

Colonial Porter

Mash at 154°F
Ferment at 65°F
Bitterness: 29 IBUs
Estimated Color: 24.5 SRM

Estimated Original Gravity: 1.060 SG
Estimated Final Gravity: 1.012-1.016 SG
Estimated Alcohol by Volume: 5.8-6.3%

Colonial Porter ALL-GRAIN INSTRUCTIONS



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Grain Bill

6 lbs 8.0 oz	Pale Maris Otter Malt	(3.0 SRM)
2 lbs	Flaked Corn	(1.3 SRM)
1 lb 8.0 oz	Victory Malt	(25.0 SRM)
1 lb	Caramel/Crystal 60L Malt	(60.0 SRM)
12.0 oz	Caramel/Crystal 80L Malt	(80.0 SRM)
4.0 oz	Black (Patent) Malt	(500.0 SRM)

Hop Schedule

0.60 oz	Magnum	[11.60 %]	60 Minutes
0.50 oz	Willamette	[5.60 %]	15 Minutes
0.50 oz	Willamette	[5.60 %]	1 Minute
4.0 oz	Molasses	NOT INCLUDED!	(flame out)

Specific Gravity Temperature Correction

Temp Conversion

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) * 5/9$$

$$^{\circ}\text{F} = (^{\circ}\text{C} * 9/5) + 32$$

Example

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.

C	F	Delta G (Δ G)
15.6	60	0
18.3	65	0.001
21.1	70	0.001
23.9	75	0.002
26.7	80	0.002
29.4	85	0.003
32.2	90	0.004
35.0	95	0.005
37.8	100	0.006
40.6	105	0.007
43.3	110	0.008
46.1	115	0.009

Colonial Porter

George Washington was a beer-loving homebrewer. Preserved in the manuscript collections of the New York Public Library is a notebook kept by Washington, and in that notebook is his hand-written recipe for "Small Beer"- a table beer for the home.

"To Make Small Beer, take a large Siffer [Sifter] full of Bran Hops to your taste. - Boil these for 3 hours, then strain out 30 Gallons into a cooler. Put in 3 Gallons molasses while the beer is scalding hot, or rather draw the molasses into the cooler and strain the beer on it while boiling hot. Let this stand till it is little more than blood-warm, then put in a quart of yeast. If the weather is very cold, cover it over with a blanket & let it work in the cooler for 24 hours, then put it into the cask -- leave the bung open till it is almost done working -- Bottle it the week it was brewed."

NEEDED EQUIPMENT AND SUPPLIES

- Stock Pot (at least 7 gallons)
- Burner or stove top that can boil 6.5 gallons
- Mashtun w/ false bottom, or large pot for BIAB
- A pot or cooler to serve as your hot liquor tank
- Mash Paddle or long spoon
- Thermometer, Hydrometer, and Test Jar
- Timer
- Wine thief or equivalent
- Funnel (if using a carboy)
- Ice or Wort Chiller (for chilling the wort)
- Sanitizer

Mashing is a term brewers use to define the process of steeping hot (but not too hot!) water and malted grain together to start the process of making wort. The malt contains enzymes that when activated will convert the starches in the grain into fermentable sugars. There are several enzymes and they are most active at different temperatures and favor different pHs. For brewing purposes, we will target an optimum temperature for our mash to activate the enzymes that will give us the results we want. Generally, a temperature between 147 to 160 degrees will work to convert the starches to fermentable sugars in our wort. Holding the mash at the low end of the range (147-152 degrees) will favor producing a lighter bodied drier beer, while mashing at 154-160 will tend to create a beer with more body and dextrins and a fuller finish. For most of our recipes, we will target a middle-of-the-road mash temperature of 152 degrees, but your recipe may specify a different temperature that is style dependent. A variation of only a couple of degrees is fine, so shoot for holding the mash at 151-154 with the goal at 152 degrees.

A general guideline is to use 1.25 - 2 quarts of water in the mash per pound of grain. Room temperature grains will drop the water temperature, so a good rule of thumb is to use water that is about 11 degrees warmer than your desired mash temperature. This can vary with weather conditions, the actual temperature of the grain, and so on, so your system may vary from this. If your equipment is cold, it may drop temperature quickly so preheating the mashtun / vessel is a great idea.

Have some surplus hot water ready in a second pot, bring your mashing water to 170 degrees, and place it in your mashtun. When the temperature drops to 165, stir in the grain. Stir thoroughly to break up any dough balls and to make sure the grain is thoroughly wetted. Then stir again, and check the temperature of the mash in several places to ensure it is consistent throughout. If the temperature varies by more than a degree, stir again. You want the temperature to be as stable as possible. If your temperature is way too high, you can add an ice cube or two to bring it down but do it slowly as it is easy to overcool. If the temperature is too cool, some of the hot water you have ready can be added, but go slowly as it needs a bit of time to equalize. Add some if needed, stir well, and check the temperature in several places. If you are close, in the 150-155 degree range and the prescribed temperature is 152, that is generally 'good enough' and doesn't need adjusting. If it is too warm, simply stirring will help cool the mash a little. Cover, and set your timer for 60 minutes.

In the meantime, start heating your sparge water. The amount needed will vary slightly depending on recipe. In general, the amount of water you use will be as much as needed to reach the boil volume of 6.5 gallons. If you started with 9 gallons of water in the beginning, you should have about 5 gallons of water here. If you plan on having 1.25 gallons of water here for each pound of grain in the mash, that's a good estimate. You may have more sparge water than you actually need. Having a little extra is a great idea, as the volume here isn't critical. Bring this to 170 degrees.

After 60 minutes, uncover the mash and separate the grain from the wort. First start by vorlaufing (recirculating), if using a traditional mashtun. Crack open the valve/spigot on your mashtun, and drain some of the wort into a pitcher and pour this gently back into the mashtun. This recirculation will catch pieces of grain and husks that made it past your false bottom. You may need to do this two times, or about two quarts worth. Once the runnings are clearer, the sparge can begin.



IF YOU HAVE ANY CONCERNS OR QUESTIONS.

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THE BOIL

Bring the wort to a full rolling boil. Watch for boilers as the wort reaches this point- it will foam up quite high in the pot! You can use a squirt bottle of water to help tame it, and stirring helps. You can adjust the heat down at that time, but it should be returned to a high temperature as soon as possible to encourage the wort to boil. Once the foamy head breaks up and dissolves (this is called the 'hot break'), the risk of boil-overs lowers and the wort can be held at a rolling boil.

Once the wort is boiling, set your timer for 60 minutes and add bittering hops in your recipe. These are the first hops listed, with a "60 minutes" designation on your recipe.

Get the rest of the ingredients your recipe calls for to be added. If you have an addition at 15 minutes add them when the timer shows 15 minutes left. Other hops may be added at 5 or even 0 minutes (when you turn the heat off), according to your recipe.

As the timer hits 0, turn off the heat and add 0 minute hops or other ingredients in your recipe. After the completion of your 60-minute boil the total volume of your wort will be 10-20% less than your original volume.

Cool the wort. You can use a wort chiller, or place your kettle in an ice bath in the sink. While the wort is chilling, ready your already sanitized hydrometer and tube, thermometer, fermenter, lid, airlock, and the carboy cap if using a carboy, and funnel or strainer if using either. Anything that touches the wort after the boil should be sanitized. Place the sanitized items on a clean counter or paper towels.

The wort will chill faster if gently stirred with a sanitized spoon. If using an ice bath, it helps also if the water is agitated a bit to avoid 'hot spots'. You may need to replenish the ice as it melts. When your wort is under 70 degrees, pour into your fermenter (using a funnel if you have a carboy), or use your sanitized auto-siphon and sanitized tubing.

AERATION & YEAST

Stir well, or agitate the wort to provide aeration. Take a sample out of the fermenter using a wine thief or your racking cane or siphon, and place in your hydrometer test tube. Float the hydrometer in the wort, spinning gently to release any trapped air bubbles from the sides and bottom of the hydrometer. When measuring, make sure to keep it from touching the sides or bottom of your hydrometer test tube. This reading is your "Original Gravity"- the OG for short.

Using sanitized scissors to open a corner of your yeast package, or open the vial (depending on the brand of yeast you are using), and add to your wort. No need to stir- the yeast will get to work on their own.

Cover with the sanitized lid and bung, and fill the airlock up to the line with sanitizer solution. Place the airlock in the hole, and keep in a dark place, ideally at 65-68 degrees. For most beers, the fermenting temperature will be in that range. It may need to be moved to a cooler place when actively fermenting as fermentation itself produces heat.

FERMENTATION

Signs of activity should start within 24-48 hours, and continue for several days. The foamy head (called krausen) that occurred during active fermentation will fall back into the beer and settle on the bottom. There should be a "krausen ring" around the fermenter where the krausen reached during that time. Allow the beer to sit and clear a few more days right where it is.

You can take a reading with your hydrometer set up, using a sanitized wine thief or your racking cane. This reading is to be your "Final Gravity", also known as FG. In at least two days, check it again. If it is the same, the beer can be bottled. If you are making a hoppy beer that calls for dry hops, this is the stage in which they will be added.

Beer requires patience. There are advantages to waiting a total of about 21 days to bottling your beer. The beer will be clearer, so there will be less sediment in the bottles, and the beer will be conditioning as it sits so the flavor will be improved.

BOTTLING

You can move the fermenter to the place where you are bottling early in the day. Clean and sanitize 53 beer bottles. Place 2 cups of water in a saucepan, and bring to a boil. Add your priming sugar, and stir well and boil for a minute. Let cool. While the sugar solution is cooling, clean sanitize your bottling bucket, the siphoning equipment, the bottling wand, and the bottle caps.

Pour the sugar solution into your bottling bucket, and then rack (siphon) the beer from the fermenter to the bottling bucket being very careful to not splash or aerate your beer. Put the tip of the siphon tubing at the very bottom of the bottling bucket, angled around the side if possible, so that the beer fills the bucket from the bottom and gently swirls to mix. Avoid as much sediment from the bottom of the fermenter as you can.

Once the beer is transferred to the bottling bucket, gently lift the bucket to counter height (to make it easier to work!) and attach your bottling wand into the spigot. Open the spigot, and lock into place. Fill the bottles from the bottom by placing the bottom of the bottle against the bottling wand tip and fill to the top. When you remove the bottling wand, this will leave the perfect amount of headspace. Fill all the bottles this way, and then cap them with your sanitized caps by using a capper. Store the bottles at 68-74 degrees for best results, and chill before drinking. Store for at least a week or two before trying one to give them a chance to fully carbonate. If they are not fully carbonated in two weeks, give them a bit longer and they should carb up just fine.

1. Use plain water to measure the amount your fermenter will hold in advance, and make marks on the outside of your fermenter at 5.25 gallons so that on brewday you know where the volume should be. This is especially helpful if using a carboy.
2. Bottling is most easily done over a place that can take a few drips- the door of the dishwasher, or over a hard surface floor as there will be a few drips
3. In a pinch, a sanitized turkey baster (a new one!) can be used as a wine thief. Just be careful to squeeze the bulb first, before placing in the beer so you don't blow bubbles in the beer.
4. Oxygen is needed at the beginning of fermentation for the yeast, but once fermentation is complete oxygen contact will quickly ruin a beer. At that point, it's important to only siphon the beer to move it in order to avoid splashing when moving the fermenter, and to keep the lid and airlock in place. Make sure the airlock is always filled to the line with vodka or sanitizing solution. Avoid the temptation to open your fermenter. Doing so increases oxygen exposure producing off flavors and increases your chances of infection.
5. A stick-on thermometer, called a "fermometer" is very helpful to tell the temperature of the beer at a glance. It sticks on the outside of the fermenter so temperature monitoring is easy.
6. Water is the key to brewing good beer. If you don't know your water profile, or how to correct your water profile for brewing we highly recommend using filtered, bottled, or reverse osmosis-treated water. You can also boil your water, but allow it to come back to room temperature before use to ensure proper temperatures during the brewing process.

Sparging means simply to 'rinse' the grains to get as much of the sugars out of them as possible, and into your wort. There are two techniques that are generally used for the sparging process. The decision to choose one over the other is personal preference and often equipment related.

(1) BATCH SPARGING

In batch sparging, the entire volume of wort in the mashtun is drained off (now called 'first runnings'). Then the full volume of sparge water is added to the mashtun. To determine the amount of sparge water needed, the first runnings are measured. If there are 2.5 gallons of wort in your boil kettle after draining the first runnings, you will need an additional 4 gallons of hot water so that you have 6.5 gallons of wort in the kettle. Therefore, you would add 4 gallons of sparge water to your mash tun. When you add this 'batch' of sparge water, stir very thoroughly. Your goal is to dissolve any remaining sugars clinging to the grain into your water. When it is thoroughly mixed, vorlauf (recirculate) again as you did when draining the mash with a pitcher to ensure the wort is clear without large pieces of grain, and then drain fully into your boil kettle. You can start the heat under the first runnings, to help end the enzymatic activity in the wort as well to help reach a boil faster.

(2) FLY SPARGING

Continuous sparging is a second technique to rinse the sugars from the grains. After the mashing period, the wort is *vorlaufed* (recirculated) as above, and then the sparge water is gently added to keep the grain covered by at least an inch above the grainbed while draining the wort from the mashtun at approximately the same rate. The goal is to gradually replace the wort with the water, stopping the sparge when the gravity is 1.010 or when enough wort has been collected, whichever comes first. This usually requires more attention by the brewer, and sometimes a pump is employed to trickle the water into the mashtun at a set rate. When the boil kettle has 6.5 gallons of wort, the sparge is ended. The heat can be turned on the boil kettle during the sparge, so that the wort reaches a boil faster.

(3) NO SPARGING

For those who are using the BIAB/no sparge technique, the bag holding the grain is lifted out of your kettle. If more volume is needed in the kettle to reach the desired 6.5 gallons, hot water can be poured from the pot you were heating over the grainbag until you reach your boil volume. If when you remove the grainbag from the boil kettle, the volume is already 6.5 gallons, the grain bag can be drained and discarded.