
Miller's Homemade Soap Pages:

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Troubleshooting Your Botched Batch!

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Troubleshooting... when your lovely soap comes out all wrong!

Here is a checklist of the most common problems when a batch fails...

Double Check Recipe

I'm always amazed at some of the recipes that are on the Internet or even printed in books. Just because you see it in print doesn't mean that it's got the proper lye to fat ratio and before committing your ingredients to a recipe, it's always a good idea to double check it with a lye calculator. You can download spreadsheets from my site, or use a good online calculator such as the one provided by [Majestic Mountain Sage](#). In general, I strive for a lye discount/superfat of 4 to 5%. I might lower this if I'm working with goat's milk in a recipe or with a fragrance that was previously noted as causing an oily surface on the soap.

Accuracy of Measurement

If you are working with volume measures and not weighing your ingredients, you're on thin ice already! Some people have favorite recipes that are a teaspoon of this and a cup of that, but if they start substituting without doing some research on SAP values or are a little off in their measurements, they could have a soap that is either very lye heavy or greasy and overly superfatted.

If you are weighing ingredients, how accurate is your scale? The smaller the batch, the more fine tuned needs to be your instrument of measurement. For the batch sizes that I make and post, I use a postal scale that weighs to tenths of an ounce for measuring the lye and fragrance. I already had a mechanical kitchen scale that weighed in ounces and that is fine for me, but wouldn't be accurate enough for someone making a batch that yielded one pound of soap. People who work with very small batches might even want a scale that weighs to 100ths of an ounce or in grams. If you are not sure about the accuracy of your scale, have it calibrated or check it yourself by weighing something that is already a known factor... like a pound of butter (assuming they are really accurate when they tell us it is a pound!).

When it comes to water, you don't need to stress over accuracy. Not only do you have a range of acceptability, you can measure your water in a standard liquid measuring cup, since their design is based on the weight of water. They are not an accurate way to measure oils for that reason... oil is lighter than water.

Did you forget something?

Sometimes we just plain left something out of the recipe. You might have found it on the counter later or when thinking back on what you did realized you put in the wrong amount of something. In that case, you need to reconstruct what was missing and do a remelt... adding back the missing ingredients at that time.

Heat Loss Issues

Many problems in the texture of soap are due to heat issues. The most common is too much heat loss during the stirring period. This is especially true if you are hand stirring or making a soap that is high in olive oil... which is slow to trace. [See the chart below](#) for suggestions on avoiding this problem.

Inadequate Mixing

When I first made soap I was overly concerned about stirring it too much. There were warnings in the lye company instructions that too much vigorous stirring (or not enough) could cause separation. It seemed like *no matter what you did* you could have separation... and I did! ;-) I had NINE failed batches due to this before I got out a hand mixer and really stirred that stuff up! Since reading about the use of a stick blender (thank you, thank you to [Sabrina Downard](#) for posting this information!), I have had few issues of soap that separated or formed ash. It's wonderful!

Poured before a True Trace

It's easy to be fooled by soap that has thickened when you have little experience with soapmaking. Often folks will have it look thick and think it's ready and it's actually only gotten too cold or maybe they stick blended too long without "stirring it down" and had a "false trace."

Fragrance Woes

Separation problems can happen with *real drama* when using some fragrances. Be sure you buy them from people who test them for use in COLD PROCESS soap. The wrong fragrance oil can ruin your batch in a heartbeat and cause it to separate, or "rice." You can usually save these by remelting but it's not an experience you want to repeat if you can avoid it.

Too Much Insulation

Too much insulation for a soap that contains milk and/or honey can lead to really fascinating separations that are rather distressing. Sometimes the separation is obvious before cutting but other times the soap looks fine but when you cut into it a HUGE puddle of oil forms on the table right before your eyes. Inside the soap you might find cavernous pockets that look like the inside of a cave, complete with stalagmites and stalactites. Really cool, but not wanted! :-) Be sure with a milk or honey batch that as soon as the soap gels you allow it to lose heat as soon as possible. I'll usually uncover the mold (remove an inverted box) and move the mold around on the table top every so often, since that will usually draw heat out of the bottom. You could also set the mold on top of a rack to allow more air circulation underneath. Once gel phase is reached in any batch (all the way to the edges of the mold), it's okay to uncover it and allow the heat to escape.



Another interesting problem that can happen with insulating your soap for too long is the "alien brains" syndrome, seen to the left.

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Not Enough Heat Retention

This is usually from too much heat loss during stirring, inadequate saponification at the time of pour and poor insulation. All of those things can lead to soap that is either poorly textured or has a tendency toward ash formation. Since I've used the stick blender and had the soaps go through a gel phase, I've never had cutting problems with soap being brittle or flaky... it's like cutting a firm cheese. Nice! ;-)

When is "oozing" a concern? ;-)

Sounds like the chicken pox, but we're talking soap here! Sometimes you'll have some oozing on the outside of your unmolded soap. If this is minimal and only makes a film on the sides and bottom, or some fine beads over the top, you can just blot it off with paper towels and proceed with cutting. I think some fragrances might be the culprit in causing this to happen but I'm not sure. I don't usually notice it in soaps that are scented with essential oils. If you have oozing on the INSIDE of the soap at cutting time, or pockets of oil... then you might need to remelt the batch if they are very frequent or large.

Remelting a Botched Batch

First of all... *if your soap fails the first time, it can nearly ALWAYS be saved!* I don't subscribe to the advice given in many soap books that you just toss out all of those good ingredients. Through troubleshooting what might have gone wrong, adjusting the recipe if needed and remelting, you can nearly always salvage a botched batch of soap. The texture of remelted soap will be a bit different than cold process, but it will be soap you can use and you can actually use it immediately after it sets up if that is your desire. However, it is usually recommended to give rebatched/remelted soap a couple of weeks in which to harden up so that it will last longer.

Possible Methods for Remelting

Covered Crockpot

This has become my favorite method since purchasing a new crockpot that is made of crockery and large enough to accommodate a full batch of soap (the size recipe that I post). It's not often that remelting is necessary, but when that occasional dismal failure happens, it's just a matter of breaking up the soap into the crockpot and adding a bit of moisture if you think it's needed. For a really fresh batch, this might not be necessary. If you have determined that your soap was lacking in something in order to be properly balanced (such as more oil or lye), you would add it to your broken up or shaved batch. If you have to add a bit more lye, dissolve it into a small bit of cold water first... then blend it in. The advantage of a crockpot is that the temperature remains within a safe range for the soap and will not likely scorch it. The high setting is usually fine for this. Also... the lid is very tight and it will hold in the moisture and heat. Depending on how dry the shavings or pieces of soap are before you put them into the crockpot, it could take anywhere from one to two hours to have the soap blended enough to be ready to "pour" into the mold. When it gets nice and melted around the edges you periodically mash the soap around to blend well and cover it back up. The first time you do this might not be until the soap has already been in the crockpot for an hour. Unless you add milk during this remelting process, the soap will usually be fairly thick when you "pour" it. This is okay since it will set up nice and firm that way. If you add enough water to make it really fluid, it will be too soft and have excessive shrinkage as it dries out. When putting it into the mold just imagine you are working with soap at full gel phase, because the texture is much the same. I'll usually mash it down into the mold to remove any air pockets, then take out a piece of saran to lay over the top... then flatten the top either with a pastry roller or a piece of something flat on one side (a square of cardboard will work). A pastry roller is like a mini rolling pin with two different sizes attached to a central handle.

I also use this method to remelt scraps from previous batches in order to recycle them into something useful. If you do that, it's nice to blend compatible fragrances (I try to keep florals with florals and herbs and foody scents together if they are fruity or sweet.) If your scraps are kind of bland in the scent department, you can spike the remelt with a touch of a fragrance that will tie them all together. Ones that work fairly well might be almond, apple or an herbal essence type... soft scents that blend with many things.

Covered Vessel in a Slow Oven

This is the same general concept as using a crockpot, only you put the soap into a covered soap-safe container. A large stainless steel pot with a lid works well or an enamelware roaster pan with lid. Even with the lid this will dry out a bit more than soap melted in a crockpot, so you might need to add a bit more water during the melting process. Soap melted this way also takes from one to two hours before it's ready to "pour." I usually set the oven at a temperature around 250 degrees F.

If you are remelting soap that has gotten rather firm, you can soften it in advance of remelt by sprinkling the cut pieces or shavings with some water the night before (toss it like a salad) and covering them until morning. This will help to soften the soap before putting it into the oven. Judy Scher of the Cat Dreams soap site suggested that technique, but I can no longer find a link for her instructions. :-/

Microwave Oven

I've not done much of this and recommend it with some precautions. It is probably a handy way to remelt *a very small batch of soap* but I'd not attempt a big one in the microwave. If you had a volcano experience the mess would be really HORRENDOUS! ;-) Just as in the methods before, check your recipe first to make sure you don't need to add something during the remelt such as a bit more oil or lye. I'm guessing a little bit on this procedure, but think what you'd first do is make sure your soap is in fairly small pieces. This way they will melt much quicker. You can add a bit of water or milk (will turn the soap a brownish color) if you like, but don't go overboard if you don't want really soggy soap that is prone to major shrinkage (and warping) during the drying out period. The first heating period will be longer and at a higher setting to get the melting process jump-started. You can probably get away with using the high setting or just below high for about two minutes. Keep an eye on it through the window if you can. You don't want to boil the soap... just soften it up. Stir and mash it around with a spoon and zap it again on a medium heat... maybe for a minute and check it and stir/mash. Repeat this process until you've gotten the whole thing well blended. As this nears completion, you might need to lower the setting on the microwave to avoid scorching the soap. When you think it's done, add any fragrances or additives you desire, hit it again for about 30 seconds on medium to low setting, stir a bit and "pour." (Mash into the mold as best as you can.)

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Table of soap "symptoms" and possible causes and solutions...

| Symptom | Possible Cause | Remedy |
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| Soap has watery pockets | Slight separation of lye solution | If tiny, may be absorbed during cure. If large, remelt the batch. |
| Soap has small oily pockets | Is often associated with fragrance or adding superfatting at trace | If tiny, may be absorbed during cure. If large, remelt the batch... being sure to put all liquids back in the pot and not tossing anything out. You might consider putting all of your special superfatting oils in the soap at the beginning and not trying to stir them in at trace. |
| Soap doesn't set up | Not enough lye or inadequate saponification during first 24 hours | Troubleshoot recipe and procedures, make any needed adjustments and remelt |
| Soap is brittle or has cracks | Hard, dry and brittle at cutting time is generally too much lye in the recipe. | If determined that there was too much lye, remelting is in order and adding in the missing amount of needed oil. Some soaps can seem brittle because of the types of base oils used and the need for more water in the recipe. |
| Soap has layer of water (lye solution) underneath | This is full blown separation... <i>bad, bad!</i> ;-) | Remelting is necessary! Double check your recipe for lye to fat ratio before proceeding, just in case. Be sure to save ALL liquids from your original recipe for the remelt. |
| Soap is crumbly and DRY | Crumbly and dry... looking rather like laundry detergent powder... is usually the result of a batch that is lye heavy. | Troubleshoot recipe, make needed adjustments, address the issue of how much oil was missing and add that back when remelting. |

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| <p>Soap is soft and crumbly</p> | <p>Soft and crumbly... soap that just wants to disintegrate when you cut it but when rubbed between the fingers produces an oiliness... is generally caused from inadequate mixing and saponification. There is usually a factor of too much heat loss during the stirring period. The smaller the batch, the quicker it will lose heat. <i>With hand stirring</i>, it could be from heat loss during stirring time and/or the stirring was not vigorous enough or until a real trace was reached. <i>With a stick blender</i>, it might be heat loss and too much mixing without frequent breaks, which created the illusion of trace when the thickening was really from hardening fat particles or emulsification.</p> | <p>If the recipe you started with was quite small, you should raise your initial mixing temperatures. As an example, soap that might have been blended at 110 degrees would be mixed at 120 or 125 degrees. People who make really huge batches will often drop their temperature below 100 degrees since large batches retain and build up more heat after pouring.</p> <p>If the soap begins to look grainy right away after mixing in the lye solution, it's a good idea to apply some gentle bottom heat to the pot for a minute or two... until you see it smooth out and develop a satiny texture on the surface. You will be doing your stirring during this warming time. Then turn the burner OFF. For those using the stick blender, review the suggested stick blending technique on the "Modern Procedures Page" and be sure you mix in short bursts and turn the blender <i>off</i> and hand stir in between. This will ensure that you are not fooled by a "false trace" and pour your soap before it's really ready.</p> |
| <p>Soap separated before it ever gets out of the pot!</p> | <p>This is <i>really</i> depressing! :-(When soap separates or "rices" in the pot it's usually from the fragrance that was just added.</p> | <p>This is generally a fragrance oil problem. Not all fragrances are tested and appropriate for use in cold process soap. Be sure to get your fragrances from a supplier that assures they will work for you because they have tested them. Most essential oils will not pose this problem. The exception would be clove essential oil which will accelerate trace. Some fragrance oils that qualify as being "okay" might still accelerate trace and you can often alleviate some of those issues by increasing the amount of water in your recipe to the higher range of what is recommended.</p> |
| <p>Soap has a pliable texture during the first few weeks</p> | <p>I have no clue! =:o</p> | <p>I've only had a couple of batches do this in my hand stirring days and for the life of me I never knew what caused it. The soap had the texture of modeling clay or soft taffy, but in all other ways seemed to work just fine.</p> |

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| <p>Soap has developed "ash"... a white powdery formation on sides or most often the top surface</p> | <p>Inadequate mixing, not enough heat retention (no gel phase)</p> | <p>I used to battle this all the time before I started using a stick blender for mixing and had my batches go through a gel phase. Pouring into a mold that is deeper than one inch will help the soap retain more heat and gel. There could still be a tendency for the top surface to develop some ash during cure, even with a good gelled batch. I also notice that if I don't trim off the "rind" that is formed on the top at cutting time, that rind part will often ooze what appears to be glycerin during the curing period. My first recommendation for ash problems is to give the stick blender a try and be sure your soap goes through a gel phase. Some folks also have good luck with putting an ounce or two of beeswax in their recipe or covering their newly poured soap with a sheet of mylar plastic or some freezer paper... plastic side toward the soap. Sealing out the air during the first day or two seems to deter some of the ash formation on batches that are prone to this.</p> |
| <p>"D.O.S." or "Dreaded Orange Spots" have formed during cure</p> | <p>Hmmm... this is still a little bit mysterious, but generally is going to happen with batches that are overly superfatted or sometimes in conditions of high heat and humidity where the soaps are stored.</p> | <p>Keep your superfatting to a medium range... I prefer from 4 to 5% superfat. Try to keep the finished soaps in a cool environment where the humidity is not too high. High percentages of oils like palm might contribute to DOS but I'm not sure on that one. If you have a recipe like that and keep experiencing this problem, tweak the amounts on base oils a bit to see if that clears it up. I have more on this subject on the "Botched Batches" page.</p> |
| <p>Soap is lighter around the edges than it is in the center</p> | <p>This happens when soap goes through a gel phase but the part that is in contact with the mold doesn't get as hot and gel. It will have a more opaque appearance than the gelled center and might be more flaky during cutting.</p> | <p>Be sure your soap gels all the way to the edges before you uncover it. Also... if the room temperature is cool and you're working with a wooden mold, you can pre-warm the mold in a SLOW oven for about 10 minutes before pouring in your fresh batch of soap. This will prevent the mold from robbing too much heat from the outside layer of the soap.</p> |

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If you have any feedback or questions, email me at kathy@millerssoap.com.