



What is Attenuation?

So you are at a party looking to impress the non-brewing muggles, but instead a brewing geek comes up and starts talking about original extracts, apparent extracts, and ABVs. Here's how to tell if he really knows what he's talking about:

Attenuation is nothing more than the percentage of the original extract that has been converted via fermentation to CO₂ and alcohol (and a few lesser compounds like esters in small quantities). Recall that the basic brewing process for all grain starts with the mashing process, which converts your barley grain into sugary wort. If you are an extract brewer, then you just start with sugary wort syrup.

You boil the sugary wort, cool it, add some yeast, and fermentation starts. During fermentation a portion of the sugary wort is converted to alcohol (primarily ethanol). That portion of the sugar, expressed as a percentage, is the attenuation of the beer. Apparent attenuation is very easy to calculate as follows:

$$\text{Apparent_Attenuation_in_}\% = 100 * (\text{OG} - \text{FG}) / (\text{OG} - 1.0)$$

where **OG** is your original gravity and **FG** is your final gravity. So if you have a beer with an original gravity of 1.050 and it finishes with a gravity of 1.010, the math works out to be $100 * (1.050 - 1.010) / (1.050 - 1.000)$ which is exactly 80%. So for this example, 80% of the available extract in the wort fermented to become alcohol and CO₂.

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