



Common Beer Brewing Problems

Symptom: I added the yeast 2 days ago and nothing is happening.

Cause 1: Leaky Bucket Lack of fermentation can be due to several things. If the airlock is not bubbling, it may be due to a poor seal between the lid and the bucket. Fermentation may be taking place but the CO₂ is not coming out through the airlock.

Cure: This is not a real problem; it won't affect the batch. Fix the seal or get a new lid next time.

Cause 2: Bad Yeast When a batch is not fermenting, the most common problem is with the yeast. If dry yeast has been properly packaged and stored, it should be fully viable for up to two years. However, if you are using a yeast package that came taped to the top of a dusty can of malt extract, then the yeast may be too old or may have been subjected to poor storage conditions, and will not work for you.

Yeast need to be treated with care and be given the proper growing conditions. Dry yeast are dehydrated, they're parched, they're in no condition to start work. They need some nice warm water to get re-hydrated in, some time to do some stretching, maybe an appetizer, and then they will be ready to tackle a full wort. If the dry yeast is just sprinkled onto the surface of the wort, some of the yeast will be up to the challenge, but most won't.

Cure: Re-hydration of yeast in plain water is strongly recommended because of the principles of osmosis. In a wort with a high concentration of dissolved sugar, the water that the yeast needs cannot be drawn across the cell membrane to wet it. The water is instead locked up in the wort, hydrating the sugars. A friend of mine, who insists on remaining nameless, was misled by the term, "pitching", and for his first batch attempted to forcibly throw each granule of dried yeast into the wort so that it would be wetted. That batch didn't turn out very well.

Likewise, liquid yeast cultures also need their breakfast routine. They have been kept in a refrigerator and need to be warmed and fed before there will be enough active yeast to do the job properly. There are a lot more yeast cells in a dry yeast packet than in a liquid packet. The liquid packet needs to be grown in a starter to produce enough cells to take on the job of a full five gallon wort. Both liquid and dry yeast cultures will have a lag time from when they are pitched until they start fermenting in earnest. Aeration, the process of dissolving oxygen into the wort, provides the yeast with the oxygen they need to greatly boost their growth rate and make enough yeast cells to do the job properly.

Cause 3: Too Cold The fermentation conditions may be too cold for an otherwise healthy yeast population. Ale yeast tend to go dormant below 60°F. If the yeast were re-hydrated in really warm water (105°F) and then pitched to a much cooler wort (65°F), the large difference in temperature can thermally shock the yeast and cause a longer lag time as they adjust. Or in some cases, that otherwise normal ale fermentation temperature could cause those warm-acclimated yeast to call it quits.

Cure: Try warming the fermentor by 5°F; it may make all the difference.

Cause 4: Improper Sanitation Sanitation can be carried too far some times. When you were preparing the warm water for rehydrating or boiling your yeast starter, did you cool it to the proper temperature range? If the water is too cold (below 80°F) the yeast will be sluggish and have a hard time getting rehydrated. If it is too hot (above 105°F) then the yeast are going to get scalded, and refuse to have anything to do with you and your wort. Also, if you added the yeast to the Starter wort and then boiled it, well, they're dead.

Cure: Pitch new yeast.

Symptom: I added the yeast yesterday and it bubbled all day but is slowing down/stopped today.

Cause 1: Lack of Preparation As I stated in the section above, yeast that are improperly prepared, whether from lack of re-hydration, lack of numbers (i.e. lack of Starter), or lack of aeration, will often fail to finish the job.

Cure: Pitch new yeast.

Cause 2: Too Cold Temperature can also be a major factor for fermentation performance. If the temperature of the room where the fermentor is cools down, even only 5 °F overnight, then the yeast can be slowed dramatically.

Cure: Always strive to keep the fermentation temperature constant, the yeast will thank you for it.

Cause 3: Too Warm The flip side of the coin could be that the temperature was warm, e.g. 75°F, and the yeast got the job done ahead of schedule. This often happens when a lot of yeast is pitched, the primary fermentation can be complete within 48 hours. This is not necessarily a good thing, as ferments above 70°F tend to produce a lot of esters and phenolics that just don't taste right. The beer will still be good, just not as good as it could have been. It will depend on your tastes and the yeast strain.

Cure: Always strive to keep the fermentation temperature within the recommended range, the yeast will thank you for it.

Symptom: The last batch (did that) but this batch is (doing this).

Cause 1: Different Conditions Different yeast strains behave differently and different ingredients can cause the same yeast to behave differently. Different temperatures can cause the same yeast working on the same ingredients to behave differently. Different yeasts working on different ingredients at different temperatures will produce different beers. Profound, eh?

Cure: Be patient; don't jump to conclusions. Go watch TV.

Cause 2: Yeast Health If you are brewing identical recipes at the identical temperatures then a difference in fermentation vigor or length may be due to yeast health, aeration or other factors. Only if something like odor or taste is severely different should you worry.

Cure: Wait and see.

Symptom: The airlock is clogged with gunk.

Cause: Vigorous Fermentation Sometimes ferments are so vigorous that the krausen is forced into the airlock. Pressure can build up in the fermentor if the airlock gets plugged and you may end up spraying brown yeast and hop resins on the ceiling.

Cure: The best solution to this problem is to switch to a blow-off hose. Fit a large diameter hose (e.g. 1 inch) into the opening of the bucket or carboy and run it down to a bucket of water.

Symptom: White stuff /brown stuff /green stuff is coating/growing/moving.

Cause 1: Normal Fermentation The first time you look inside your fermentor, you will be treated to an amazing sight. There will be whitish yellow-brown foam on top of the wort, containing greenish areas of hops and resins. This is perfectly normal. Even if it appears slightly slimy, it is probably normal. Only if something hairy starts growing on top of the wort should you be concerned. I remember one guy reporting a dead bat floating in his fermentor...That was definitely cause for alarm. **Cure:** Get another bat.

Cause 2: Mold A simple case of mold.

Cure: Mold can usually be just skimmed off with no lasting effect on the beer's flavor. Withdraw a sample of the wort with a siphon or turkey baster and taste it. If it tastes foul then it's not worth keeping. Otherwise the beer was probably not harmed. Infections in beer caused by molds are not dangerous. Be meticulous in your sanitation and you should not have any problems.

Symptom: It smells like rotten eggs.

Cause 1: Yeast Strain Rotten egg odors (hydrogen sulfide) can have two common causes: the yeast strain and bacteria. Many lager yeast strains produce noticeable amounts of hydrogen sulfide during fermentation. The smell and any sulfur taste will dissipate during lagering.

Cure: Let the beer condition or lager for a few weeks after primary fermentation.

Cause 2: Bacteria Bacterial infections can also produce sulfury odors and if you are not brewing a lager beer, then this is a good sign that you have an infection.

Cure: Let the fermentation complete and then taste it before bottling to see if it is infected. Toss it if it is.

Symptom: It smells like vinegar.

Cause 1: Bacteria In this case, it probably is. Aceto bacteria (vinegar producing) and Lacto bacteria (lactic acid producing) are common contaminants in breweries. Sometimes the infection will produce sweet smells like malt vinegar, other times they will produce cidery smells. It will depend on which bug is living in your wort. Aceto bacteria often produceropy strands of jelly which can be a good visual indicator, as can excessive cloudiness, after several weeks in the fermentor (although some cloudiness is not unusual, especially in all-grain beers).

Cure: If you don't like the taste, then pour it out. Lactic infections are desired in some beer styles.

Cause 2: Wild Yeast/Bacteria Two other bugs are also common, Brettanomyces and Pediococcus. Brettanomyces is supposed to smell like horse sweat or a horse blanket. Raise your hand if you know what a horse smells like. From sweat, I mean. Anyone? I think Brettanomyces smells like leather, myself. Pediococcus can produce diacetyl and acidic aromas and flavors.

One man's garbage can be another man's gold though. These two cultures and Lacto bacteria are actually essential to the Belgian Lambic beer styles. Under other circumstances and styles, beers that taste like Lambics would be discarded instead of being carefully nurtured and blended over a two year period. Lambic beers have a pronounced tartness with fruity overtones. This type of beer is very refreshing and is excellent with heavy food.

Cure: Be meticulous in your sanitation or investigate Lambic brewing.

Symptom: It won't stop bubbling.

Cause 1: Cool Temperatures A beer that has been continually fermenting (bubbling) for a long time (more than a week for ales, more than 3 weeks for lagers) may not have something wrong with it. It is often due to the fermentation being a bit too cool and the yeast is working slower than normal.

Cure: This condition is not a problem.

Cause 2: Gusher Infection However, the sustained bubbling is often due to "gusher type" infection. These infections can occur at any time and are due to wild yeasts or bacteria that eat the higher order sugars, like dextrans. The result in the fermentor is a beer that keeps bubbling until all of the carbohydrates are fermented, leaving a beer that has no body and very little taste. If it occurs at bottling time, the beer will overcarbonate and will fizz like soda pop, fountaining out of the bottle.

Cure: Improve your sanitation next time.

If the beer seems to be bubbling too long, check the gravity with a hydrometer. Use a siphon or turkey baster to withdraw a sample from the fermentor and check the gravity. If the gravity is still high, in the teens or twenties, then it is probably due to lower than optimum temperature or sluggish yeast. If it is below 10 and still bubbling at several per minute, then a bug has gotten hold. The beer will not be worth drinking due to the lack of flavor.

Symptom: The fermentation seems to have stopped but the hydrometer says 1.025.

Cause 1: Too Cool This situation is commonly referred to as a "stuck fermentation" and can have a couple causes. The simplest cause and probably the most common is temperature. As previously discussed, a significant drop in temperature can cause the yeast to go dormant and settle to the bottom.

Cure: Moving the fermentor to a warmer room and swirling the fermentor to stir up the yeast and get them back into suspension will often fix the problem.

Cause 2: Yeast The other most common cause is weak yeast. Referring back to previous discussions of yeast preparation, weak yeast or low volumes of healthy yeast will often not be up to the task of fermenting a high gravity wort. This problem is most common with higher gravity beers, OGs greater than 1.048.

Cure: Add more yeast.

Cause 3: Low Attenuating Extracts Another common cause for extract kit brewers is the use of extracts high in dextrins. Two brands are known to be high in unfermentables, Laaglanders Dry Malt Extract (Netherlands) and John Bull Liquid Malt Extract (UK). These are not bad extracts, in fact they are high quality, but their use is better suited to heavier bodied beers like strong ales, porters and stouts, where a high finishing gravity is desired.

Symptom: It won't carbonate.

Causes: Need More Time Time, temperature and yeast strain all combine to form a government committee with the charter to determine a range of times when they can expect to be 90% finished with the Carbonation/Residual Attenuation Project. This committee works best without distractions--the meetings should be held in quiet, low light areas in a warm room. If the committee was given enough budget (priming sugar), then they should arrive at a consensus in about 2 weeks. If they don't get their act together within a month, then its time to rattle their cages and shake things up a bit. **Cure:** The yeast may have settled out prematurely and the bottles need to be shaken to get the yeast back into suspension. Likewise if the temperature is too cool in the room, moving the bottles to a warmer room may do the trick.

Symptom: The bottles are overcarbonated.

Cause 1: Too much sugar You used too much priming sugar

Cure: Vent and re-cap all of the bottles.

Cause 2: Bottled too soon You bottled before fermentation was complete.

Cure: Vent and re-cap all of the bottles.

Cause 3: Wild yeast A gusher bug has gotten into the beer. Gusher bugs and wild yeasts are a real problem as they will keep on fermenting the beer until there is nothing left but fizzy bitter alcoholic water. The real danger with overcarbonation is exploding bottles. Bottle grenades can be very dangerous both from flying glass and from glass slivers left in the carpet.

Cures: Refrigerate the bottles and drink them while there is still some flavor left.

I recall one story I read on the Internet rec.crafts.brewing newsgroup where a brewer recounted how both he and his partner each added 3/4 cup of priming sugar to the batch, thinking that the other one had not. By venting and recapping all the remaining bottles after the initial explosions, they thought they had saved the batch. Then a massive cold front swept through and the corresponding drop in barometric pressure caused the rest of the bottles to explode. Be careful!

Symptom: The (finished) beer is hazy/cloudy.

Cause 1: Chill haze This is the number one cause of cloudy homebrew. It is caused by an insufficient cold break during cooling after the boil.

Cure: Use a wort chiller.

Cause 2: Starch If you made an all-grain beer and had incomplete conversion, or added/steeped a malt that needed to be mashed to an extract batch, then you can have residual starches in the beer that will cause cloudiness.

Cure: Watch the mash temperature and mash longer next time.

Cause 3: Yeast Yeast strains that have low flocculation, such as German Hefeweizen, will cause the beer to be cloudy.

Cure: Use a different yeast strain if you want a clearer beer.

In all cases, cloudiness can be combated by adding fining agents (e.g. isinglass, gelatin, Polyclar, bentonite) after fermentation. When all-grain brewing, the clarity can be enhanced by adding Irish Moss towards the end of the boil.

