

AERATION AND YEAST NUTRIENTS

Yeast is a living organism and goes through a life cycle – birth, growth, reproduction and death. These cycles are known as *lag*, *growth*, *stationary* and *death* phases. For this discussion, we need to zero in on the growth phase.

For the brewer, it is critical to pitch a healthy yeast and in sufficient quantity to ferment the wort completely. To that end, the yeast needs to grow and the faster the better. To achieve rapid growth certain things need to occur: aeration and feeding.

AERATION

Aeration is the infusion of the wort with air or oxygen by some means. This is done in several ways with different levels of success.

The following chart will give you some ideas of the best method to use.

<u>Method</u>	<u>DO Max ppm</u>	<u>Time</u>
siphon spray	4 ppm	0 sec.
splash & shake	8 ppm	40 sec.
aquarium pump w/stone	8 ppm	5 min.
pure O2 w/stone	26 ppm	60 sec.

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Air will provide needed oxygen but as you can see, the ppm is low which will mean that the yeast growth will be slow, which in turn means that the chance of infection is greater. After all, you don't know what ambient yeast you are injecting into the wort. Oxygen, while it may not be medical quality, will reduce the chance of uglies getting in your wort.

NUTRIENTS

Nutrients to the wort fall into two groups: energizers and nutrients.

Energizers

A typical energizer would be a compound known as diammonium phosphate, which provides nitrogen and ammonia. In the growth of yeast cell, rapid growth and budding is dependent on the amount of available nitrogen, ammonia and oxygen. The wort will provide some of this and aeration will provide the oxygen, but by itself, the wort will not get the yeast started quickly. Diammonium phosphate will give the kick in the pants the yeast needs.

Nutrient

A nutrient is basically the food needed for the long haul. Yeast needs additional minerals in varying amounts. These minerals include potassium, magnesium and trace amounts of copper, zinc and manganese.

Treating your yeast properly will result in more complete fermentation and flavor producing byproducts, which we all want in our beers.

Where do you go to get these items? We are lucky in that we have a local home brew store, E.J. Wren. Ed will have most of the items on his shelf.

Diammonium phosphate – can be ordered separately but comes included in most of your yeast nutrients.

Yeast nutrients such as Fermax, and products marketed by Brewcraft and L.D. Carlson will provide needed some if not all the minerals mentioned above along with diammonium phosphate.

One final thought, the bigger the beer, the bigger the yeast starter needed for complete fermentation.

NEVER SEND A BOY TO DO A MAN'S WORK!

Reference:

Yeast and Beer (special issue) Zymurgy, Vol. 12 No. 4, 1989.

The Fermentation Equation: Secrets of Healthy Yeast, Zymurgy, Vol. 30 No 2, March/April, 2007.

Fermenting Success, Brew Your Own, Vol. 15, No.5 September, 2009.

Beer Judges Certification Program Study Guide, American Homebrews Association.

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