Soap making

It starts with lye. All soap has it in one form or another. Get used to the idea!

Look where drain cleaners are sold and buy 100% lye (Red Devil is a common brand here). Don’t try liquid drain cleaners and don’t use Draino—it contains metal. Most good soap recipes list lye by weight for accuracy. Lye comes in granule and flake form, which will measure differently if not measured by weight. Scales are a necessary part of successful soap making.

Lye may also be listed as sodium hydroxide or caustic soda. It can be nasty if handled improperly.

Upon opening a container of lye, the lye crystals absorb water from the air, which can weaken the strength of the lye and cause it to form a solid lump. When not in use, keep lye tightly capped. Lye reacts with some metals: aluminum, zinc and tin. Safe containers include heat proof stoneware, glass, enamel, stainless steel and heavy plastic. Lye can be fatal if swallowed. Lye can remove paint. If lye, lye/water, or freshly-made soap splatter onto a painted surface. Wipe it off immediately. Wash the area with water and detergent, then with plain water, then wipe it dry. Lye, lye/water and freshly made soap can irritate skin. You’ll notice itching before burning. Lye/water on skin is first noticed by a slippery feeling. Rinse the skin with vinegar and then immediately rinse with running water. Since lye can burn skin, you imagine what dangerous and painful situation by ALWAYS WEARING EYE PROTECTION!

You may wonder why anyone wants to bathe with soap that contains something as harsh as lye. The good news is that soap is “made” with lye, but it doesn’t contain lye. Lye has a chemical reaction with fats called saponification. It creates roughly three molecules soap and one molecule glycerin. The lye is no longer present if you use a balanced recipe and measure ingredients carefully.

Everyday thousands of people make soap without mishap. In order to do so, you must be aware of all safety hazards. Children, feeble-minded people and pets should not be in the soap making area or have access to stored soap making ingredients, especially lye and essential oils.

Equipment List–Blender Soap
1. Pyrex (or similar) measuring cup– 1cup, 2cups and 4 cups
2. Seamless rubber spatula
3. Two quick-read glass and/or stainless steel thermometers
4. Eye protection! A MUST!
5. Rubber gloves (optional)
6. Scale to weigh lye and fats (Postal scale that weighs to a tenth of an oz. is great)
7. Soap molds (any flexible plastic container)
8. Clock or watch with a second hand
9. Metal measuring spoons
10. Small glass bowl with a plate to cover it, to hold measured additives
11. Blender with no aluminum parts
12. Running water and a heat source (I prefer the microwave)

Keep a record of your soap making. This will help you in looking back to find causes to problems and their possible solutions. When you try something new and then record the result you will be able to refer back to your record three months later when you want to make soap again and you can’t remember what you decided about the last batch you made.
Blender Soap Method

1. Measure cold water into smallest measuring cup. Place under stove vent that is on or by and open window. Pour in measured lye. Stir with spatula or stainless steel spoon. If you don't stir immediately the lye will clump and take some effort to break up. Stir until lye is dissolved. But be careful not to inhale the fumes that come for about 30 sec. They are quite “chokey”. The lye/water immediately becomes extremely hot (over 200 degrees F). Let it cool while you go on with other steps.

2. Put any oils that are in a solid form (shortening, coconut oil, etc.) In largest Pyrex and heat just enough to melt. I do this in the microwave, but do not overheat—it doesn’t take much to melt these oils.

3. Measure the liquid oils in medium Pyrex and gradually stir them into heated oils. If the cooler oils cause the melted oils to start to solidify, gently heat the mixture just enough to blend the oils. This will not usually be a problem unless you pour the hot oils into the cool oils or the room in which you are working is very cool.

4. Check the temperatures of the oils and lye/water. I like to make the soap when these mixtures are within a range of 80-100 degrees. If they are too hot (especially the lye/water), create a cold water bath in your sink and place the Pyrex container(s) in it. Do not leave for long periods without checking temps., as they can change faster than you think. While checking temperatures, never let the thermometer rest in the container as you will get a false reading. Hold it in the center of the liquid without letting it touch the bottom of the container. If you leave the oils and lye/water too long and they become too cool you may reheat the oils in the microwave, but never put the lye/water in the microwave. You must use a hot water bath to bring the temp. back up. However, my personal experience has been that I am less likely to have success with my soap if I have to reheat the lye/water so if I find I've let it get too cool I usually just mix up some fresh lye/water and our the old down a drain with plenty of cold, running water as you would when using a drain cleaner.

5. While these mixtures cool off you can be measuring the essential oil and any other additives you want to include. Put these in a small glass bowl and cover until needed (though called oils, essential oils are not thick and easily evaporate).

6. When temperatures are correct you pour the oil mixture in the blender first (the order in which you add things is important), then the lye water and finally, the essential oils and additives. Do not blend before all the ingredients are added. Then place lid tightly on blender and blend for 10 seconds. Check for thin trace. Continue this process until thin trace is achieved. (Draw spatula though soap and see if a slight trace of the line remains in mixture).

7. Quickly pour soap into molds (soap continues to thicken). Some recipes get a slight ash layer on the surface. You can prevent it by putting plastic wrap on the freshly poured soap. Keep soap in molds according to time specified in recipe. Don’t put soap where it will experience any great temperature fluctuations. Normal room temperature or a little warmer is best.

8. After specified time in molds place molds in freezer for 4-8 hours. This helps remove soap from molds more easily. Pop soap from molds after freezing and place on line (paper sack or paper towel) trays of lye-save material. Cardboard trays work, but eventually wear out. (If you wait for the transition from freezer to room temp causes some soap recipes to crack during the first week of curing. To prevent this I will leave the soap in the molds extra days and skip the freezer step. The soap is then hard enough to come out of the mold more easily.)

9. Allow soap to age on trays for time specified in recipe, turning every week or so—then enjoy your soap! Do not store soap in airtight containers. Soap loves to breath ad continues to harden even after the curing period is completed.
Soap Recipes: Remember that all measurements in oz. are referring to weight, not fluid ounce.

#1 8 oz. lard
6 oz. shortening
2 oz. coconut oil
2.3 oz. lye
½ cup cold water
1 Tb. Essential oil
optional additive:
2 Tb. Dry old-fashioned oats
Time in molds: 24 hours
Age 3 weeks

The information in this handout comes from a variety of sources. The recipes and blender method of soap making are from the book Soap Recipes by Elaine White, where she gives credit to Joyce chance for developing and sharing the blender method of soap making. Only 1 lb. Batches as shown here should be attempted in a blender. The book includes seventy soap recipes with everything from tallow soaps to goats milk to the pure olive oil soap recipe shared here. Not all of the recipes in the book can be done in a blender, but

#2 10 oz. shortening
6 oz. coconut oil
2.4 oz. lye
3/4 cup cold water
1 Tb. Essential oil
Time in molds: 24 hours
Age 3 weeks

The book’s instructions tell you how you can determine what can and can’t be done in a blender. It also includes many other details to soap making that I cannot possibly include in one handout. The publisher, Valley Hills Press, granted permission to share what is included here as long as proper credit was given to its source and ordering information for the book was included. As of this writing (Feb 2000) the book sells for $23.95 with no additional charge for shipping. I have to seen the book locally. It is available through:

Valley Hills Press
3400 Earles Fork Road
Sturgis, MS 39769
Call toll-free with Visa or Mastercard 1-800-323-7102
(There is a 40% discount on orders of 4 or more books.)

#3 16 oz. olive oil
2.2 oz. lye
3/4 cup cold water
1 Tb. Essential oil
Time in molds: 6 days
Age 8 weeks

There are many soap making books on the market and I have read several of them but the ones I recommend are authored by Susan Miller Cavitch. The titles are: The Natural Soap Book and The Soap maker’s Companion. These books are from Storey Publishing and are available in local bookstores. For the serious soap maker, they explore the properties of nutritive oils, consider the benefits of the essential oils for scenting, address the issue of natural versus chemical soap ingredients and even give formulas needed for developing your own soap recipes. Many other things mentioned here have been learned through trial and error over years of soap making. In Oct. of 1999 I was introduced to Country Living: Handmade Soap by Mike Hulbert. I like this book as well. There are also many websites on soap making, but be wary. Not all of them give sound advice.

#4 16 oz. lard
2.3 lye
½ cup cold water
1 Tb. Essential oil
Time in molds: 24 hours
Age 3 weeks

Color and Scent in Soap

Some essential oils work better in soaps than others. Some I have used with success are cedar, clove, patchouli, peppermint, lavender, lemongrass, spruce, anise and chinese geranium. To color soap naturally, experiment with small amounts of herbs and spices. Natural dyes are to stable in the soap mixture. Many colors will fade with time and exposure to light. Dried plant material will rect with lye and go brown.
About the Soap Recipes

I personally do to care for soap made with beef tallow or lard. Some feel that beef tallow soap contributes to blackheads. Although lard soap has not been accused of such a thing, I can tell I am washing with lard. I prefer the vegetable oil soaps. However, I have included recipes using lard because it is so inexpensive and thus makes a good oil with which to experiment when you are starting out.

Though one of the more expensive soaps to make, the pure olive oil soap is also one of the mildest. It is a very soft soap and does not lather well, but that doesn’t mean it isn’t getting you clean! If you have extremely sensitive skin this might be the soap for you.

Recipes #1 & #2 call for coconut oil, which can usually be purchased in small jars at a health food store. It helps make a harder soap (this means it doesn’t dissolve as fast) enhances lathering and has beneficial properties for your skin. If you get serious about making soap you should find a soap ingredient supplier where you can get this oil in bulk. It is in most of the recipes in good soap making books. Most such soap making books list suppliers in the back.

Do not attempt to substitute one oil for another without making sure their SAP values are equal. Cabitch covers this subject thoroughly in her books. Most oils cannot be traded straight across without altering the amount of lye that you use. Unless you understand this principle you can end up with a soap that is caustic or prone to rancidity.

Putting 1 tsp. of a nutritive oil with your additives can enhance the skin care properties of your soap.

My personal favorite of soaps includes cocoa butter. It is so moisturizing, but also expensive. Usually recipes containing cocoa butter can’t be done in the blender because it starts to trace before everything gets blended. For these reasons I have not included this recipe, but would recommend Elaine White’s book if you would like a wide variety of recipes using everything from cocoa butter to goat’s milk to safflower oil. The soaps which contain beeswax are also good, hard bars which lather well, but are a little trickier to make. There are several good recipes containing beeswax in book.

How I Got In To This In The First Place

My brother-in-law first introduced me to handmade soap in December of 1995. I had previously suffered with cracked, bleeding hands every winter. When I began using the soap he sent us I could see improvement in my hands within two days. In less than two weeks I no longer had cracked, bleeding hands. I called my brother-in-law and told him I wanted to buy soap from him. He told me he didn’t want to sell soap, but he would teach me how to make it. I said I didn’t want to learn to make it, but I would be more than willing to pay a good price for his soap. Guess who won?

I learned to make soap one day in May of 1996 (when my brother-in-law came for a visit) and I have not purchased a bar of soap for my family’s use since that day. I have experimented with over 25 different soap recipes and have made dozens of variations withing those recipes. I operated a cottage industry selling my soaps through local gift shops and boutiques for over a year, before deciding I didn’t need that stress in my life. I have taught soap making to 4-H kids, church groups and friends. I gave soap for Christmas gifts, birthday gifts, and just because.

Soap making is a satisfying thing. Methods have changed a great deal since the days of the pioneer women for whom soap making was just another routine chore. Like quilting, it is something we do today because we choose to, not because we have to. But by so choosing, we link ourselves to the past in a very tangible way and keep that connection alive every time we reach for a bar of soap.

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**Nutritive Oils**

The nutritive oils referred to in your handout are oils that usually do not make a good base oil for soap because of their cost and/or the softness of the soap they create, but they are very high in nutrients for the skin. If used in small amounts (1 tsp. per pound of soap) they share their beneficial properties without throwing off the balance of the soap recipe. Such oils are sweet almond, castor, apricot kernel, avocado, jojoba, evening primrose, etc. Susan Cavitch gives a thorough listing of oils in her books and goes over the benefits of each oil.

Some soap making terms that are helpful to know...
- **Saponification**—when an acid (fats and oils) and a base (lye and water) react to create soap and glycerin
- **Surfactant**—a surface agent. This is what soap is. It helps water spread out and wet the skin rather than form tight droplets that won’t soak in. It also attaches itself to the dirt so it can wash away.
- **Humectant**—helps retain moisture
- **Emollient**—has a softening or soothing effect
- **Emulsifier**—helps in the smooth blending and suspending of the different oils in a soap recipe

**Cocoa Butter Soap (not a blender recipe)**

Stir 2.6 oz. of lye into 1 cup cold water. Allow to cool to within 80-100 degrees F. While that cools measure together in an 8 cup pyrex (I like this size for stirred batches because they won’t splatter all over)

- 6 oz. coconut oil
- 3 oz. cocoa butter
- 1 oz. beeswax

Melt these just until blended. Never overheat. Measure 7 oz. olive oil and stir gradually into the melted oils. This mixture will already be quite thick and may seem to have reached trace even before the lye is added. This mixture may need to be stirred as it cools to keep blended. When lye reaches proper temperature stir it gradually into the oils. Tracing may occur immediately or take just a few minutes.

At trace, quickly stir in your additives and essential oils. Pour into molds. Remove from molds after 24 hours, using freezing if desired.

Let this soap age for three weeks. The cocoa butter speeds saponification.

The above recipe is “Herbal Heydey” from the book Soap Recipes by Elaine C. White. Available Through:

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