

YEAST STARTER KIT INSTRUCTIONS

The Yeast Starter Kit contains:

- 1000 or 2000 mL flask
- Drilled stopper
- Airlock
- 1 pound light dry malt extract

Pitching billions of healthy yeast cells into your wort reduces lag phases, off-flavors, and the risk of infection. Your beer will thank you!

Goals when making a yeast starter

INCREASE CELL COUNT. Having a high pitching rate makes better beer.

INCREASE CELL VIABILITY. Healthy yeast cells ferment quickly, produce minimal fermentation byproducts, attenuate fully (ferment to a proper final gravity), can ferment high-gravity worts, and have more tolerance for high concentrations of alcohol.

REACH FULL ATTENUATION. An insufficient amount of cells may ferment sluggishly or incompletely, especially in a high-gravity or lager wort.

SHORTEN LAG AND GROWTH/RESPIRATION PHASES. Reducing the duration of the lag and growth phases minimizes the opportunity for wort contamination and the formation of fermentation byproducts.

IMPROVE BEER FLAVOR AND AROMA. Underpitching creates stress - too much work for too few cells. Stressed cells are more likely to create off-flavors or aromas in the finished beer.

Yeast basics

Brewer's yeast (*Saccharomyces cerevisiae* and *S. carlsbergensis*) is a single-cellular fungus that consumes simple sugars in the wort and converts them to alcohol and carbon dioxide. There is always a delay between when yeast is pitched into wort and active fermentation. There is a direct correlation between the duration of the lag and growth phases and the number of cells that are pitched - the more cells, the less reproduction needs to occur and the faster fermentation begins.

Theoretically, you could pitch just one yeast cell into a fermenter full of wort and the cell would keep dividing until there were enough cells present to ferment the beer. Given enough cells, brewer's yeast will outcompete other microbes and quickly provide the desired fermentation.

MAKING A STARTER

The following instructions are for making a one pint starter in a 1000 mL flask using a Wyeast Activator pack. Refer to the note below for making a larger starter in a 2000 mL flask.

- **BREAK THE INNER POUCH TO ACTIVATE THE YEAST;** ideally, the yeast would be allowed to incubate for 6 to 8 hours, but it can be pitched immediately.
- **BOIL WATER AND SANITIZE FLASK.** Boil 650 mL of water. When the water is hot, dissolve dry malt extract - use 1/2 cup for standard-gravity beers, or 3/4 cup for high-gravity beers or lagers. Gently boil the wort for 15 minutes. While the wort boils, sanitize the flask.
- **CAREFULLY POUR THE WORT INTO THE FLASK.** Cover tightly with aluminum foil. Using a hot pad or potholder, move the flask to a cold-water bath. Add ice or cold water periodically to speed cooling.
- **SANITIZE.** While the wort cools, sanitize the stopper and airlock, the yeast pack, and a pair of scissors
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- **ONCE COOL, REMOVE THE ALUMINUM FOIL AND PITCH THE YEAST.** Attach stopper and airlock. Shake the flask to aerate the wort.
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- **ALLOW THE YEAST STARTER TO FERMENT FOR AT LEAST 12 HOURS.** Keep the starter at the same temperature at which the beer will be fermented. The best indication of yeast activity is a layer of white sediment on the bottom of the flask. **NOTE:** It's best to use the starter when it is visibly active or immediately thereafter; if the starter finishes fermenting days before it will be pitched into the main batch, add more boiled, cooled wort.
- **PITCH THE STARTER INTO THE MAIN BATCH.** Swirl the flask to pick up the sediment at the bottom, and pour it into the fermenter. Alternately, you may wish to decant the spent wort from the flask and add only the thick yeast slurry at the bottom. To decant the spent wort - chill the flask for several hours to cause the yeast cells to settle, then pour the wort off of the top. Before pitching, add 100-200 ml of boiled and cooled water or wort to the flask and swirl vigorously to dislodge the slurry.

2000 mL starters

Follow the above procedure, but use the following quantities:

- 1300 mL of water
- 1 cup of dry malt extract for standard-gravity beers, 1.5 cups for high-gravity beers or lagers.

"Building up" twice

To increase pitching rates even more for very strong beers or larger batches, allow the starter to ferment completely. Chill the flask to cause the yeast to settle, then decant the spent wort and add a greater quantity of boiled and cooled wort. Remember to follow strict sanitation procedures!

	50 mL smack pack	125mL XL smack pack	Pitchable tube	Yeast starter*
Approx. cell count (billions)	15-18	45-60	30-60	200