Tech Corner

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When do you use a decoction mash? Before we answer this question, let's review the decoction mashing technique. A typical double decoction mash starts with the protein rest at 122 ° F. After a few minutes, a thick portion of the mash (roughly 1/3 of the mash) is removed and heated to undergo a short saccharification rest and then it is boiled for about 30 minutes and then returned to the main mash. The main mash is held at a protein rest while the secondary mash is boiled. After boiling, the secondary mash is mixed with the main mash which raises the temperature of the combined mash to the next temperature rest. This rest is a saccharification rest and should be held at a constant temperature between 149 ° F and 158 ° F, where higher temperatures produce more dextrinous worts. After about 40 minutes at this rest, another secondary mash is removed (again about 1/3 of the mash) and boiled for about 20 minutes. The main mash is held at a saccharification rest while the secondary mash is boiled. After boiling, the secondary mash is returned to the main mash, which raises the temperature of the combined mash to around 167 ° F for mash out.

A few observations about decoction mashing:

First, the decoction mashing schedule involves a protein rest. We have mentioned in a previous article that a protein rest should only be applied to under modified malts. Malts with a Kolbach index (ratio of soluble protein to total protein) greater than 40% have been sufficiently modified during malting and should not undergo a protein rest.

Second, the secondary or decoction mash should be stirred continuously while it is heated to avoid scorching; however, make sure you stir gently to avoid hot side aeration.

Decoction mashing certainly helps raise the temperature from one rest to the next; however, it does much more than raise the mash temperature.

Decoction mashing:

- helps breakdown proteins in under modified malts
- improves extract efficiency
- deoxygenates the mash which reduces hot side aeration
- promotes the development of melanoidins for rich malt flavor and deeper color.

Traditionally, decoction mashing has been used to brew Oktoberfest, Traditional Bocks, Doppelbocks, and Weizen beers.

The next time you brew one of these German beers, consider using a decoction mash to bring out melanoidins that produce a richer malt profile.

If you would like to read more about decoction mashing here are two good resources:

New Brewing Lager Beer, by Gregory J. Noonan

Classic Beer Style Series 9 Bock, by Darryl Richman