• CHAPTER 10 •

SOAP WELDING

SECTION 1:Making a Message Soap with Soap Welding of Cold Process Soap

Soap is a type of salt. As a result, it forms crystalline structures. It appears that two newly made pieces of soap-that is, soap before a lot of water evaporates during curing-can be welded together. The molecules of the two pieces appear to be able to align themselves together so that the characteristic solid structure of the welded pieces is the same as if they were one, poured bar.

Right click on the hyperlinks below to open them in a new tab or window.

• The Recipe •

Ingredients:

1. 12 oz Organic Coconut Oil 76 deg
2. 12 oz Olive Oil or Organic Olive Oil
3. 10.1 oz of Organic shea butter or Refined Shea butter
4. 9.1 oz of Filtered Water
5. 4.8 oz of Food Grade NaOH
6. Cotton ball size piece of Tussah Silk
7. 0.25 oz Jojoba Oil or Organic Jojoba oil added after trace

SEE CHAPTER 1 FOR LINKS TO INGREDIENTS

Smaller Batch of My Favorite Shea Silk Soap Recipe

This is the same recipe as in my earlier chapters, it has just been scaled down a bit.
I needed to make a few embeds for another soap, so I just made a small batch of soap. I only needed a little of the soap for the embeds, so I used the rest to make these message soaps.

• COLORS AND FRAGRANCE •

THE COLORS

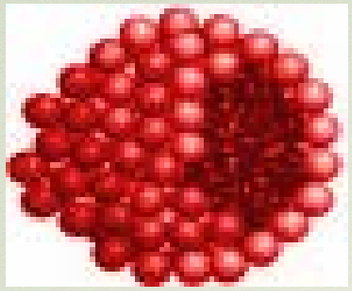
1. 1/2 tsp 1 tsp Mocha brown mica
2. 1 tsp Titanium dioxide
3. 1/2 tsp Caribbean Blue
4. 1/2 tsp Blue Lagoon

The Gold Pitcher contains 0.55 oz of Vanilla Fragrance Oil plus 0.15 oz of Organic Jojoba Oil. The Green and White Pitcher contains 1.8 oz of Orange Essential Oil plus 0.15 oz Jojoba Oil.

If you mouse over the image or the items in the list, and right click on the links, you can open them in a new window or tab.

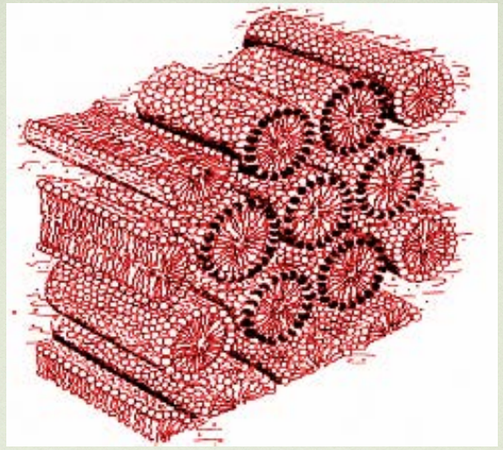
THE FRAGRANCE:
Orange Essential oil slows trace
Vanilla Extract oil speeds trace

SOAP FORMATION



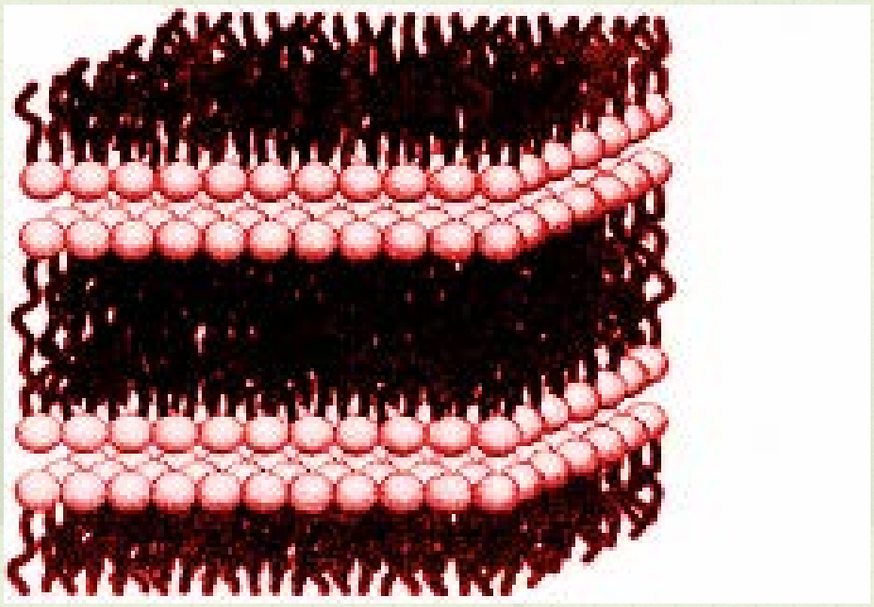
Micelle of Soap - the hydrophobic or water hating tails pointing inward.

As soap concentration increases, worm shaped Micelles form



Soap can form an hexagonal structure.

Soap Structure and Phase Behavior
Michael Hill
New York, New York, USA Teanoosh Moaddel Trumbull, Connecticut, USA



Solid soap structure looks something like this at the molecular level. The hydrophillic (water loving) balls line up along a water interface and the hydrophobic (water hating) tails line up away from the water.

Perhaps, as the soap cures, water between the hydrophillic heads evaporates to leave a thin layer of water. But before the water evaporates, the soap molecules can move more freely to re-align to form a unified structure. Heating the soap after pressing it together serves to allow the molecules more energy and flexibility (so to speak) to re-align.

• SETUP AND SUPPLIES •

THE SUPPLIES NEW TO THIS SOAP

There are no new supplies for the message soap.

SUPPLIES

The supplies I use to make this soap are shown here. I am set up to make embeds for my next soap as well as to make this message soap. I poured the embeds first, then used the leftover soap to make the message soap.

Right click the image to open the following video in new tab or window:

Making a Message Soap with Soap Welding of Cold Process Soap

Right click a link below to open in a new tab or window:

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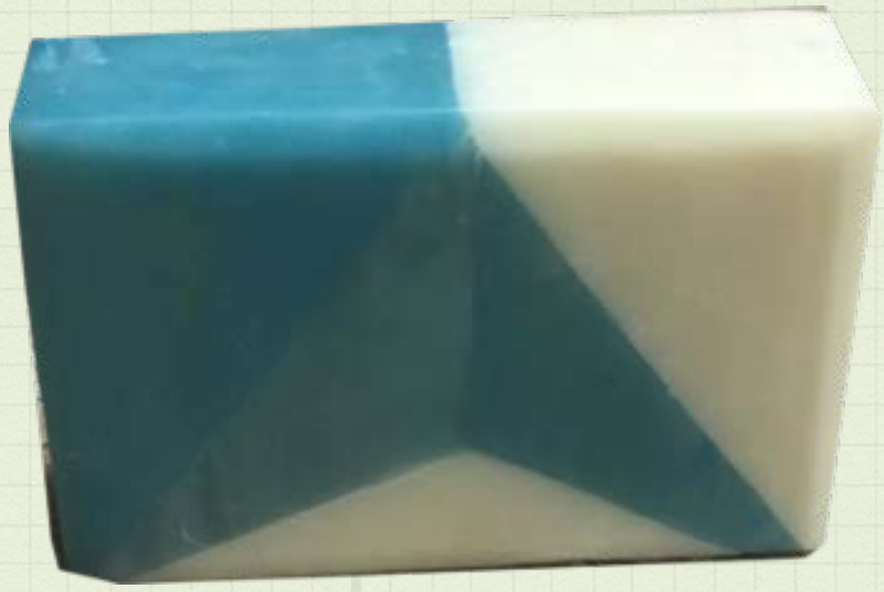
SECTION 2:Making a Geometric Soap with Soap Welding of Cold Process Soap

As far as soap welding goes, soap stacking as we saw in a message soap is a very stable structure. It is easy to apply downward pressure to the soap initially, before heating, to help it fuse. The final soap stays welded throughout the use of the soap. However, welding pieces fit together like a puzzle is a bit more of a challenge.

Right click on the hyperlinks below to open them in a new tab or window.

Welding soap puzzle pieces together is possible as long as you have a secure, even connection between the pieces. Geometric designs are great for this technique, but as long as you have a good fit between pieces, any design is possible.
In the video, I cut some geometric shapes freehand. However, it would be best to use a grid guide to cut the soaps. Then, the pieces will fit more perfectly and not need to be planed. Also, it is very important that when you cut, you cut perfectly perpendicular to the table. This way, you can be sure that pieces will fit together well.
After cutting the soap and fitting it together, a thin layer of water is rubbed on the slices of soap. Then they are pressed securely together and placed in a mold to hold them in the oven. The oven should be preheated to 200 deg F and the soaps placed in the oven for about 10 min. Next, take them out of the oven and let them cool completely. I like to put mine in the freezer to speed cooling. Finally, plane and bevel the soaps then let them cure as usual.



• COLORS AND FRAGRANCE •

THE COLORS

1. 1 Tbs Titanium dioxide
2. 1 tsp Caribbean Blue
3. 1 tsp Caribbean Blue plus 1 tsp grey

I used 1.0 oz Lavender Essential oil, 0.2 oz Oregano Essential oil, 1.1 oz of Peppermint Essential oil and 0.35 oz Jojoba oil.

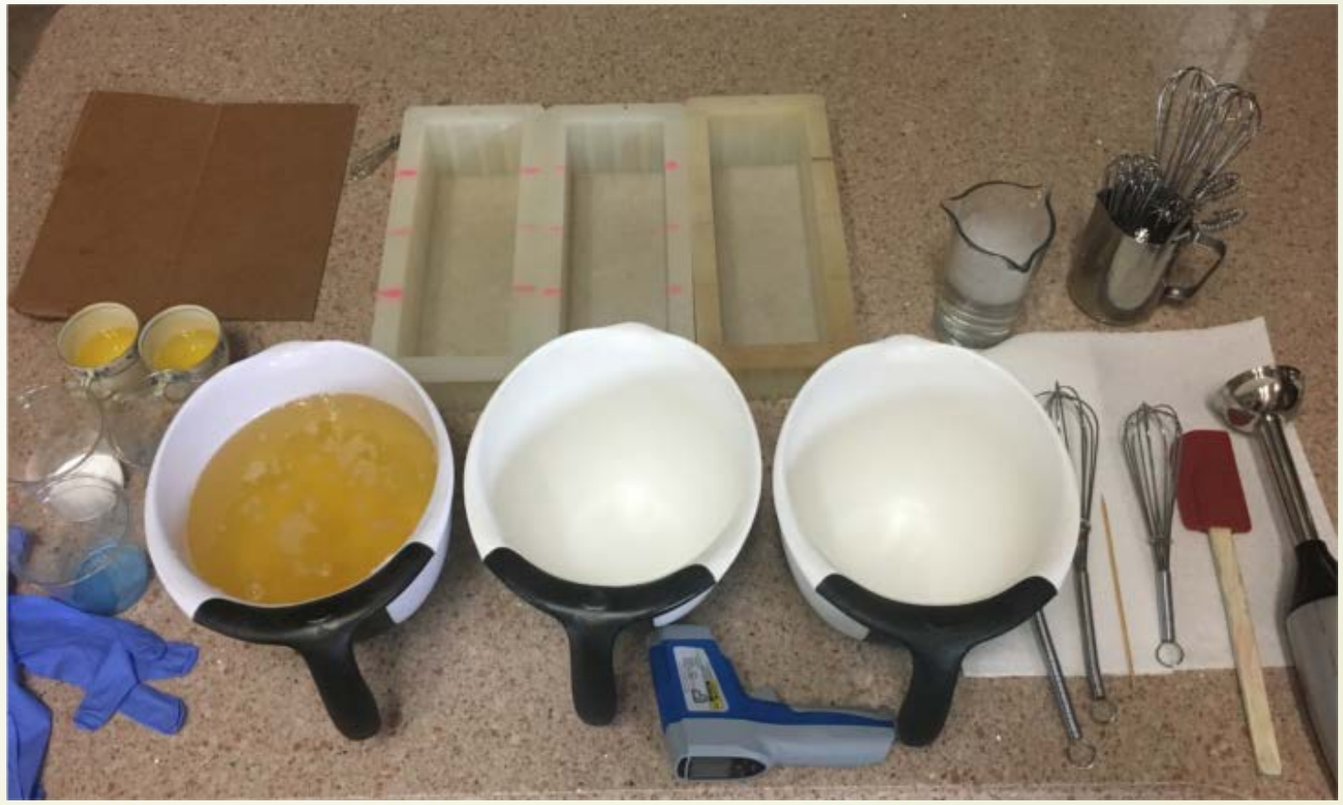
If you mouse over the image or the items in the list, and right click on the links, you can open them in a new window or tab.

THE FRAGRANCE:
Lavender +Oregano speed trace a bit.
Peppermint speeds trace a touch.

• SETUP AND SUPPLIES •

THE SUPPLIES NEW TO THIS SOAP

Here is the soap oven I use for soap.



SUPPLIES

The supplies I use to make this soap are shown here. There are no new supplies, but I have a link to the oven I use for my soap on the left.

Right click the image to open the following video in new tab or window:

The first time I put the soap in the oven, it is to speed saponification. In this particular case, since I mixed the soap to trace, it was well on its way. If it had been a more liquid batter, I would have kept it in the oven at 170 for an hour or maybe even a touch more. The second time I put the soap in the oven, it is for the purpose of assisting the welding of the soap. I put the puzzle pieces together snuggly with a thin layer of water between them and placed them in a preheated oven at 200 deg F for about 10 min. I chose this temperature based on some graphs I've seen on the phases of soap at different temperatures. I just tried this to start and it seems to work. The goal here is to raise the temperature of the soap uniformly to around 200 deg F, but of course I didn't want to melt the soap.

Making a Geometric Soap with Soap Welding of Cold Process Soap

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SECTION 3:Making a Two Sided Soap with Welding of Cold Process Soap

A nice application of soap welding is making a two sided soap from two soap paintings. You can paint on the tops of soaps of equal dimensions, then weld them together to make one soap. For this painting, I tried blowing on soap to make an impressionist school of fish. I then welded two sides together easily to make a pretty soap.

Right click on the hyperlinks below to open them in a new tab or window.

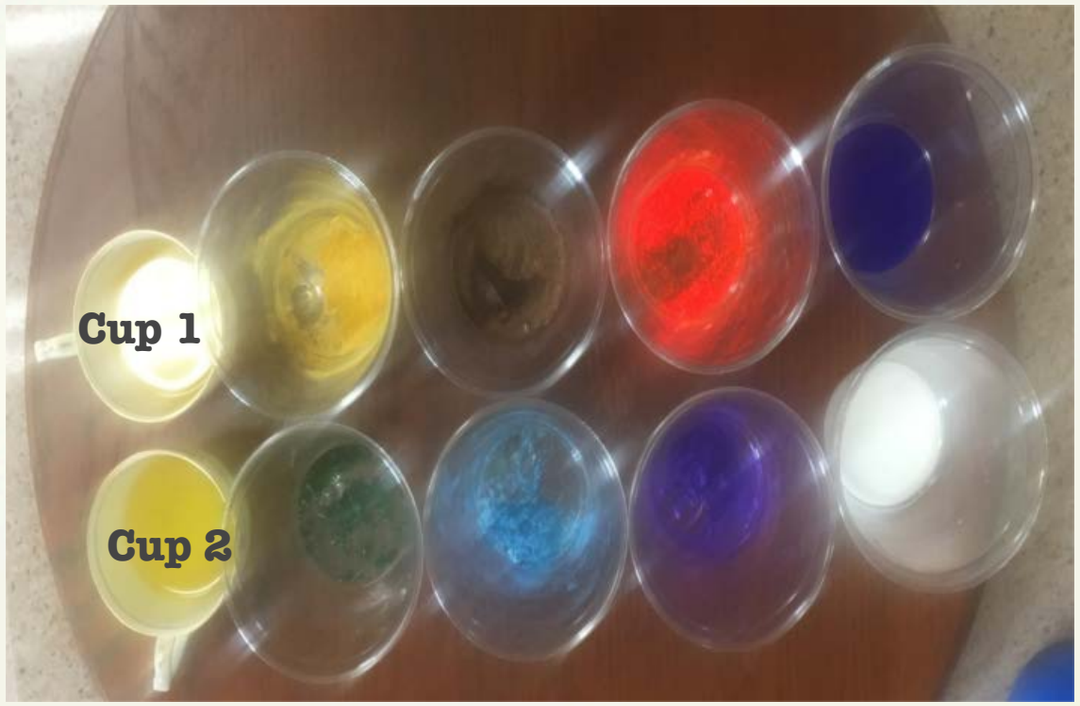
To make a two sided soap, all you need is to use a mold that produces equally sized bars. Then, you make the bars half the thickness you desire for your completed bar. After making the bars, you can easily weld the flat sides together by putting a thin layer of water between the pieces, and pressing them securely together. Finally, you place them in an oven at 200 deg F for 10-20 minutes. Be careful to watch them at first. You don't want to melt or distort them. When they are cool, you can plane and bevel them and cure them as usual.

• COLORS AND FRAGRANCE •

THE COLORS

1. 1 Tbs Titanium dioxide
2. 1/2 tsp Caribbean Blue
3. 1/4 tsp Green Oxide
4. 1/2 tsp Mocha Brown
5. 1/4 tsp Purple Vibrance
6. 1/4 tsp Ultramarine Blue
7. 1/2 tsp Yellow Vibrance
8. 1/4 tsp Neon Orange

I added 1/4 tsp Sweet Almond oil to all of the colors.



Cup 1: 0.3 oz Lavender Essential oil, 0.2 oz Oregano Essential oil, 0.5 oz Bergamot (Bergapene Free), and .2 oz of Jojoba oil

Cup 2: 1.15 oz of Orange Essential oil and 0.2 oz Jojoba oil.

If you mouse over the image or the items in the list, and right click on the links, you can open them in a new window or tab.

THE FRAGRANCE:
Lavender +Oregano +Bergamot speed trace
Orange Essential oil slows trace

Right click the image to open the following video in new tab or window:

Making Impressionist Fish by Blowing on Soap

Right click a link below to open in a new tab or window:

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