TROUBLESHOOTING *Coagulation*

QUESTIONS TO ASK IF IT DIDN'T COAGULATE AT ALL

- [ ] Did I dilute the Rennet in Water?
- [ ] Did I add the Rennet?
- [ ] Did the Rennet come in contact with anything chlorinated?
- [ ] Did the Rennet get too hot?
- [ ] Did I mix up the rennet solution too soon?
- [ ] Did you use the right concentration of rennet?
- [ ] If using pasteurized milk, Did you add Calcium Chloride before adding in the rennet?
- [ ] Is your milk late lactation?
- [ ] Has your cow had significant diet changes recently?
- [ ] Is your rennet the culprit?

HOW TO FIX IT

- [ ] If you know what the problem was, and it make sense, you can start again from scratch. This does leave you in the dark for acidity, but if you did something like forgot to add the rennet, just start again.
- [ ] Make it into Ricotta

TO MAKE SWEET RICOTTA

Slowly heat acidic milk up to about 120F. If the milk is already quite acidic (you used citric acid), it will separate on its own. If you have not used citric acid, add a little more citric acid or vinegar diluted in water and watch the magic happen. The cheese will separate from the whey almost instantly. Turn off the heat and let it sit for 10 min or so, before scooping it off and straining it through a colander.

TROUBLESHOOTING *Coagulation*

QUESTIONS TO ASK IF IT COAGULATED BUT IS A WEAK CURD

- [ ] Was my milk warm enough while it coagulated?
- [ ] Am I working with milk that is not very acidic?
- [ ] Did I dilute the Rennet in Water?
- [ ] Did I add the Rennet?
- [ ] Did the Rennet come in contact with anything chlorinated?
- [ ] Did the Rennet get too hot?
- [ ] Did I mix up the rennet solution too soon?
- [ ] Did you use the right concentration of rennet?
- [ ] If using pasteurized milk, Did you add Calcium Chloride before adding in the rennet?
- [ ] Is your milk late lactation?
- [ ] Has your cow had significant diet changes recently?
- [ ] Is your rennet the culprit?

HOW TO FIX IT

- [ ] Very, very gently you can try stirring your curds and proceed with the mozzarella recipe, but if it is weak you risk loosing a lot of solids in the whey. You also risk having a grainy cheese
- [ ] Try a rescue recipe. Some great rescue recipes for weak coagulation are Ricotta, Quark, or some sort of fresh cheese. My motto is, there is nothing a little bit of straining through a cheese cloth can't fix!

IF IT IS A GRAINY STRETCH TRY MAKING IT INTO A VERSION OF CHEESE WHIZ TO SOFTEN IT UP

Sometimes stretching a weak curd means it stretches, but it sort of crumbles instead of smoothing out once cooled.
To fix this, melt a few tbsp of butter for every gallon of milk used, add in the grainy cheese and melt until it is smooth, salt to taste and optionally add a shredded aged cheese (like cheddar) to taste. If you would like it to stay spreadable add milk to desired consistency.

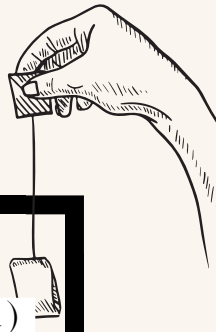
TROUBLESHOOTING *Coagulation*

QUESTIONS TO ASK IF IT COAGULATED FASTER THAN YOU EXPECTED

- [ ] Did I add too much acid?
- [ ] Was my milk already acidic? Older milk? Contaminated milk?
- [ ] Did I add too much rennet?
- [ ] Was it a little bit warmer than usual?

HOW TO FIX IT

- [ ] At this point you pretty much just need to work with what you have. Because of the over coagulation, your cheese may have a rubbery texture. Also remember the motto, "if its sunk below the whey, you can probably stretch right away".



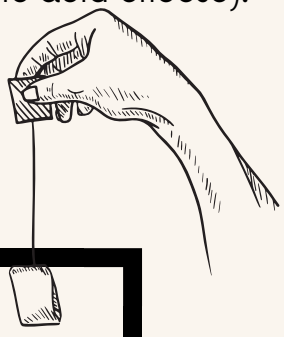
TEA BAG TEST (NAMED BY DAVID ASHER)

Dunk your cheese in a cup of boiling water. Let is sit in the hot water for a few moments and than using a fork, dunk it up and down in the hot water. If the curd is ready to stretch, it will stretch almost indefinitely and not break off.

TROUBLESHOOTING *Stretching*

IF IT WON'T STRETCH OR IS STARTING TO STRETCH BUT STILL BREAKS OFF

- [ ] I recommend for all mozzarella recipes that you keep a little cup of boiling water beside you to check for stretching. The stretching window can be quite narrow and easily missed (about an hour for lactic acid cheese).



TEA BAG TEST (NAMED BY DAVID ASHER)

Dunk your cheese in a cup of boiling water. Let is sit in the hot water for a few moments and than using a fork, dunk it up and down in the hot water. If the curd is ready to stretch, it will stretch almost indefinitely and not break off.

HOW TO FIX IT

- [ ] If your cheese hasn't stretched yet, but is starting to stretch, don't panic you are just not in the window of acidity yet.
- [ ] If it goes through that window and ends up on the other side of the ph 4.9 or below it will start to crumble, have grainy bits in it and no longer feel as smooth as before, this is your indication that it has gone too far. At this point you won't be able to turn it into mozzarella, but you can eat it like cheese curds or fry it up in butter for a version of halloumi.

> CHEESE THAT HASN'T REACHED THE STRETCHING WINDOW STILL FEELS SOFT, OPPOSED TO CHEESE THAT HAS, AND FEELS RUBBERY

TROUBLESHOOTING *Stretching*

IT FEELS CRUMBLY, RUBBERY AND BREAKS APART RATHER THAN STICKS TOGETHER

Once it is crumbling, you have most likely missed your stretching window. If you have accidentally missed the stretching window, troubleshoot why you missed it.

TO TROUBLESHOOT FOR NEXT TIME, ASK YOURSELF THESE QUESTIONS

- ☐ Was my milk already a bit acidic? Older milk, late lactation ect.
- ☐ Did I miss my stretching window because I didn't check for stretching enough?
- ☐ Did I add in too much acid?

HOW TO FIX IT

- ☐ If it goes too far and ends up past a ph of 4.9. You really don't have a chance of turning it into mozzarella anymore. What I like to do in these cases is turn it into cheese curds or halloumi.

FRY UP OVERACIDIFIED CHEESE

I call it halloumi, but you really don't have to follow any sort of recipe. If you are through the acidity window of the cheese being able to have a really nice stretch, try frying your cheese up for halloumi. Depending on how far you went, it may even still have a little melt, but the rubbery texture and lack of melt, will lend itself well to pan fried cheese.

TROUBLESHOOTING *Texture*

RUBBERY

- [ ] Did I overwork the mozzarella?
- [ ] Did you add too much rennet?
- [ ] Did I reach the perfect stretching point?
- [ ] Did you make acid mozzarella?
  Personally, I find that acid mozzarella tends to be rubbery in more cases than lactic acid mozzarella. This is my personal opinion, but I much prefer the texture of lactic acid mozzarella and tend to make that more if I am planning on eating the mozzarella as balls verses just shredding it on pizza.

HOW TO FIX IT

Rubbery cheese can be caused by various things but common problems are overworking, or adding too much rennet. Use the easy shredding technique and shred it up for mozzarella. If you have already salted it in the pot, just decrease the time in the brine. It will freeze well and you will not notice the rubbery texture isn't as much of an issue for pizza as it is for trying to eat it alone.

GRAINY

- [ ] Did I add the citric acid in when the milk was cold?
- [ ] Did it get too hot at the bottom of the
- [ ] pot?
- [ ] Did I scald the milk?
- [ ] Did you salt with a salt that has hard bits in it? Salts like Redmonds can leave grainy pieces in your cheese.

HOW TO FIX IT

The most common culprit for grainy mozzarella is large pots. It can't be helped, but large pots are very good at throwing uneven temperature. Just because your temperature at the top says 100F doesn't mean the bottom isn't a 120F. Slightly acidic cheese that hasn't reached a ph of 5.4-5, will turn to ricotta when the heat reaches 120F. This can leave you wondering why your cheese has grainy bits in it. The answer is, you made ricotta and mozzarella!
Let it melt on a pizza and tell everyone that you made two cheeses in one! Ricotta and Mozzarella! They will be impressed and you will have learned something!

TROUBLESHOOTING *Texture*

CRUMBLY OR HARD TO SHRED

Crumbly cheese that won't come together often means that you have missed your ph window, (see crumbling apart and not sticking together). On the other hand, if it has come together but is a nightmare to shred; Homemade mozzarella is naturally a little stringy when you try to shred it. Thats why I recommend using the easy shredding technique if you are planning on using your mozzarella for stretching.

HOW TO FIX IT

Use the easy shredding technique to make mozzarella easier to shred.
If you have salted your cheese during the cheesemaking process, you may notice that it really isn't that salty. This means that you can proceed with the easy shredding technique even after making. The key is to taste test it as you go so you don't end up overselling it. You will find that with the easy shredding technique, you are able to shred it easily without it breaking off into chunks.

EASY SHREDDING TECHNIQUE

1. Transfer entire curd mass into a holed form. While the cheese is in the form, sprinkle a light dusting of salt onto the surface of the cheese, let it drain for about 10 minutes before flipping it over and doing the same on the other side. This light salting will aid in drainage.
2. After an additional 10 minutes, transfer your cheese to your 18% brine. You can brine it at the ratio of 2 hours per pound of cheese. While your cheese is brining let it sit in the refrigerator or a cool area. If you have made multiple cheeses, weigh each cheese separately and calculate brine time for each cheese.
3. After you remove your cheese from the brine, place it on a plate in the refrigerator for 12 hours to dry. Your cheese will now be easy to shred and freeze, or to cut up into strips and freeze. I like to cut my cheese into 1 inch by 3 inch strips and freeze them for mozzarella sticks, as well as for stretching into Bocconcini balls at a later date. I also like to freeze my shredded mozzarella flat so that you can pull it from the freezer frozen, and it doesn't take long at all before you are able to handle it for sprinkling on top of pizzas.

TROUBLESHOOTING *Taste*

BLAND

Because mozzarella is really a fresh cheese, a lot of the flavour profile comes down to the milk quality and the salting.

HOW TO FIX IT

If you are finding that your cheese is just too bland, consider brine salting it or surface salting it after making, verses salting while you stretch.
One trick I love to do is to add Italian seasoning and garlic powder in while stretching. It adds a really nice flavour.

OVER SALTED

If you over salted your mozzarella, it can be a tricky fix. Usually this happens when you forget your cheese in a saturated brine.

HOW TO FIX IT

- [ ] Soak your cheese in milk for the approximate time that you over salted your cheese or to taste.
  The problem that you will run into with this, is that as the cheese releases the salt into the whey, it will become slimy. This is due to the ph of the milk being different than the cheese. On a cheese that is quite large, you may easily be able to shave off the slimy bits, but on smaller balls, ropes or blocks, it won't be as ideal. In any case it is worth a try.
- [ ] Another thing you can do is shred it and keep it in a freezer bag labeled over salted. Next time you make a regular batch for shedding and freezing, cut in a few handfuls of the super salty cheese.

TROUBLESHOOTING *Taste*

BITTER → HOW TO FIX IT

Bitter taste in cheesemaking can be caused by a lot of things but with a fresh cheese like mozzarella that isn't going through aging, the cause is narrowed down to only a few. Any time flavour is an issue, you always want to be looking at the quality of your milk. If your milk comes into cheesemaking with bad flavour, that won't be fixed by cheesemaking.

The most common cause of bitter fresh cheese however is too much calcium chloride. Next time try reducing the amount of calcium chloride and see if this helps. Remember, if you are using raw milk, you can omit it completely unless you have been struggling with late lactation coagulation problems.

CONTAMINATION → HOW TO FIX IT

Mozzarella is a fresh cheese and especially in the case of citric acid mozzarella, it has a very short shelf life. You may find that your mozzarella only lasts a few days in the fridge before it starts to look an off colour and slimy. At this point I would not consume it.

- ☐ To lengthen the fridge life of your mozzarella use the easy shredding technique for salting. This will lengthen the fridge life of your mozzarella to at least a week. It also makes freezer storage easier because you can easily shred and freeze flat.
- ☐ Naturally acidified mozzarella can be stored in the refrigerator in a light salt brine for an extended period of time. Unfortunately I don't have good recommendations for this, as I have never been successful in not having it become slimy. If you do choose this route, use whey as the base for your brine.