



Brewing with Extract

Brewing beer with malt extract is the starting point for most new homebrewers. The process requires minimal equipment and procedures while still producing quality, homebrewed beer. For this example, we'll be discussing the process for brewing a hefeweizen, a German-style wheat beer.

This is also the beer featured in *Zymurgy: An Introduction to Homebrewing*, and the entire extract brewing process—from equipment to bottling—is also covered in the Learn To Brew video series.

Brew Day Preparations

It's tempting to fire up the boil kettle and get things going, but it's important to take time to prepare for your brew day. Securing equipment, gathering ingredients and cleaning/sanitizing are all necessary in ensuring a smooth and successful brew day.

Equipment

Homebrewing requires certain equipment, some of which you may already have at home. For those items you don't have on hand, find a local homebrew supply shop in your area. For a complete list of the required and recommended equipment for an all-extract brew day, see [Brewing Equipment](#). Use the [Brew Day Checklist](#) to ensure you have all the necessary equipment before brewing.

Ingredients

You can't brew beer without the proper ingredients! Whether you're following the recipe below or buying a pre-packaged kit, fresh ingredients are important when creating quality beer. Try to use the freshest ingredients available and not the pack of yeast that has been collecting dust for years at the hobby store. Ingredients passed their prime can instill unfavorable characteristics in the finished beer. For an in-depth look at the ingredients used in creating beer, see [Brewing Ingredients](#).

Cleaning and Sanitizing

If you have spoken with a homebrewer about getting into the hobby, you've likely heard about the importance of cleaning and sanitizing. For many, sanitizing is the most important aspect of brewing. Unwanted yeast can contaminate beer if it is present in your carboy, on your



thermometer or anywhere in between. Do not underestimate the importance of cleaning and sanitizing.

Cleaning

It's important to recognize the difference between cleaning and sanitizing. Cleaning removes any debris from equipment that may be harboring unwanted wild yeast, but this does not guarantee that the equipment is completely free of microscopic organisms intent on contaminating beer. Unscented dish soap will work to clean equipment, but make sure you rinse thoroughly. Avoid products with perfumes and scents, as they can easily "stick" to plastic and rubber equipment and transfer the aromas and flavors to the beer.

Sanitizing

Anything that comes into contact with the wort/beer up until it's bottled must be sanitized. Anything used before the boil is not a concern as the boil acts as a sanitization step. Sanitization removes all living things from the equipment that can contaminate beer, such as wild yeast and bacteria. Because of its ease of use, no-rinse sanitizer is highly recommended and can be purchased from your local homebrew supply shop. Using no-rinse sanitizer along with a spray bottle makes for quick and easy sanitization on the fly. Make sure to follow the directions of the no-rinse sanitizer to ensure proper use. Bleach can also be used in appropriate dilution, but this requires a thorough rinsing afterwards.

In addition to cleaning and sanitizing your equipment, take a moment to cleanup your brew day area. Have a clean surface to place cleaned equipment. Not only will you have less chance of contaminating your beer, you also found a good excuse to clean your kitchen!

Conducting an Extract Brew Day

After completing the brew day preparations outlined above, it is time to fire up the boil kettle! First, take a look at the hefeweizen recipe below.

German-Style Wheat Beer (Weizen)

Ingredients for 5-gallons (18.9 L)

- 2 cans [6.6 lb (3 kg)] | Briess Wheat Extract
- 1 ounce (28.3 g) | Perle or Liberty hop pellets
- 1 tube/packet | White Labs WLP300 Hefeweizen Ale Yeast or Wyeast 3068 Weizen Yeast*



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*If you prefer the softer flavor of American-style wheat beers, use WLP320 American Hefeweizen Yeast or Wyeast 1010 American Wheat yeast instead.

Specifications

Expected Original Gravity: 1.050-1.051 for 5-gallons (18.9 L)

Directions

1. If using a Wyeast smack pack, firmly "smack" the pack to rupture the packet inside. Typically, the smack pack will inflate after a few hours, which is a sign that the yeast has been activated. Try to plan ahead and have the Wyeast smack pack activated at least 2-3 hours prior to when it will be pitched (added to the fermenter).
2. Put 1-gallon (3.79L) of water in the pot and bring to a boil.
3. When the water is boiling, turn off and/or remove the kettle from the heat source, and add the malt extract. Removing from the heat and stirring will prevent the liquid malt extract from collecting and scorching on the bottom of the brew kettle. Stir until the extract is dissolved and then return kettle to the heat source.
4. When the wort is brought back to a boil, add the hops. Boil for 30 minutes. Note: hop additions trigger foaming within the kettle and can cause what homebrewers call a "boil-over." After adding the hops, stir the wort and keep an eye on the kettle to prevent a messy boil-over of sticky wort. Water in a spray bottle or a fan can also be used to keep the foam at bay.
5. After the 30-minute boil is complete, remove the kettle from the heat source and let stand for five minutes
6. Fill your fermenter half way with cold water.
7. Add the hot wort to the cold water in the fermenter, topping up to 5-gallons (1.9 L) if necessary. Let cool to 75°F (24°C) or lower, then add the yeast. CAUTION: if using a glass carboy, do not add hot wort, as this could cause the glass to break. Instead, cool the hot wort in a cold water bath or with a wort chiller. Once the hot wort is below 100°F (38°C), it's safe to pour into a glass fermenter and fill it up with cold water.

Post-Brew Day Procedures

Fermentation

After your successful brew day, the process isn't over. In fact, it's just beginning! For the next 1-2 weeks, the yeast will be converting the fermentable sugars from the malt extract into CO₂ and alcohol, a process known as fermentation. Steps can be taken to ensure clean fermentation and ultimately quality beer.

Signs of Fermentation



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Once the yeast is pitched, signs of fermentation should be visible via bubbling at the airlock after 12-72 hours. The bubbling of the airlock is caused by CO₂ escaping the carboy, a byproduct of fermentation. Keep in mind that an airlock is not a sure-fire indicator of fermentation, so if the bubbling slows down or stops, it does not necessarily mean fermentation is complete. Another visible sign of fermentation is the formation of frothy foam on top of the wort called "kraeusen." Even with opaque, plastic carboys, a shadow from the kraeusen should be visible.

Storing Your Fermenting Beer

If possible, keep your fermenter in a location with steady temperatures that are in range called for by the type of yeast you're using. Rooms with few windows and doors can be good for steady temperatures. Some brewers will submerge the carboy in a bucket of water and add frozen soda bottles as needed to lower the temperature, or use a heating blanket to raise temperatures. At the very least, attempt to keep the yeast within the appropriate temperature range with as little fluctuation as possible.

Fermentation is typically complete in 7-10 days, and the beer can be bottled or kegged after 14-28 days.

Bottling and Kegging

When fermentation is complete, the final step is bottling or kegging the beer. Most new and intermediate homebrewers bottle their beer because it is cheaper (up-front) and easy. For detailed information on kegging, see [How To Keg](#).

Priming

Before bottling, a step known as priming is required to add a small amount of fermentable sugar to the beer for the yeast to convert into CO₂ and ultimately carbonate the beer. Priming levels are measured in volumes of CO₂. Generally, one ounce of priming sugar per gallon of beer is a good rule of thumb when starting out, but each style has a specific carbonation range. Priming sugar can be purchased at your local homebrew supply shop.

Priming Your Beer Before Bottling

1. Bring 2-cups of water to a boil.
2. Once boiling, add 5-ounces (141.7 g) of priming sugar, and boil for 10 minutes.
3. After 10 minutes, remove from heat and add the priming sugar water to your already cleaned and sanitized bottling bucket.
4. Using a clean and sanitized racking cane, siphon the beer from the fermenter into the bottling bucket. Try to get the liquid in the bottling bucket to whirlpool in order to evenly mix in the



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sugar (no splashing!). Don't transfer the solid contents at the bottom of the fermenter (trub) into the bottling bucket.

5. Attach a clean and sanitized bottle filler to the spigot of your bottling bucket with food-grade tubing.
6. Fill the clean and sanitized bottles up to the very rim of the bottle. When you remove the bottle filler, the volume should be perfect.
7. Carefully cap your bottles with a sanitized capper and sanitized caps.
8. Place in a room-temperature area, around 70°F (21.1°C) and let sit to allow carbonation.
9. After 2-3 weeks, open and enjoy!