soap become so hard that it's too brittle to cut into the geometric shapes. As soon as it feels firm to the touch, you can begin cutting your shapes.

When it's time to add the M&P shapes to your soap, line a 5×6-inch mold. This mold will make four bars of soap, each 3 inches long, 2½ inches wide, and 1 to 1¼ inches thick.

Using a ruler, make marks on the box showing the bar's width and length. On the outside of the box, mark your pour-to line of 1 or 1½ inches. This will help you when you place your cutouts and tell you how full to fill the box with your remaining soap.

So you'll know how much base soap you need, weigh your cutouts. The 5×6-inch mold holds 26 ounces (737.1 grams) of soap and makes four 6.5-ounce (104.3-gram) bars. Subtract the weight of your cutouts from 26 ounces (737.1 grams) to determine how much soap base you need to fill the rest of the mold.

Carefully place your embed shapes in the mold and create your design. Then melt, color, and scent the remaining soap. Pour the base soap slowly and carefully around the cutout shapes, being careful not to disturb them. Set the mold aside and allow the soap to harden.

When the soap has hardened, remove it from the mold. Using a ruler, mark the cut lines and cut the bars.

Making Soapy Bath-Time Crayons

Children love to draw, and what could be more fun at bath time than to wash and draw in the tub with their own soapy crayons? Your kids (or grandkids) can use the soapy crayons to draw on the tile and tub. But never fear!—it washes right off with just a wipe of a rag.

You can buy premade crayon molds online or simply buy trays for making the long, thin ice cubes for sports-drink bottles. They are about 4 inches long and .5 inch around, and each tray makes 8 cubes—or in this case, soapy crayons.

Liquid colorants work best for this project. Sally uses red, blue, yellow, pink, green, and purple. You'll need about ⅛ teaspoon (0.625 milliliter) of colorant per soapy crayon.

Using a paper towel, lightly coat the inside of the molds with Vaseline. Mix the colorant in the M&P soap base, and pour it into one cylinder of the ice tray. Do this with each color and then let the soap set.

When it's time to remove the soap, you may need to put it in the freezer for 15 minutes so it will retract from the sides of the ice cube tray. When you've removed all the soapy crayons from the mold, use a large pencil sharpener to sharpen one end.

Making Dipping Petals

These one-time-use soaps for hand-washing are a fun and popular item at weddings and parties—and they're very simple to make.

Start with silk rose or other flower petals. Some people also buy silk leaves for festive fall fun. You'll also need to find something to dry the dipped petals on. Or you can hang the petals, lay them out one at a time on a wire screen, or lay them out on waxed paper. Whichever you chose will be fine.

For this project you will need these:

- Clear M&P soap base
- Silk petals or leaves
- Fragrance oil
- Tweezers (to hold petal when dipping)
- Drying rack or waxed paper

Melt the soap base either on the stove in a double boiler or in the microwave set on 50 percent power. When the soap is melted, add the fragrance.

Using your tweezers, hold a petal by the tip and gently dip it into the soap base. Hold it over the soap container for a second so any extra soap can drip off the petal. Lay the petal out on the rack or paper and allow to dry. This only takes a few minutes. You can reheat the soap base whenever needed.

Keep these petals in a small, pretty dish beside the bathroom sink. Use one petal to wash your hands and then throw away the petal.

Final Thoughts

You can color and mold M&P soap to look like just about anything you can think of. It's easy to work with and can be used as soon as the soap comes out of the mold, with no wait time like with the lye methods. This chapter offered just a few of the many things you can do with M&P soap. The rest is up to you.

If you've read this book chapter by chapter, you should have a good foundation for becoming a great soap-maker. We've given you the main methods to make soap, many of our favorite recipes, as well as information we've learned from experience and experimenting. Don't be afraid to experiment and see what happens. Sometimes it's great, and sometimes it's not. We still have failures, even with all our experience, but that's just life and we make our notes and go on to make the next batch. Don't let a failed soap batch discourage you from trying again. The mistakes teach us the most and make the successes that much sweeter.

As we close this book, we'd like to say that it's been a pleasure and a privilege to share our combined knowledge of soap-making with you. We hope you'll enjoy making and using your own handcrafted soap for many years to come.

The Least You Need to Know

- Just about anything can be a mold for M&P soap. Use your imagination and see what you can come up with!
- M&P soap is kid-friendly, so let them join in the fun.
- Another bonus of M&P soap: there's no waiting or cure time—you can use it right away.

Appendix A

Glossary

additive A substance that's added to soap, such as herbs, honey, milk, colorants, fragrance, salt, or sugar. Anything other than oils, butter, water, and lye is an additive.

alkali An alkali is any sort of base that dissolves in water and also neutralizes acids. In soap-making, sodium hydroxide or potassium hydroxide are the alkalis.

aloe vera A plant whose juice or gel obtained from the leaves. It has soothing and healing properties.

antioxidant A substance that's synthetic or natural material that extends a product's shelf life.

ash A white, powderlike covering that forms on the surface of soap. It doesn't harm the soap and can be washed or wiped off.

base In soap-making, a base is your basic oils used in the soap recipe or the type of melt-and-pour soap you use. For cold and hot process soap, the base most soap-makers start with is olive, coconut, or palm oil.

beeswax Wax obtained from processing the honeycomb. It's used in candles, soaps, and lip balms. Beeswax reduces the lather in a soap.

bleaching A process used to remove the color of an oil or fat. Palm oil is a bright orange until it's bleached, when it lightens to a beige color.

borax Sodium borate, a white powdery mineral generally used as an emulsifier, water softener, pH buffer, viscosity modifier, foam booster, and stabilizer in liquid soap. Look for 20 Mule Team Borax, Natural Laundry Booster in stores. It's usually found close to the laundry soap.

Castile A region in Spain known for producing olive oil–based soaps in the thirteenth century. Soap having a large percentage of olive oil is called Castile soap.

castor oil Oil derived from the beans of the castor plant. It's used in soap for added creaminess, bubbly lather, and conditioning. It's also used in many cosmetic and body products.

caustic potash *See* potassium hydroxide.

caustic soda *See* sodium hydroxide.

coconut milk (CM) The milk that comes from the fruit (nut) of the coconut tree. Like all milk, it contains sugars and will turn your soap dark if it's allowed to get hot during the gel stage.

coconut oil (CO) An oil that's expeller-pressed from the fruit (nut) of the coconut tree. It's one of top cleansing oils used in soap-making.

cold process (CP) A method of soap-making that relies on saponification for the heat to produce soap. The only heat that's applied is to melt the oils and butters.

colorants Dyes, pigments, oxides, micas, neons, herbs, spices, and tea used to color soap. Never use children's crayons for colorants.

copra The dried flesh or meat from a coconut, which coconut oil is obtained from.

cucumber Puréed and added to soap at trace, cucumber can be used in facial creams, lotions, cleansers, and soaps. It's known for its astringent and soothing properties, as well as an anti-inflammatory agent.

cure The time after a soap is made (about 4 to 6 weeks) during which the water evaporates out of the soap, making the bar harder. This is also the time needed for a soap that is 100 percent coconut to become mild and more user-friendly. This is the time needed for a high percentage of castor oil to let go of all its benefits of lather and moisturizing and make your soap bar luscious.

deodorized The process during which some ingredients that have strong scents are removed from an oil or fat. Cocoa butter is a good example.

direct heat hot process (DHHP) Hot process soap saponifying over direct heat from a stove burner, oven, or slow cooker.

double boiler hot process (DBHP) The process of making hot process soap using a double boiler on a stove.

dreaded orange spots (DOS) Spots that appear on soap that's going rancid from having a too-high iodine value.

embeds Items placed inside a bar of soap. For example, if you see a blue bar of soap with a white dove in the middle of the bar, the dove is the embed.

emollient Something that softens and lubricates the skin; it's moisturizing and soothing, and also stops itching and scaling of the skin.

essential oil (EO) A liquid from a plant. It is distilled, highly concentrated, and very aromatic.

exothermic The reaction between lye, fat, and water that results in soap.

felting The process during which a soap bar is encased with wool to make a washcloth and soap in one.

fixative An additive used to retain a scent in a soap.

fixed oil Oil that can be raised to a high temperature without evaporating. Vegetable oil is a fixed oil. Fragrance and essential oils can evaporate.

fragrance oil (FO) Synthetic oils that mimic natural fragrances and are used in soap, cosmetics, and candles. Only skin-safe fragrance oils can be used in soap.

gel stage The final stage that soap goes through before it becomes soap. This is the stage some refer to as "applesauce." Most soap-makers want to have their soap go into this gel stage, but if you're making goat milk soap, you don't want this to happen. The extreme heat causes the soap to darken.

glycerin Glycerin comes from the saponifying of oils and fats. It's a thick and clear by-product of soap-making and is used in cosmetics and many other products. It adds lather in soaps and helps prevent ash on the soap.

goat milk powder (GMP) This is goat milk that's been dehydrated into a powder. Simply mix it with water to make it liquid again. It contains natural sugars that will turn your soap dark if it's allowed to get hot during the gel stage.

goat milk soap Cold processed soap made with fresh, frozen, or powdered goat milk.

hard oils Any oils that are solid at room temperature.

hot process (HP) A soap-making method where the oils, water, and lye are cooked for a period of time using an external heat source such as a burner, slow cooker, double boiler, or oven to accelerate the saponification process. You can use hot process soap as soon as it comes out of the mold.

humectant Absorbs and holds water or moisture from the air. Glycerin and honey are natural humectants.

hygroscopic An ingredient such as lye that absorbs moisture from the air. If you put a few grains of lye on a saucer, soon little drops of water will appear where each grain of lye was**.** This is why it's so important to have the lye packaged in a plastic bag inside a lidded bucket. You can twist down the plastic bag onto the lye as you use it, and the bucket with lid keeps it safe from kids and animals.

immersion blender A long, skinny, handheld blender used to blend milk shakes, smoothies—and soap!

infusion A mixture made by steeping herbs in oil or water. It's then used in soap to get the benefit from the herbs.

International Nomenclature of Cosmetic Ingredients (INCI) When labeling soaps marketed in the United States, the INCI name is required if you make any claims on the soap, such as "moisturizing." If you don't make any claims, you don't *have* to list anything on your soap. But it's wise to list all ingredients on the soap so people with allergies can decide if the soap is safe for them to use.

iodine in sap (INS) A number derived from the iodine and saponification numbers found in SoapCalc that indicates a balanced bar.

KOH *See* potassium hydroxide.

lanolin Wool fat. This fatty, waxy substance is obtained from wool and used in soaps as a moisturizer.

lard The semi-solid or solid fat rendered from a hog.

layering The process of pouring different colors of soap into one mold, one layer at a time. Cold process soap works well for layering.

loofah A tropical and subtropical vine in the Luffa family. They look a lot like deeply ridged rough-coated cucumbers. Before maturity it's edible as a vegetable, but after maturity, the inside material can be dried and used as an exfoliating sponge.

lye The common name of sodium hydroxide (caustic soda) and potassium hydroxide (caustic potash).

melt-and-pour (M&P) soap Soap that's basically a ready-made base you can melt, add fragrance and additives like shea to, and pour into a mold. If you're concerned about the dangers of using lye, try this lye-free soap.

melting point The temperature that has to be attained before something becomes a liquid.

milling The process of grating an already-made cold or hot processed soap batch or bars, remelting them on the stove top, and pouring the milled soap into molds. When the soap has melted, you can add butters, colorants, and scents to the soap before molding it into bars. Also called rebatching.

NaOH *See* sodium hydroxide.

natural soap Homemade soap made of natural ingredients, free of petroleum and chemicals.

natural source Essential oils are derived from a natural source, plants.

oatmeal (OM) Common oatmeal that, when ground to a fine powder, can be added to soap for sensitive skin.

oatmeal, milk, and honey (OMH) The name of a fragrance oil often used by soap-makers.

oven hot process soap (OHP) Cold process soap that's finished in the oven.

per pound of oil (PPO) The ratio used to determine how much fragrance oil to use in a soap recipe.

pH A scale used to measure the acidity or alkalinity of a substance. The scale goes from 0 (very acidic) to 14 (very alkaline), with 7 being neutral. Soap should have a pH between 9 and 10.5.

phthalates A chemical compound used by fragrance manufacturers in the ready-made bases for stabilizing fragrance oils. Some of the ready-made bases used have higher or lower amounts of phthalates. Some types of phthalates are also used to make hard plastics soft and flexible, but those aren't the same type used in fragrance oil manufacturing.

potassium hydroxide (KOH) A caustic, white granular powder used to make liquid soap.

pumice A porous lava rock used in solid forms as a smoothing stone for dry heels. In powdered form, it acts as an abrasive and is good in mechanic's soap.

rebatching The process of shredding soap; adding a small amount of liquid; and then melting over low heat, in a double boiler, or in the oven to save a ruined batch of soap.

refined The process of removing all impurities from oil or butter.

refined, bleached, deodorized (RBD) Oils such as coconut and palm that are refined, bleached, and deodorized.

rendering The process of heating fat from a hog, cow, sheep, or deer to release the liquid oil. The liquid oil from hogs becomes lard. Tallow is from cows, sheep, and deer.

SAP The value number of an oil that relates to the amount of potassium hydroxide or sodium hydroxide in milligrams required to saponify 1 gram oil.

saponification The reaction of an alkali (base) with a fat or oil and water to form soap.

seize A term used to describe soap that's changed from a lovely pourable mixture to a hard mass in the pot.

soap The result of a combination of oils and fats reacting with an alkali.

soap on a stick The term used to describe a batch of soap that's seized with the immersion blender still in it.

soda ash A powdery white residue that can form on soap. It isn't harmful and can be removed by wiping it off. Glycerin added to your soap seems to stop this from happening.

sodium hydroxide An alkali used to make bar soap, commonly called lye or caustic soda.

sodium lactate (SL) This is the sodium salt that comes from lactic acid. It's used in soap to make the bar harder.

stainless steel (SS) A type of metal that's nonreactive with lye so it's safe to use for soap-making.

stearic acid An acid obtained from animal and vegetable fats used in soaps to make the bar harder.

super fatting The process of reducing the amount of lye in the soap recipe so more oils are left unsaponified and can then soothe the skin.

synthetic Something that's artificially produced. Fragrance oils, for example, are synthetic fragrances. Essential oils are natural and distilled from the actual plant and plant matter.

tallow Hard fat obtained from around the organs of cattle, sheep, hogs, and deer. It was once used to make candles, leather dressing, and lubricants. The term now seems to refer to any fat rendered from cattle, sheep, hogs, and deer. Rendered hog fat oil is called lard.

titanium dioxide (TD) An opaque white pigment in powder form that's used in many products such as cosmetics and soap. In soap, it's used to make the bar really white. It can also be mixed with other oxides to create pastel colors that are then added to or swirled into the soap.

tongue test A test to see if any lye is still active in your soap. You can either touch the very end of your tongue to the soap or wet your finger and then touch your finger to your tongue. Either way, if you get a zap, burning sensation, or tingling, the lye is still active. Wait a day or so, and the lye will no longer be active.

trace The term used when the soap is beginning to thicken like gravy. The term came about because when you drop a bit of the soap back on itself, it will leave a "trace" and remain visible for a little while on the surface.

turkey red oil (TRO) An oil, also known as sulfated castor oil, you can use in liquid soap to add moisturizing. It's the only oil that's completely dispersed in water.

unrefined A natural, unaltered state of an oil or butter that still has all the original color.

unsaponifiables Components of the fat/oil that don't combine with the lye to form soap. Instead, these components contribute to the soap's moisturizing qualities.

vegetable shortening A solid fat made from vegetable oils. Crisco is one example.

Appendix B

INCI Labeling Names

When making labels for your soap, you need to use the International Nomenclature of Cosmetic Ingredients (INCI) names of the oils you use in your soap. The following table lists both the botanical name and the label name for many different types of soap ingredients.

Botanical Name	Label Name
Almond (sweet) oil (*Prunus amygdalus*)	Prunus amygdalus (sweet almond) oil
Apricot kernel (*Prunus armeniaca*)	Prunus armeniaca (apricot kernel) oil
Avocado (*Persea gratissima*)	Persea gratissima (avocado) oil
Babassu (*Orbignya oleifera*)	Orbignya oleifera (babassu) oil
Canola (*Brassica campestris*)	Brassica campestris (canola) oil
Castor (*Ricinus communis*)	Ricinus communis (castor) seed oil
Cocoa butter (*Theobroma cacao*)	Theobroma cacao (cocoa) butter
Coconut oil (*Cocos nucifera*)	Cocos nucifera (coconut) oil
Corn oil (*Zea mays*)	Zea mays (corn) oil
Emu oil	Emu oil

Botanical Name	Label Name
Flaxseed oil (Linseed)	Linum usitatissimum (linseed) seed oil
Grapeseed (*Vitis vinifera*)	Vitis vinifera (grape) seed oil
Hemp seed oil (*Cannabis sativa*)	Cannabis sativa (hemp) seed oil
Illipe butter (*Shorea stenoptera*)	Shorea stenoptera (illipe) butter
Karanja (*Pongammia glabra*)	Pongammia glabra (karanja) oil
Kokum butter (*Garcinia indica*)	Garcinia indica (kokum) butter
Lanolin	Lanolin
Lard	Lard
Macadamia (*Macadamia integrifolia*)	Macadamia integrifolia (macadamia) oil
Mango butter (*Mangifera indica*)	Mangifera indica (mango) butter
Milk fat (Bovine)	Bovine (milk) fat
Neem seed oil (*Azadirachta indica*)	Azadirachta indica (neem) seed oil
Olive (*Olea europaea*)	Olea europaea (olive) oil
Olive oil pomace	Olea europaea (olive) oil pomace
Ostrich oil	Ostrich oil
Palm (*Elaesis guineensis*)	Elaesis guineensis (palm) fruit oil
Palm—red unrefined, bleach, or deodorized	Elaesis guineensis (palm) fruit oil
Palm kernel (*Elaesis guineensis*)	Elaesis guineensis (palm) kernel oil)
Peanut oil (*Arachis hypogaea*)	Arachis hypogaea (peanut) oil
Rice bran (*Oryza sativa*)	Oryza sativa (rice) bran oil
Sal butter (*Shorea robusta*)	Shorea robusta (sal) butter
Shea (*Butyrospermum parkii*)	Butyrospermum parkii (shea) butter
Soybean (*Glycine soja*)	Glycine soja (soybean) oil
Sunflower—high oleic (*Helianthus annuus*)	Helianthus annuus (sunflower) oil
Tallow, beef	Tallow (beef)

Appendix C

FDA Labeling Rules

When it comes to labeling, the FDA holds soap in a special category that needs a little extra explanation. The regulatory definition of soap is different from the way most people use the word. Products that meet the definition of soap are exempt from the provisions of the FD&C Act because—even though Section 201(i)(1) of the act includes "articles … for cleansing" in the definition of a cosmetic—Section 201(i)(2) excludes soap from the definition of a cosmetic.

How the FDA Defines Soap

Not every product marketed as soap meets the FDA's definition of the term. The FDA interprets the term *soap* to apply only when the following conditions are met:

- The bulk of the nonvolatile matter in the product consists of an alkali salt of fatty acids, and the product's detergent properties are due to the alkali-fatty acid compounds.
- The product is labeled, sold, and represented solely as soap (21 CFR 701.20).

Further, the FDA states that if a product intended to cleanse the human body does not meet all the criteria for soap, it's either a cosmetic or a drug. For example …

- If a product consists of detergents or primarily of alkali salts of fatty acids and is intended not only for cleansing but also for other cosmetic uses, such as beautifying or moisturizing, it's regulated as a cosmetic.

- If a product consists of detergents or primarily of alkali salts of fatty acids and is intended not only for cleansing but also to cure, treat, or prevent disease or to affect the structure or any function of the human body, it's regulated as a drug.
- If a product is intended solely for cleansing the human body and has the characteristics consumers generally associate with soap, but doesn't consist primarily of alkali salts of fatty acids, it may be identified in labeling as soap, but it's regulated as a cosmetic.

Defining "True" Soaps

"Ordinary" soap is made solely of fats and an alkali. In the past, homemade soap was made from animal fats and wood ashes. Today you'll find very few true soaps, in the traditional sense, on the market. There are a few; look for them marketed with terms such as *pure*. "True" soaps are regulated by the Consumer Product Safety Commission, not the FDA, and they don't require ingredient labeling.

Most commercial body cleansers are actually synthetic detergent products and come under the jurisdiction of the FDA. These detergent cleansers are popular because they produce suds easily and don't form gummy deposits. Some of these detergent products are actually marketed as soap, but they're not true soap in the common and legal definition of the word.

If a cosmetic claim, such as moisturizing or deodorizing, is made on the label of a true soap or cleanser, the product must meet all FDA requirements for a cosmetic, and the label must list all ingredients. An ingredient listing is not required on soaps that make no cosmetic claims.

If a drug claim, such as antibacterial, antiperspirant, or anti-acne, is made on a cleanser or soap, the product is considered a drug, and the label must list all active ingredients, as is required for all drug products.

Frequently Asked Questions About Labeling

Do I have to put the weight on my soap? Yes, you have to include the exact weight, and it cannot be "approximately 5 ounces" or "not less than 5 ounces" To get an accurate weight, weigh the same bar of soap, freshly made, at 6 months old, and again at 1 year old. The last weight, at 1 year, is what you should put on the package.

We're guessing your soap will lose between .6 to .9 ounces over the year. Our soap loses .6 ounces in a year's time. If you use full water to make your soap, yours will lose even more.

When we plane our soap, we make sure it's 5.7 ounces. With the soap cut at that size, it will be 5 ounces when it's old. So if we put "5 ounces" on the package, that will be acceptable by the rules and regulations of soap.

Do I have to put my name and address on my soap if I sell it? Yes, you do. You don't have to put your phone number, but you can if you want to.

Appendix D

Resources

Now that you've got the soap-making bug, we're sure you'll want to expand your skills and learn even more. Here are some of our favorite venders to help you find the supplies and ingredients you'll need.

Lye and Oils

Boyer Corporation
PO Box 10
La Grange, IL 60525
1-800-323-3040
www.boyercorporation.com

Oils by Nature
30300 Solon Industrial Parkway,
Suite E
Solon, OH 44139
440-498-1180
info@oilsbynature.com
www.oilsbynature.com

Soaper's Choice
A division of Columbus Foods
Company
30 E Oakton Avenue
Des Plaines, IL 60018
Contact: Mike Lawson
773-265-6500 or 1-800-322-6457
www.soaperschoice.com

Soap Colorants

Apples, Woods and Berries
www.awbsupplies.com/berry-liscious_colors.htm

Ellen's Essentials
Houston, Texas 77072
www.ellensessentials.com

Select Shades
PO Box 1220
Bath, SC 29842
803-593-0675 (for orders)
www.selectshades.com/chart/clear.html

TKB Trading, LLC
1101 9th Avenue
Oakland, CA 94606
510-451-9011
tkbtrading@sbcglobal.net
www.tkbtrading.com

Soap Molds

Anhoki's Place
www.bunniesworkshop.com/soap_molds.html

Kelsei's Creations
3193 W FM 2002
Lamesa, TX 79331
806-462-7370
www.kelseiscreations.com

Milky Way Molds
www.milkywaymolds.com

Upland Soap Factory
213 Flynn Branch Road
Marshall, NC 28753
828-649-0303
www.uplandsoapfactory.com

Essential and Fragrance Oils

Camden-Grey
3579 NW 82 Avenue
Doral, FL 33122
305-500-9630 or 1-866-503-8615
www.camdengrey.com

Stony Mountain Botanicals
www.wildroots.com

Wholesale Supplies Plus, Inc.
www.wholesalesuppliesplus.com

General Soap-Making Supplies

Apples, Woods and Berries
www.awbsupplies.com
(This is Sally's shop. She carries highly concentrated fragrance oils for soap and all bath and body products. You can also find soap colorants and cosmetic-grade oxides for making mineral makeup here.)

Bramble Berry, Inc.
2138 Humboldt Street
Bellingham, WA 98225
(not open to the public; online orders only)
360-734-8278 or 1-877-627-7883
www.brambleberry.com

Kangaroo Blue
PO Box 9021
Naperville, IL 60567-9021
630-999-8132
www.kangarooblue.com

Oregon Trail Soap Supplies and More
PO Box 669
Rogue River, OR 97537
541-582-3393
www.oregontrailsoaps.com

Taylored Concepts, Inc.
12021 Plano Road, Suite #190
Dallas, TX 75243
972-671-5661 or 1-866-322-9944
www.tayloredconcepts.com

Wholesale Supplies Plus, Inc.
10035 Broadview Road
Broadview Heights, OH 44147
440-526-6556 or 1-800-359-0944
www.wholesalesuppliesplus.com

Packaging Supplies

Shrink Wrap Store
www.shrinkwrapstore.com

Wholesale Supply Plus, Inc.
www.wholesalesuppliesplus.com

Yahoo! Soap-Makers Groups

ApplesNBerries@yahoo.com
This is Sally's group. You can find us here just about any day of the week. We answer all questions and teach soap-making as well as other bath and body products on this group.

SoapMaker_Haven@yahoo.com
This is a wonderful list co-owned by two of our very good friends. San, the leader, is one of Sally's very closest and trusted friends. These ladies are always willing to help if a list-member is in need.

TheRedBarn@yahoo.com
Suz, of Oregon Trail Soap, Supplies, and More Soap owns this soap-maker's group. She covers lots of activities as well as specials and sales announcements for Oregon Trail.

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