



Ever want to pull out your hair out on brew day? We've all been there. So many things can go wrong. Picture this, you are reviewing (or if you are like me, finalizing) your recipe while heating up your mash water. During this review, you realize you forgot an ingredient. Later, you start grinding your grain, and you think your grain mill may be over-crushing the grain. Your thermometer starts wiggling out during your mash, and you are not sure if it is reading correctly. You finally sort through all of that and end up with a stuck mash. So many things can go wrong on brew day. Any time you can lock down, control, or eliminate a variable, it is a must. The more variables you can lock down or control, the better chance you have at consistently producing that awesome brew you are targeting.

Besides sanitation and yeast management, water chemistry is the most common cause of defects in homebrewed beers. ACCUmash™ offers a solution that allows you target the right water characteristics for your brew and remove the stress of water chemistry.

Water chemistry plays a large role in setting the mash pH thus affecting the enzymes that breakdown the grain's starches to fermentable sugars. This controls your conversion efficiency and impacts the beer's alcohol level. If your mash pH is outside of the desired range, not only can it affect the conversion rate, but it can cause defects such as:

- off-flavor (saltiness, perceived bitterness/maltiness)
- incorrect body/fullness
- extraction of tannins causing grainy or harsh tastes
- incorrect perceived hop level
- poor quality of hop flavor
- insufficient minerals for yeast health

ACCUmash developed its initial formula similar to most advanced home brewers by using spreadsheets or calculators that try to model the mash pH from the recipe or beer attributes. There are several problems with these spreadsheets and the science behind them. First, a lot of brewers have trouble getting accurate information about their tap water. Typically, one will need to obtain a water chemistry profile of their home water by sending samples to a lab for testing or by requesting a report from their water company. These reports are often incomplete, use differing units of measure, and inconsistent chemical names that may not be known by the brewer.

A water report is a snapshot in time and does not account for changes in water chemistry/mineral content for the local water supply throughout the year. For instance:

- Some areas vary water sources seasonally (mountains source in summer, springs in winter, perform additional treatment during spring flooding than the rest of the year).
- Absorption of ground chemicals/minerals vary at different seasonal temperatures.

Changes in a brewer's local water profile can lead the brewer to enter the wrong water profile into the calculator before starting the calculation. Then brewer must decipher, correct, and account for all these possible discrepancies and convert the information into the format used in the spreadsheet/calculator. The water spreadsheet/calculator is only an approximation and does not take into account Maltster variation from batch to batch or variation of the same grain from a different Maltsters. Even the crush of your grain plays a role on mash pH(1).

Spreadsheet/Calculators carry their own list of possible errors, they:

- do not take into account the specifics associated with recipes for a given style or type of beer
- often require a trial and error method. This is time consuming and leaves the brewer adjusting values in a spreadsheet, adding one chemical/mineral to one field in the spreadsheet to get a characteristic in the correct range while pushing another chemical /mineral out of range
- do not ensure minimum mineral content for a healthy yeast
- do not prevent home brewers from over adding a chemical/mineral causing off flavor
- do not limit chemicals to a range safe for human consumption or ensure the use of food grade chemicals
- do not take into account the solubility of the chemical/minerals prescribed (in 5 gallons, calcium carbonate is documented to be soluble somewhere between 0.26-1gram depending on the water guru)

Although ACCUmash's initial starting point came from a modified version of a spreadsheet/calculator, it corrected for these errors through extensive experimentation to derive its formulations. ACCUmash's formulations are designed for a wide range of recipes. ACCUmash uses a small amount of phosphate buffers, (not near as much as other additives sold). We guarantee that the total contribution from salts, minerals and buffers result in the proper ppm range to enhance the flavor of the beer and not result in off flavors. Each of the subcategory packets, keep the style specific aroma and flavor profile inline within the packet's designation (example correct chloride and sulfate ratio for hoppiness).

ACCUmash is designed to put your mash pH in the desired pH range (5.2-5.7 at room temperature) and as close as possible to the range for the desired subcategory. There is a small chance that your mash pH may end outside of the desired 5.2-5.7. In the event this occurs, you can rest assured a small acid or base adjustment will bring the pH back in, but all the needed components are included in ACCUmash to ensure the correct taste, aroma, and yeast nutrients for the style of beer you are brewing.

ACCUmash is a patent-pending, purified water additive that targets the correct water profile for a specific subset of beers. It is designed to take all of the calculations and guess work out of a painful step in your brewing process. Available through LD Carlson and NorthernBrewer.com, ACCUmash, will help cut out any water chemistry hurdles in your all-grain brewing process. Once you have selected the appropriate ACCUmash packet for your beer, blend the contents into a few pounds of the grain. Add the mixture to **purified** mash water (**RO water or distilled**). Stir vigorously and add the remaining grain. Check your pH (always measure at room temperature) and make any last adjustments you may need based on your recipe or personal preference.

With 9 formulas available, there is an ACCUmash packet available for almost any beer you are targeting. Let ACCUmash help you control and eliminate all of the variables associated with water in your brewing process.

Making perfect style specific beer just got easier.