

Common Homebrew Off-Flavors & How to Fix Them

1. Skunk

Skunky and rubbery flavors or aromas in homebrew can be signs of “light-struck” homebrew. This quality is typically never desired in any style of beer. Beer becomes light-struck when the isohumulone bittering compounds in hops come into contact and react with specific wavelengths of light. Skunky aroma can also be caused by using Cluster hops for late boil additions.

To prevent light-stricken beer in the future, use brown bottles when packaging and store bottles out of the light. In some instances, it only takes a matter of seconds for the reaction to occur and start instilling the undesirable skunk off-flavor.

2. Solvent

Also described as “hot” or high in fusel alcohol qualities, solvent-y brew is often characterized by an unpleasant heat from alcohol, and in some cases a burning sensation on the palate. It can be perceived in flavor, aroma and mouth feel. In some stronger beer styles, perceivable alcohol is expected at certain levels. “Hot” beer can be caused by fermenting too warm, not using enough healthy yeast or simply the beer being young.

To address solvent-y beers, first try simply setting the flawed beer aside and giving it time. Sometimes beers need longer aging periods to round out flavors and aromas. If time does not fix this issue, you can take measures to prevent this from happening next time you brew the recipe. Depending on what your brew day notes dictate, consider cooler fermentation temperatures, more viable yeast cells or even a different yeast strain altogether.

3. Fresh Green Apple

Green apple or cider-like characteristics can be tricky. To the untrained palate you may think this is just an interesting fermentation by-product that gives your beer a little fruity zing, especially in the aroma, but the reality is it is rarely an intended characteristic in beer. This off-flavor is caused by acetaldehyde, which is a compound formed during fermentation as precursor to alcohol. It typically increases in amount during fermentation and then decreases as beer conditions and ages.

Acetaldehyde is a key signifier of young (also known as “green”) beer, so often times the issue is remedied by simply allowing the beer to condition longer. [Krausening](#), a traditional German technique, can also help clean up acetaldehyde in beer. If additional conditioning time or krausening does not work, in your next homebrew ensure the appropriate amount of viable yeast is pitched, the wort is adequately oxygenated and the fermenting wort is left on the yeast longer.

4. Astringency

Astringency is usually identified as a harsh bitterness sensation to the palate, which can be accompanied by some grainy, husk-like flavor. This off-flavor can be misinterpreted as hop bitterness, though with some practice it becomes easier to discern the difference between the two. Typically astringency is caused by tannins derived from brewing ingredients, particularly grains. Control the amount of tannin extraction, and you can reduce the chances of astringency.

To prevent astringency in your next homebrew, a few measures can be taken when using certain ingredients. Astringency is often derived from the mash, hence the grainy, husk-like flavors that sometimes appear with the harshness. Check your crush and ensure you are not pulverizing your grains too much. Avoid sparging with water hotter than 170° F, and avoid boiling grains for any reason. High amounts of dark-roasted specialty grains, whole-leaf hops and certain raw spices can also increase astringency levels.

5. Wet Cardboard

Beer that has been oxidized can instill aromas and flavors reminiscent of cardboard, wet paper or just a general “stale” characteristic. While oxidation can sometimes take the form of sweet and sherry-like qualities, adding depth to some styles like barley wine or old ale, it is rarely a desired trait in beer. Unfortunately, once oxidation occurs it is unable to be fixed, but steps can be taken to prevent it from happening in your next homebrew.

The key to preventing oxidized beer is avoiding the introduction of oxygen after fermentation. In fact, in most cases you should avoid aerating wort after the oxygenation at the time of pitching the yeast. Oxygen is initially important to yeast because it consumes it to aid in growth and preparation for the fermentation ahead. Once the yeast gets to work, their consumption of oxygen decreases, which is why it's important to avoid aeration. To do this, ensure the wort is not splashed or agitated after fermentation, especially when racking. Keep airlocks full. Ensure fermenters, kegs and bottles are all sealed airtight. And if possible, purge kegs, bottles and fermenters with CO₂ before racking fermented wort into them.

6. Buttered Popcorn

Movie popcorn, butter and butterscotch are all tell-tale signs of diacetyl. Diacetyl is detectable in both flavor and aroma. While it is sometimes pleasant at very low levels in some English-styles, it is typically considered an undesirable off-flavor for most classic styles. Most often, stressed yeast leak diacetyl during amino acid synthesis causing the butter popcorn characteristic, but it can also be a sign of bacterial infection from things like dirty keg lines.

If the diacetyl flavors and aromas are yeast derived, then you can only worry about preventing the issue in your next homebrew, but if it's the beer lines, the off-flavor can be fixed by simply cleaning your keging system.

Assuming it is yeast derived, the biggest effort should be making the yeast as happy and healthy as possible. Be sure to keep wort atop the yeast cake for a sufficient period during primary. Avoid racking to secondary and/or cold crashing too soon. A warmer secondary can also help in prevention, and a diacetyl rest when brewing lagers. As is usually always the case, avoid oxygenating the wort at any point after primary fermentation.

7. Copper Coins

Metallic qualities similar to coins, iron or blood is typically categorized as a flavor flaw, but often times it is detected also as an aroma and sensation on the palate. This off-flavor is never a preferable quality in beer. Typically, tasting metallic qualities is a sign that unprotected metals were dissolved into the wort. This is not always a terrible thing from a nutritional standpoint, but it is less than pleasant as a detectable characteristic in beer.

To diagnose the issue, you want to first determine where the metals leaching into the wort may be coming from. It is possible that it could come from scratches in your boil pot, though this is usually only an issue for ceramic-coated steel pots and not aluminum or stainless steel. The chemical make up of your brew water can also cause the coin-like off-flavor. Take a look at your water source report and keep an eye out for high levels of things like iron, copper and other metal-like elements.

8. Cooked Corn

Creamed corn, cabbage, green beans, canned asparagus and even tomato juice (typically in darker beers) can be a sign of dimethyl sulfide, more commonly referred to by homebrewers as DMS. The aromatic off-flavor is typically never considered favorable in beer, but in small amounts it can be acceptable in lagers.

In shortened terms, DMS is created when S-methyl-methionine (SMM)—a compound typically reduced in malt during the roasting/toasting process—is reduced during the boil. Malts that have a higher degree of roast have less available SMM, meaning less DMS production in the boil, which is why DMS is very common in light lagers. In other instances where the DMS is found in exceptionally high levels, the cause can be due to bacterial infection.

To prevent DMS in your next homebrew, first ensure you are using proper sanitation measures to confirm the issue was not bacteria derived. If bacteria is not deemed the issue, you can assume DMS was formed during the boil. To lower DMS production in your next homebrew, ensure the wort endures a long, rolling boil with the lid off to allow DMS to be evaporated out of the boil. Quick chilling of the wort after the boil is crucial since DMS compounds can continue to form post-boil when there is less evaporation to carry away the compounds. Also, if your grain bill contains a lot of Pilsner malt, you may want to consider substituting it for another base malt of a slightly higher roast.

9. Rotten Eggs

Rotten eggs, sewer gas and sulfur qualities reminiscent of burnt matches is typically caused by hydrogen sulfide and/or sulfur dioxide. The off-flavor manifests itself in the aroma of beer. While rotten egg-like aromas are rarely desired in beer, they are sometimes present in some lagers. This is because certain lager strains are known for producing sulfur qualities. In other instances this issue is caused by poor yeast health or tasting beer while it's still considered young. Brewing water composition can also play a role in instilling rotten egg aromas, as well as bacterial infection.

Before chalking your brew up as flawed, try to remedy the situation by allowing the beer to age a bit longer. The rotten egg characteristics may subside in time. If not, you'll have to make efforts to prevent the off-flavor from happening in your next homebrew.

Ensure you are pitching lots of healthy yeast, and allowing the wort to ferment on the yeast cake long enough. That being said, sulfur aroma can be a sign of yeast autolysis which is caused by wort being on the yeast cake for too long. Also consider the possibility of introducing infection into your beer or using water that may be high in sulfides. If all those fail, try a different yeast strain.

10. Soapy

Soapy, detergent-like characteristics are perceived in both flavor and aroma, and are never desired traits in beer. The most obvious cause would be soap somehow making its way into the beer. It could simply be a case of using a drinking glass with soap residue, but it's also possible that scented soaps used to clean equipment like fermenters or beer bottles made their way into the beer. First ensure that your drinking glasses are clean. That's an easy fix! If that's not it, you can take steps to prevent the soapiness from tarnishing subsequent brews.

Soapy qualities can also be caused during fermentation. If a beer is left in primary for a long period (note that this length of time is style-dependent) after primary fermentation is complete, the breakdown of fatty acids in trub can cause soap characteristics.

First ensure that you are always thoroughly rinsing homebrew equipment after cleaning them. Avoid using scented cleaners, especially on plastic equipment that may retain the scent and pass it along to your beer. Also take care that beer is not left in primary too long after fermentation is complete to prevent the breakdown of fatty acids.

Sources: American Homebrewers Association, [Brewing Better Beer](#) by Gordon Strong; [How to Brew](#) by John Palmer; [Tasting Beer](#) by Randy Mosher; [The Beer Judge Certification Program Beer Fault List](#)