

## Backsweetening

Backsweetening is the process of sweetening a fermented beverage. This is a multi-stage process that can be accomplished using different vectors.

Generally speaking, the overall process is like this

- A. De-gas the liquid to remove dissolved gas
- B. neutralize the yeast to prevent further fermentation
- C. clarify the beverage
- D. sweeten the beverage

## Specific methods

A. To neutralize the yeast there are several methods

1. Add neutralizing compounds, usually chemical compounds. 2 very popular are Potassium Metabisulfite ( $K_2O_5S_2$ ) and/or Potassium Sorbate ( $C_6H_7KO_2$ ) – both should be handled with gloves while using. Add one or both (at  $\frac{1}{2}$  measurements) and stir for 2-3 minutes with a drill, 5 minutes if done by spoon. Cool water only.
2. Microfilter – filter the liquid through a plate/canister filter below 6 microns.

B. Clarifying is different for liquids not boiled. (6 gallons for measurement)

1. Sparkaloid – add 1 tablespoon to  $\frac{1}{2}$  cup of water and boil for 5 minutes, add to liquid and stir for 2-3 minutes with a drill, 5 minutes if done by spoon.
2. Chitosan/Keitosol – a binary solution (2 packages) that are added to the liquid and stirred for 2-3 minutes with a drill, 5 minutes if done by spoon.
3. Egg whites
4. Casein (milk)
5. Filtering

Note: Whichever you choose, stirring is very important. The trapped gas helps keep yeast, dead or alive, in suspension, as well as other particles.

Removing the gas helps everything fall much faster and the fining and neutralizing much more effective.

The clarification works by creating a static charge on the particles, which collide or are attracted to one-another then fall as a heavier, larger particle.

### C. Sweetening

1. Draw a  $\frac{3}{4}$  pint glass of the liquid and test it in a hydrometer. It should be below 1.000. Return to pint glass. Add sugar to the pint glass 1 spoonful at a time, stirring until dissolved. Continue to taste and add until you like it. Then take a hydrometer reading (no refractometers) and note the gravity reading. Now if you have a good sense of the volume to within 25-50 ML, you can use a CHAPTILIZATION CALCULATOR to calculate your sugar addition to the whole volume to match the pint. All you need is the volume of liquid and the desired gravity.  
[www.brewersfriend.com/chaptalization-calculator](http://www.brewersfriend.com/chaptalization-calculator)
2. Add frozen concentrate (for ciders/meads). Most cans are 65-70 brix and for 5 gallons or so, contribute .007 (approx. 2 Brix diluted) to a gravity reading.
3. Add extra amount of sugar and hope/expect that the yeast will die with some leftover sugar.

Pros & cons for each type of sweetening.

1. Pros: you are in total control, you do not stress yeast with too much sugar to begin with, and cost of each batch is better to control. There is little risk of spoiling a batch by over sweetening. Cons: there is a bit of math to do and that takes time.
2. Pros: If it is cider, you can add more apple flavor while sweetening, it can re-introduce malic acid, a pleasant acidity that most yeast remove as a product of fermentation. Cons: You need to really be accurate with your volume and be happy with a little overshoot/undershoot of target.
3. Pros: less work up front. Cons: completely unpredictable results. Yeast packages and companies only have a best educated guess how it will perform. It could be very sweet due to under-attenuation or went dry because of over performance. You'll also have to be happy with a lot more alcohol than planned if it over performs.

Recommendation: (After you rack from secondary to tertiary)

1. Neutralize your batch with either a full dose of 1 chemical or a  $\frac{1}{2}$  dose each of both chemicals. Stir heavily for 3-5 minutes as you mix.
2. Add your clarifying agent and stir 3-5 minutes as you mix. Leave for 7-10 days to observe any airlock activity. Suck up is a good sign.

After the 7-10 days rack again.

3. Follow procedure #1 or 2 for sweetening. Wait at least 1 week up to a month. If longer/bulk aging, add  $\frac{1}{4}$  tsp of K-meta in  $\frac{1}{2}$  cup of cool water.