**All About Yeast - Yeast Used in Bread Making**

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**What is yeast?**

Yeast is a one-celled microorganism growing all around us and on us. It grows when it has food and water, and suspends growth when it does not. In suspended animation, it is light enough to be blown by the wind, like a seed. If there is water and food where it lands, it will reproduce and continue the cycle. It is also on human skin and can be transferred to food through contact, with clean or dirty hands.

Yeast has been exploited by humans for [thousands of years](http://www.dakotayeast.com/yeast_history.html)1 to make bread, beer and wine. It does so by turning sugar into alcohol and gas to gain energy.

**What does yeast eat?**

Yeast eats sugar, glucose to be specific.

**Why do yeast cells ferment?**

Yeast have two ways of releasing energy from sugar molecules to use for their own cell maintenance and reproduction; with or without oxygen.

* With a supply of oxygen they make carbon dioxide (CO2 - a gas), which is exactly what human cells make, too. They use almost all the energy from the sugar to do this and make a lot of gas. This is called **respiration**.
* With little or no oxygen, the yeast quicky builds machines that spew out alcohol and carbon dioxide after using some of the energy from sugar. This is called **fermentation**. Since this is an inefficient way to capture energy, they have to metabolise more sugar than they do during respiration.

Making bread with yeast uses both respiration and fermentation (mostly the latter). You knead or beat oxygen (and nitrogen) into the dough, which the yeast use up rather quickly, producing gas which is trapped by the dough. Most gas in bread dough is produced within the first hour of fermentation. Then the yeast must switch to making alcohols and acids along with gas and grows more slowly. This gives yeast-risen bread special aromas and tastes. These compounds also affect the structure of the dough, changing the crumb and crust after baking.

**How does temperature affect yeast?**

Yeast grows best at 26°C (79°F), and ferments best at **30 - 35°C (86 - 95°F)**. At lower temperatures yeast slows down both processes and becomes "dormant". At higher temperatures, yeast enzymes do not work well. That is just like a human with a fever.