



ALL-GRAIN RECIPE INSTRUCTIONS

You Will Need:

- Brew Kettle (7.5 Gallon or greater)
- Mash Tun with False Bottom (Or a mesh bag/basket for Brew-in-a-Bag Method)
- Large Stainless Steel or Plastic Spoon
- Hydrometer and Test Jar
- Thermometer
- Timer
- Ice or Wort Chiller
- Cleaner and Sanitizer
- Fermenting Bucket or Carboy
- Siphon/Tubing or Funnel
- Airlock

Brewmaster's Notes:



Belgian Pale Ale

Recipe Name

Grain Bill:

- 5 lbs Pilsen
- 2 lbs 10L Caramel Malt
- 2 lbs Aromatic Malt
- 8 oz. Carapils

** Recipe Target Numbers:

Target OG: 1.052-1.056
 Target FG: 1.010-1.015
 Target ABV: 4.5-5.2%
 IBUs: 24
 SRM: 12
 Mash Temp: 152°
 Mash Time: 60 min
 Boil Time: 60 min
 Primary Ferm Temp: *55°

*consult the yeast manufacturer's directions on your pack of yeast for appropriate fermentation temperature range

** recipe target numbers can change due to your brewing system and efficiency, these numbers are based on 70% efficiency. OG (Original Gravity) and FG (Final Gravity), as well as ABV (Alcohol by Volume), can be affected by temperature, methods, and other factors. Great beer can still be made without hitting these exact numbers!

Hop Additions:

- 60 min 1.5 oz. Hallertauer
- 5 min 1.5 oz Crystal

Brewday Notes:

Date

Mash Temp and Time

Boil Time

Original Gravity

Final Gravity

Yeast Strain

Pitch Temp

Primary Fermentation Temp

Number of Days in Primary

Secondary Fermentation Temp

Number of Days in Secondary

ABV

SRM

IBUs

°C	°F	Delta G (ΔG)
15.6	60	60
18.3	65	65
21.1	70	70
23.9	75	75
26.7	80	80
29.4	85	85
32.2	90	90
35.0	95	95
37.8	100	100
40.6	105	105
43.3	110	110
46.1	115	115

Temp Conversion °C = (°F - 32) * 5/9; °F = (°C * 9/5) + 32

Example Notes

If the SG of your sample is 1.052 at 73°F, then the delta G is 0.002, and the corrected SG is 1.054.

Before Brewing

At the beginning of your brewday, take your yeast out of the fridge and allow it to rise to room temperature.

- If you opted for a Wyeast "Smack Pack," activate your yeast by following the instructions on the back of the package.
- If you made a yeast starter, turn off the stir plate and allow the yeast to settle out to the bottom of your flask.

Brewing

Preparation

- Do a personal inventory check of all of your equipment and ingredients. Make sure all grains are milled before brewing!
- Make sure your brew equipment is clean and ready for brewing.

Mashing

- Add 1.25-2 quarts of water per pound of grain into your brew kettle and begin to heat to around 11-12°F above your target mash temperature. This is known as your strike water.
- Once your target strike temperature is reached, begin to mix your strike water and your milled grains into your mash tun. Be sure to stagger the water and grain additions, and stir as you go to break up any clumping. This process turns the grain starches into fermentable and unfermentable sugars and is now called the mash.
- If using the Brew-in-a-Bag (BIAB) method, simply put your grains into your brew bag and add to your strike water, stirring the mash to break up dough balls.
- Set a timer to mash for 60 minutes (unless otherwise instructed) at the specified temperature, or until desired conversion is reached.
- Begin heating about 5 gallons of water to 170°F. This is known as your sparge water.

Sparging

- Once the mash is finished, the liquid in your mash tun is now called wort, which is the brewing term for unfermented sugar water that will be turned into beer. (Think sweet tea).
- Slightly open the valve on your mash tun and pour a small amount (1-2 Liters) into a pitcher, then gently pour it back over the mash. This is known as vorlaufing, and it helps with clarifying your wort. Do this as many times as necessary to achieve desired clarity.
- Sparging is the process of rinsing the mashed grains with hot water to convert any remaining starches and collect any sugar that may be lingering.

There are 3 methods of sparging:

- **Batch Sparging**
Drain off the wort that is currently in your mash tun into your boil kettle. Measure the amount of wort collected. If you collected 2.5 gallons and you need a 6.5 gallon boil volume, you'll need to add 4 gallons of sparge water to the mash tun. Once you've added your sparge water, mix it thoroughly and let it rest for about 10-20 minutes, then drain into your boil kettle.
- **Fly Sparging**
Open your valve to let a small stream of wort escape your mash tun into your boil kettle. Using a spray nozzle or other dispersing manifold, pour your hot sparge water over the grains. Keep the flow rate slow, and find a good balance so that you only have an inch or so of water above the grain bed. Do this until you reach your target boil gravity or volume.
- **BIAB (No sparge)**
Lift your grain bag out of the kettle, and place in a strainer basket above your kettle (do not squeeze the bag). If more water is needed to achieve your boil volume, pour it gently over the grains until the volume is reached.

Boiling

- Turn on your burner and begin heating the wort to a boil. Once a boil is reached, set a timer for 60 minutes (unless specified otherwise), and add your first hop addition according to the schedule above. **Be careful during this step, as boil-overs are extremely common!** Using the timer, complete the remainder of the hop schedule additions.
- If you are using an immersion wort chiller, sterilize it by placing it in the boiling wort when about 10-15 minutes remain on the timer.
- When your timer goes off, turn off the heat and remove the kettle from the heat source.
- Stir for a couple minutes and then let it sit for about 15-20 minutes to perform a whirlpool. (Optional)

Cooling and Transferring

WARNING: EVERYTHING THAT TOUCHES THE WORT FROM NOW ON NEEDS TO BE CLEANED AND SANITIZED!!!

- You'll want to cool down your wort as fast as possible to prevent infection from outside yeast and/or bacteria. The best way to do this is with a wort chiller, but an ice bath will work as well.
- To create an ice bath, plug a large sink or tub and fill with water and ice. Carefully place the hot kettle in the middle and continue to add ice until the wort has cooled sufficiently (70°-80° F).
- Make sure your thermometer is sanitized with every use!

- After you have cooled your wort down to at least 80°F/26°C, use a sanitized siphon or funnel to transfer it to your primary fermenter.
- Vigorously rock the vessel back and forth for several minutes to create bubbles and introduce oxygen. This adds oxygen to promote yeast health.
- Using a sanitized wine/beer thief, take a sample of the wort and place it in your test jar with your hydrometer. Record the standard gravity for later reference. You will do this again after fermentation to determine the ABV of your finished beer.

Fermenting

Pitching the yeast

Using Dry Yeast

- **Dry yeast** - Though ready to pitch straight from the package, some brewers like to rehydrate the yeast before adding it to the fermenter.
- **To Rehydrate:** Simply add the dry yeast to a small, sanitized jar of boiled water that has been cooled to at least 90°F/32°C. Allow the yeast to rehydrate and rest for at least 5 minutes before mixing.
- **Liquid yeast** - If using Wyeast Smack Pack, follow instructions on the package. If using White Labs or other liquid yeast, give the package a steady shake to suspend any settled yeast fully into the mixture. Liquid yeast is preferred by many brewers to achieve beer styles that are not possible using a dry yeast.
- Soak the yeast package in sanitizer for a couple minutes before pitching. Using sanitized scissors, cut one corner of the packet off, and immediately pitch (pour) your yeast into the fermenter.
- Give the stopper and airlock a quick sanitizer bath, and return to the carboy or fermenting bucket to fully seal the fermenter.

If your recipe calls for a yeast starter, visit <http://www.homebrewsupply.com/learn/how-to-make-a-yeast-starter.html> for detailed instructions.

Fermentation Tips

- Keep your fermenting beer in a dark, cool environment between 65 and 70°F. Sunlight can cause "skunky" flavors in your finished beer.
- Always keep a couple dry yeast packages on hand just in case you get a stuck fermentation or yeast that doesn't work. We recommend Safale US-05 for American Style Ales and S-04 for English Style Ales. We also replace any unviable yeast packets as a part of our dedication to customer service.

Cold Crashing Optional

- If you want to clear up your beer for aesthetic or style guideline purposes, a great way to do that is to cold crash your beer. A few days before bottling/kegging, simply place your carboy in a refrigerator, temperature-controlled freezer, or ice bath at around 35°F to cool rapidly. This sudden decrease in temperature causes leftover yeast, proteins, or hop material to drop out and fall to the bottom of the carboy, leaving a clearer final beer.

Bottling/Kegging

Bottling

- Before bottling, make sure all equipment (siphon, tubing, bottles, caps, etc.) is clean to the eye and sanitized with a no-rinse sanitizer.
- Add an ounce of corn sugar (dextrose, priming sugar) per gallon of beer to bottled to 2 cups of water in a small pot. Boil the solution for 5-10 minutes and then let it cool for another 5 to 10 minutes.
- Carefully add the sugar-water solution to the bottling bucket, then **gently** transfer your fermented beer into your sanitized bottling bucket via a sanitized siphon/tubing. While transferring, the beer will self mix with the sugar solution.
- Using your sanitized bottle filler/tubing, attach the hose end to the spigot and fill each bottle with the beer, leaving about an inch of headspace. When using a bottling wand/filler, press the wand to the bottom of the bottle and fill until just below the very top. Once the wand is removed, the ideal amount of headspace will remain.
- Use your bottle capper to crimp your sanitized bottle caps onto the each bottle.
- Store your beer bottles in a dark environment around room temperature for 2 weeks. Refrigerate and serve, or age the bottles for longer, depending on the style of beer.

Kegging

- Before kegging, make sure all equipment (keg, lid, siphon, tubing, etc.) is clean to the eye and sanitized with a no-rinse sanitizer.
- If you're carbonating your beer using force-carbonation, simply siphon the fermented beer out of the carboy into your sanitized keg, and seal the lid. Move the keg to your kegerator or refrigerator.
- Connect the gas-in line of your keg system to the keg, and set to around 10-12 PSI. Pull the pressure relief valve a few times to purge the keg of any oxygen that may have been introduced during the transfer. Allow the keg to carbonate for 5 - 7 days.
- Depending on the style of beer you brewed, you may want more or less carbonation. You can find a chart of carbonation guidelines for each style of beer at <http://www.homebrewsupply.com/learn/homebrew-keg-carbonation-chart.html>
- When you're ready to serve, adjust your PSI if necessary for a proper pour, and you're good to go!