

# Instant Beer Troubleshooting Guide

This guide is designed to help novice judges identify “off” characteristics in beer, recall the most likely origins of the problem and provide useful feedback to the brewer. It won't turn you into an expert beer judge, but it will help you fake it! While learning to troubleshoot beer using “sensory analysis” is a skill that takes time to master, the basics aren't that hard. Just identify the sensation you're detecting, recall the most likely cause and determine if it makes sense for the beer you're analyzing. If not, go to the next most likely cause on your mental list and repeat the process. Sometimes, several faults will have the same cause (e.g., sourness & thin body, butter & green apple). Once you've identified all the characteristics in a beer, and their likely causes, you can then give feedback on how to correct faults or improve the recipe.

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## Common Faults/Characteristics

### Key - Most Common Descriptor

**Description:** Synonyms or alternate descriptors. Useful not only for identifying the characteristic, but also describing it on the scoresheet - assuming that's what you actually detect! **A:** Aroma, **Ap:** Appearance, **F:** Flavor, **M:** Mouthfeel/Aftertaste.

**Cause:** Most common cause(s). More obscure causes are omitted.

**Feedback:** Handy phrases you can “plug in” to the Overall Impression section of the Beer Scoresheet, which will give useful, basically correct, feedback to the brewer. Sections in *italic* are “conditional suggestions,” which only apply in certain cases. (Note: On the BJCP exam, the level of detail provided will only get you a 60-70% score. To get an 80%+ score, you need to provide a lot more detail!)

**Notes:** Other useful tidbits.

### Alcohol

**Description:** Smooth, warming, hot (AFM).

**Cause:** Recipe – high ABV.

**Feedback:** Reduce original gravity.

**Notes:** Ethanol. Detectable above ~6% ABV. Should never be “hot” or unpleasant. Inappropriate in low- to moderate-ABV beers. Expected in big beers, but can be overdone - bigger isn't necessarily better!

### Astringent

**Description:** Drying, puckering, lingering harshness (M).

**Cause:** Mashing/steeping problem.

**Feedback:** *If mashing/steeping:* make sure grain particles aren't carried into boil (don't overcrush grain). Keep mash/sparge temp. below 170 °F. Keep mash/steep water below 5.8 pH.

**Notes:** Common problem in all-grain or partial mash beers. Often combined with chill haze. Less commonly due to excess hop additions.

### Butter/Butterscotch

**Description:** Butter, butterscotch, toffee, artificial butter, “movie popcorn.” (AF).

**Cause:** Fermentation problem – yeast strain, yeast stress, incomplete fermentation.

**Feedback:** Pitch more yeast. Oxygenate wort. Ferment at warmer temp. Ferment longer. Use (longer) diacetyl rest (for lagers).

**Notes:** Diacetyl. OK at very low levels in most English ale styles & Irish red ale. Common sign of yeast stress, esp. some English ale strains. Insufficiently-conditioned Lagers often have both diacetyl and acetaldehyde. Note: Extreme kettle caramelization can be mistaken for diacetyl.

### Cardboard/Paper

**Description:** Cardboard, inky, papery, “chemical” bitter, “solventy stale.”

**Cause:** Oxidation.

**Feedback:** Exclude oxygen at all phases of brewing process except yeast pitch. (Don't splash or aerate mash runoff, wort or beer; Limit head space in fermenters/kegs or blanket with CO<sub>2</sub>). Good seal on bottle caps. Store beer cold.

**Notes:** Very common HB fault. At low levels “dullness” and reduced malt & hop flavor/aroma. Also see Sherry.

### Corn

**Description:** Canned corn, cooked corn, tomato juice (AF).

**Cause:** Recipe, grains.

**Feedback:** *If mashing/steeping:* Full, open rolling boil of 90+ minutes for Pils malt/corn adjuncts. Chill wort quickly at end of boil.

**Notes:** DMS (dimethyl sulfide). OK at low levels for light lagers &, pilsners. Common fault in HB beers made with Pils malt. Rarely due to excess corn adjunct grain. In dark beers can seem more Vegetal - more like canned tomatoes.

### Excessive Carbonation

**Description:** Gushing bottle, excessively high head.

**Cause:** Infection, Improper bottle conditioning.

**Feedback:** Reduce priming sugar if bottle conditioning. Make sure fermentation is complete before bottling. Review sanitation procedures.

**Notes:** High carbonation levels expected for some beer styles (Notably Belgian strong ales.) Long, slow gush + crisp sourness + thin body = Lactobacillus infection. Gush + smoky & plastic phenols + thin body = wild yeast infection. High carbonation can make head size and retention seem greater than it is. It can also increase perception of aromas, hop bitterness and “crisp” mouth texture, while reducing perceptions of malt sweetness and body.

### Flat

**Description:** Poor head formation and retention.

**Cause:** Improper carbonation or packaging.

**Feedback:** Increase priming sugar and/or add fresh yeast at bottling if bottle conditioning. Get good seal on bottles. Also see Thin Body.

**Notes:** Low carbonation acceptable for cask-conditioned ales and a few aged beer styles (straight/unblended lambic, Old ale). Poor carbonation can also reduce aroma perceptions and make beer seem sweeter and fuller-bodied than it really is.

### Floral

**Description:** Geraniums, roses, etc. (AF).

**Cause:** Fermentation problem – yeast stress.

**Feedback:** Pitch more yeast. Oxygenate wort. Ferment at cooler temp. Condition for longer time. Use different yeast strain.

**Notes:** Esters. Expected in English & Belgian ales, German wheat beers. Inappropriate in lagers. Common sign of yeast stress, esp. for English & Belgian ale strains. Sometimes found with solventy &/or spicy phenolic notes. Certain hop varieties can also produce floral notes, but they tend to be more herbal than sweet.

### Fruity

**Description:** Apple, pear, cherry, citrus, pineapple, etc. (AF).

**Cause & Feedback:** See Floral.

**Notes:** Esters. Different yeast strains produce different ester profiles. Apple, pear & cherry for English ale, “tropical fruits” and “Juicy Fruit gum” for Belgian ale, banana, vanilla and “bubblegum” for German wheat beers. Special B™ malt and/or oxidation can produce “dark/dried

fruit" (e.g., dates, dark cherries, figs, prunes, raisins) in dark beers. Also see Sherry.

## Full Body

**Description:** Chewy, creamy (M).

**Cause:** Recipe, grains, fermentation – poor yeast sedimentation.

**Feedback:** Fine/filter yeast. *If mashing/steeping:* Reduce dextrin malts. Reduce wheat/oat/rye additions. Longer protein rest. Starch conversion rest at lower temp.

**Notes:** Due to proteins and/or starches. Sometimes found with haze. OK in most beers made with wheat, oats or rye. Fuller body often associated with stronger beer styles - but not always.

## Grainy

**Description:** Grainy, husky (AF).

**Cause, Feedback & Notes:** See Astringent.

## Green Apple

**Description:** Green apple, green leaves, latex paint, sour apple (AF).

**Cause:** Fermentation problem – yeast stress, incomplete fermentation.

**Feedback:** Pitch more yeast. Oxygenate wort. Ferment at warmer temp., Ferment/condition longer. "Diacetyl rest" for lagers.

**Notes:** Acetaldehyde. Common problem in HB lagers. Insufficiently-conditioned lagers often have both diacetyl and acetaldehyde. Tastes/smells more like latex paint at high levels and/or in darker beers. Easily confused with Fruity and Sour - Acetic notes.

## Haze

**Description:** Hazy or opaque due to suspended material (Ap).

**Cause:** Many causes - Grains, dry-hopping, yeast, infection.

**Feedback:** Fine or filter beer. For "chill haze" (haze which is visible only at cold temperatures) see Astringent.

**Notes:** Haze acceptable/expected for many beer styles. Also see Astringent, Grassy, Metallic or Yeasty.

## Medicinal

**Description:** Medicinal, mouthwash (AF).

**Cause:** Water &/or contamination by sanitizers.

**Feedback:** Don't use water straight from tap. (Dechlorinate or use filtered/reverse osmosis water). Thoroughly rinse chlorine-based sanitizers.

**Notes:** Common novice brewer mistake. Chlorophenols produced by yeast action + residual chlorine in wort.

## Perfomy (AF)

See Floral.

## Plastic

**Description:** Chemical, plastic, "Band Aid" (AF).

**Cause:** Fermentation problem – yeast stress. Infection - wild yeast.

**Feedback:** Ferment at cooler temperature. Pitch more yeast. Oxygenate wort. Review sanitation procedures.

**Notes:** Phenolic. Common sign of yeast stress. Infection is usually found with smoky phenols, solventy notes, thin body &/or excessive carbonation.

## Poor Head Formation/Retention

**Description:** Head not well-formed or falls quickly (loses more than half its volume within 1 minute).

**Cause:** Oils. Also see Flat &/or Thin Body.

**Feedback:** Use more hops. Clean equipment thoroughly to eliminate detergents & oils. Also see Feedback for Flat & Thin Body.

**Notes:** Low head is often difficult to assess when sampling HB.

## Sherry

**Description:** Sherry, winy, vinous, "dark fruit" (AF).

**Cause & Feedback:** See Cardboard.

**Notes:** See Cardboard. Occurs in well-aged, strong (>6% ABV) amber or dark beers. OK in strong dark ales (e.g., RIS, Belgian Dark Strong, Old Ale).

## Slickness

**Description:** Slickness on the tongue, creamy mouth texture (M).

**Cause, Feedback & Notes:** See Butter.

## Smoky

**Description:** Burnt toast, scorched.

**Cause:** Infection – wild yeast or Burned wort/grains.

**Feedback:** Review sanitation procedures or stir boiling wort. Use thicker-bottomed boil kettle. *If using decoction mash* be careful to not scorch mash.

**Notes:** Wild yeast infection is a common HB problem. It is usually found with plastic-like phenols, solventy notes, thin body &/or excessive carbonation. Scorched wort a rare problem, mostly found in extract beers. Scorched grains are an occasional problem for decoction mashed beers.

## Solventy

**Description:** Acetone, lacquer thinner, higher alcohols (AF). Harsh, hot (M).

**Cause:** Recipe, Fermentation - yeast stress.

**Feedback:** Ferment at cooler temperature. Pitch more yeast. Oxygenate wort. Reduce original gravity.

**Notes:** Common sign of yeast stress, especially in strong (>6% ABV) beers.

## Sour – Lactic

**Description:** Tart, crisp, sharp, yogurt-like sourness. (AF).

**Cause:** Infection - Lactobacillus.

**Feedback:** Review sanitation procedures.

**Notes:** Lactic acid. Hard to detect in aroma. Common HB fault. Often due to starting siphon hoses with mouth. Usually accompanied by thin body and long-lasting, slow gushing of Excess Carbonation from the bottle. Better be quick with the dump bucket and the paper towels!

## Spicy

**Description:** Clove, ginger, pepper, etc. (AF)

**Cause:** Fermentation problem – yeast stress.

**Feedback:** Ferment at cooler temperature. Pitch more yeast. Oxygenate wort. Choose different yeast strain.

**Notes:** Phenols. Common HB problem. Expected in Belgian ales & German wheat beers.

## Thin Body

**Description:** Thin body, watery (M).

**Cause:** Malt or mashing problems.

**Feedback:** Reduce adjunct sugar additions. *If mashing/steeping:* Use (more) dextrin malt. Add a bit of wheat, oats or rye malt to grist. *If mashing:* Reduce or eliminate protein rest. Starch conversion rest at higher temp.

**Notes:** Common fault in extract beers attempting to imitate full-bodied styles usually brewed as all-grain/partial mash.

## Less Common Faults/Characteristics

### Barnyard

**Description:** Barnyard, goaty, horsey, horse blanket, leathery, sweaty.

**Cause:** Infection – Brettanomyces.

**Feedback:** Review sanitation procedures.

**Notes:** Various organic acids produced by Brettanomyces. Often combined with low level acetic sour aroma/flavor. Rarely encountered except in aged or deliberately-infected beers. Very distinctive!

### Brothy

**Description:** Autolysed yeast, Marmite™, meat broth, meaty, Vegemite™, soy sauce, “umami” (AF). Fuller body, “filling” texture (M).

**Cause:** Excessive age - dead “autolysed” yeast.

**Feedback:** Rack beer from yeast before packaging. Store beer cold. Don't age beer so long.

**Notes:** Amino acids released by dead yeast. Literally the same taste sensation as found in meat, cheese or other protein-rich foods. Acceptable at very low levels in well-aged strong dark beers (e.g. Old Ale).

### Cheesy

**Description:** Blue cheese, “funky,” sweaty (AF).

**Cause:** Hops – old hops.

**Feedback:** Only use fresh, properly-stored hops. Store hops in the freezer in vacuum-sealed or CO2-filled sealed containers.

**Notes:** Isovaleric acid. Formed due to oxidation of hop bittering compounds. Has a very distinct, usually low-level, “Roquefort cheese” or “Ranch dressing” aroma and/or flavor.

### Grassy

**Description:** Fresh-cut grass, green leaves, hay (AF).

**Cause:** Hops.

**Feedback:** Use fewer hops. Don't use “wet” hops. Don't use old/stale hops.

**Notes:** Most common in dry-hopped beers, esp. wet-hopped.

### Mineral

**Description:** Possibly bitter or salty (F). Dry, dusty, powdery, lingering aftertaste (M).

**Cause:** Recipe, water – excess mineral additions.

**Feedback:** Reduce/eliminate water salt (i.e., “Burton” salt) additions. Use filtered/reverse osmosis water.

**Notes:** Rare in Upstate NY, much more common in areas with very hard water.

### Metallic

**Description:** blood-like, “coiny,” coppery, iron, rusty, tinny (AFM).

**Cause:** Equipment problems – metal leached from plumbing or fittings.

**Feedback:** Only ferment/condition in stainless steel, glass or plastic containers. Check welds/brazing/soldering. Properly passivate brass fittings.

**Notes:** Mostly due to equipment problems. Rarely due to water brewed using bad plumbing or bad well water.

### Musty

**Description:** Moldy, “cellar-like,” “damp basement” (AF).

**Cause:** Mold. Old grain.

**Feedback:** Dry equipment before storing. Review sanitation procedures. Don't leave plastic fermenters on wet/damp floors. Don't

use old grain. Store grain in cool, low-humidity environment in sealed containers.

**Notes:** Rare in homebrew. Easily mistaken for Barnyard, Sulfury, Vegetal and/or other more pungent off-characteristics.

### Skunky

**Description:** Skunky, light-struck (AF).

**Cause:** Light.

**Feedback:** Protect wort & beer from fluorescent light and sunlight (cover fermenters, use brown bottles).

**Notes:** Rare in homebrew. Ubiquitous in badly-handled “green bottle” import beers.

### Sour - Vinegar

**Description:** Harsh, lingering, vinegar-like (AF). Sometimes slimy, “ropey” appearance (Ap) and mouth texture (M).

**Cause:** Infection - acetobacter infection.

**Feedback:** Review sanitation procedures.

**Notes:** Acetic Acid. Rare in HB, usually found with sulfury or vegetal notes and thin body.

### Sulfur

**Description:** Rotten egg, burning matches, fecal, etc.

**Cause:** Infection – bacterial. Rarely excess sulfates in water or added sulfite preservatives.

**Feedback:** Review sanitation procedures.

**Notes:** Hydrogen sulfide, sulfur dioxide and other sulfur compounds. Rare in HB, usually found with sour or other problems. Can be mistaken for Corn, Vegetal or Skunky (and vice-versa).

### Sweet

**Description:** Sugary, sweet (F), Cloying (M).

**Cause:** Grains – excess dextrin malts. Fermentation problem – incomplete fermentation.

**Feedback:** Pitch more yeast. Oxygenate your wort. Ferment longer. Ferment at warmer temperature. Avoid temperature swings which might shock yeast. Reduce or eliminate dextrin malts or non-fermentable sugars. *If mashing:* perform starch conversion rest at lower temperature.

**Notes:** Poor attenuation might be accompanied by other signs of yeast stress (e.g., acetaldehyde, diacetyl) and excessively Full Body for style.

### Vegetal

**Description:** Cooked, canned, or rotten vegetable (asparagus, cabbage, celery, onion, parsnip, etc.) (AF).

**Cause:** Infection – bacterial.

**Feedback:** Review sanitation procedures.

**Notes:** DMS (dimethyl sulfide) at high levels. Rare in HB. Usually combined with sour or sulfury notes. Also see Corn.

### Yeasty

**Description:** Bread dough, rubbery, sulfury (AF).

**Cause:** Fermentation problem - incomplete fermentation and/or poor yeast sedimentation.

**Feedback:** Rack beer off of yeast before packaging. Choose more flocculent (i.e., more likely to settle out of solution) yeast strain.

**Notes:** Often encountered if yeast cake at bottom of bottle is roused.