

# BREWING HIGH GRAVITY BEER KITS

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## Supplement to the General Beer Kit Instructions

Our working definition of a high-gravity beer is one with an original gravity of 1.064 or higher. The keys to successful high-gravity brewing are:

**PITCHING RATE** - When brewing high-gravity beers, the wort is dense and concentrated. This gives the finished beer more intensity and character, and it allows for a higher alcohol content in the finished product. However, it also creates a more stressful environment for the yeast. To compensate for this, it's crucial to have a high pitching rate - use a large volume of healthy, active yeast cells. It's practically impossible to have too much yeast.

**AERATION** - Yeast cells need oxygen to grow and reproduce; since boiling the wort drives out dissolved oxygen, it's necessary to aerate the wort prior to fermentation so the wort attenuates fully. Aerate the wort after it is cooled and before the yeast is pitched, either by stirring the cooled wort with a sanitized spoon, gently rocking the fermenter to splash the wort, or by using an aeration or oxygen system.

**TIME** - The stronger the beverage, the more time it needs to mature. While a standard-gravity ale with an alcohol content of 4% will reach its peak in about 4 weeks, a single-malt whiskey with an alcohol content of 40% might need ten years or more. A high-gravity beer won't take that long, but it will require more time than a regular-strength ale. Most types of high-gravity beers will be ready to drink within a few months of brewing, and extremely strong beers like barley wines or imperial stouts will continue to improve and evolve for a year or more after being bottled.

In addition to standard brewing equipment, you will also need the following to brew high-gravity beers:

- A secondary fermenter
- Yeast starter kit
- Optional:
  - Aeration or oxygen system

## Prior to Brewing Day

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**1. PREPARE A YEAST STARTER.** Incubate the Wyeast XL pack and prepare a 1000 ml (or larger) yeast starter, 2 to 4 days before you will brew the beer. The actual work for this step takes a relatively small amount of time but makes a big difference in the fermentation and flavor of the finished beer.

Ferment the starter at the same temperature at which you will ferment the beer - for example, if you will be fermenting your IPA at 65°F, allow the yeast starter to ferment at 65°F as well to prevent temperature-shocking the yeast. For information on how to make a yeast starter, refer to: [www.northernbrewer.com/docs/html/yeast-starter.html](http://www.northernbrewer.com/docs/html/yeast-starter.html)

If you choose not to make a yeast starter, boil the wort as specified in the General Beer Kit Instructions, and pitch yeast when the wort is 78°F or lower. The lag phase may be several days long, and the terminal gravity may be high.

## Brewing Day and Beyond

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**4. PRIMARY FERMENTATION.** Active fermentation may not begin for 24 to 48 hours (longer without a yeast starter). Primary fermentation for high-gravity beers may last from 7 to 14 days.

**5. SECONDARY FERMENTATION.** Siphon the beer into a clean, sanitized glass carboy when the primary fermentation is finished. Signs to watch for are: bubbling in the airlock slows down, the foam on the surface of the beer starts to fall back, and a hydrometer reading should show that the beer is 60% fermented (the specific gravity should be about 40% of the original gravity ... for example, a beer with an OG of 1.070 would be 60% fermented when the SG is 1.028).

Condition the beer in the secondary fermenter for 6 to 8 weeks prior to bottling; very strong beers may benefit from longer secondary fermentations.

## On Brewing Day

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**2. BREW THE BEER.** Follow steps #3 through 10 of the General Beer Kit Instructions to make the wort.

**3. AERATE THE WORT.** After the primary fermenter has been filled, aerate the wort. If you are using an aeration or oxygen system, sanitize the components that will contact the wort and follow the instructions for use that came with the system.

If you are not using an aeration system to aerate your wort, vigorously stir the wort with a sanitized spoon or gently rock the fermenter while it rests on a relatively level, cushioned spot on the floor. Be careful when rocking a glass fermenter. Splashing the cooled wort for a few minutes will help dissolve oxygen into the liquid. Don't hold the fermenter to shake it (it will be very heavy), and don't rest it on a table or chair where it could fall.

Proceed with steps #11 and 12 of the General Beer Kit Instructions to pitch the yeast and seal the fermenter.

**6. BOTTLING.** Nine times out of ten, you can follow the instructions in step #14 of the General Beer Kit Instructions for priming and bottling your high-gravity beer. Sometimes, however, you may need to add fresh yeast at bottling to ensure good carbonation. This is most common when the beer has been aged in the secondary for more than 8 weeks, or if the beer had a very high (over 1.070) original gravity. If the beer is very clear after the secondary fermentation, most of the yeast may have settled out, and there may not be enough cells left in suspension to carbonate the bottles.

To repitch yeast at bottling, add one incubated Wyeast XL pack per 5 gallons (repitch with the same strain that was used for the fermentation; it's not necessary to make a yeast starter). Sanitize the pack and a pair of scissors as described in step #11 of the General Beer Kit Instructions, and gently mix the fresh yeast with the beer in the bottling bucket,

then proceed as normal. This will not cloud the beer or cause bottles to explode (as long fermentation is complete or you don't add more than the correct amount of priming sugar!).

Proceed with step #15 of the General Beer Kit Instructions to condition the freshly-bottled beer.

**7.CELLARING.** High-gravity beers generally take well to aging. Set aside a six pack (or more, if you can stand it) for future sampling. Stored in a dark, cool place, most high-gravity beers will continue to improve for several months, and very strong beers will keep increasing in complexity for a year or more.