

# **WATER Part 4**

According to Greg Hackenberg

## **Water IV**

“Whiskey and Beer are a man's worst enemies... but the man that runs away from his enemies is a coward!” - Zeca Pagodinho, Brazilian Songwriter

So it's been awhile...yeah, like nearly a year a while...since I managed to get the next part of my epic water series up. To quote a dear and dearly departed friend “I been busy! Alright!” So, when last I left you the question on your mind was along the lines of... “thank God I don't live in Houston, but I want to make something other than brown ales, what can I do?” If you are having trouble recalling, what the deal with brown beer and Houston is, you may want to go back to the Hopline articles and review part 3. It covers the basic reactions that determine the mash pH and why our local tap water works best for beer in the color range of 9-15 SRM, aka brown beers, and why Houston water doesn't work for much of anything.

So what can you do? Well, as I've said from the beginning “just about any potable, decent tasting water can be used to make beer”. With our water if you go lighter or darker, you should be too far amount out of optimal pH range, and probably not enough to have a really significant effect.\* So for most of you just relax, don't worry, etc. But...yes a ‘but’...you can make your beer a good bit better with a few simple tweaks. What kind of tweaks? Nothing too difficult...really. And, yes, I like ellipses...so sue me.

Let's get this out of the way right now; brewers have been modifying their water for centuries. This is not some fancy new technique nor are these techniques rocket science. In other words, a few simple water modifications and your beer will be better. And we have a couple of options when it comes to those modifications. In this installment I'll run through the simplest.

### **Changing**

The first and most basic is changing your water source to one that works for the beer you want to make. There are a number of potential sources. Kentwood, Abita and Ozarka are all available locally and have extremely low hardness and bicarbonate content, great for light colored beer. Reverse Osmosis RO is another option. The low-to-no mineral content

can be a problem, you'll need to add somethings back and I'll have more on that next time. But they are also a good for our second option...

### **Dilution**

The next is simply adding a portion of distilled, RO, Kentwood, Abita and Ozarka or water of very low mineral content to lower the alkalinity and hardness. Minerals can be added back in if necessary.

### **Acid Additions**

Acids in the form of Lactic or Citric can be added to the mash to correct the pH. This is what Club has been doing at Brewoffs for lighter beers. Care must be taken in adding acid, as you can have very sudden and significant shift in the pH once the buffers are overcome. Add it in small amounts. There are online calculators the will figure the amount out based on the water, grain, etc. But local tap will vary over the year with river stages and whatnot. But then, the club has a pH meter, and, again, I'll have more on those later.

### **Boiling**

A bit of work, but here's how it works. Munich, water is wonderfully suited to brew Oktoberfest and Dunkels. But the city is also known for one of the lightest beer style out there, Munich Helles (and if you can get your hands on a good fresh sample ...wow!). This is where the aforementioned **temporary** hardness and **permanent** hardness come into play. There is enough calcium in the Munich water to bind with the bicarbonate during the boil to remove the alkalinity to the point where wonderful light lagers can be brewed. Process is simple: boil 15 minutes, sit for a half hour, and then decanting the water off the precipitate.

How does all this play out locality for lighter beers: Changing: Kentwood has a range of 5-10 SRM, Ozaraka is 6-11 SRM.

Dilution: A 50-50 dilution of Tap and Ozarka/RO give us 8-13 SRM.

Boiling: Orleans/Jefferson Parish water 9-15 SRM, boiled drops to 7-11 SRM.

Well, that give us a bit more latitude for lighter beers...But (always with the buts?) what if I want to go darker?

## Staged Additions

For those Stouts and Porters, I'd recommend something known as Staged Grain Additions. Now this IS a newfangled idea, one I first heard about in a podcast with Randy Mosher, homebrew god and author of Radical Brewing, etc. and all around expert. As you may recall from extract brewing days, roasted grain and crystal malt do not need to be mashed. A good steep is all they require to impart the roasty goodness. So, get them ground separately and hold back enough from the mash to hit the 9-15 SRM and just add the rest to the sparge.

Brewing software can help a lot on this, but there is always the old back-of-the-envelope calculation method:  $\text{Malt Color Unit} = (\text{Weight of grain in lbs.}) * (\text{Color of grain in degrees lovibond}) / (\text{volume in gallons})$ . Do this for each of your grains and add them together or subtract as needed and bingo!

Next up adding things to your water...

If you go way back to part one, I gave the three roles that water and water chemistry plays in your beer. The first is in determining the pH of the mash. We've got the gist of that. The second is in providing mineral for the mash and by the yeast for growth and fermentation. And the third is in the contributions to flavor and character in the finished beer. I'll cover the pH related part of mineral additions along with the other two next time.

\*Brew in a bag BIAB brewers take note, the large amount of water and its requisite mineral content can wreak havoc on your pH in lighter beers. You should actually do okay on darker beers. But you will want to either dilute or make acid additions to keep the pH down.