

BEER & WINE HYDROMETER SCALES AND WHAT THEY MEAN

The basic idea behind the hydrometer.

The whole premise behind the hydrometer is: "the heavier the liquid being tested, the higher the hydrometer will float" – in other words, the buoyancy of the liquid increases with the weight of the liquid. For example, if you float a hydrometer in water it will float much lower than if you put the same hydrometer in maple syrup. This is because the maple syrup weighs much more than water.

Some people have a problem thinking in terms of a liquid having a weight. For some it is easier to think in terms of thickness. The same can be applied by saying, "the hydrometer floats higher in maple syrup because it is 'thicker' than water". This is okay too.

Why do we even care how high or low a hydrometer floats?

During a fermentation, basically thick sugars are being turned into thin alcohol. In other words, the juice is going from heavy to light. This also means that throughout fermentation the hydrometer will float at different heights, giving different readings.

At the beginning of fermentation the hydrometer will float at it's highest. At the end of fermentation the hydrometer will float at it's lowest. And, throughout the fermentation it will float everywhere in between those two readings. It is with these various readings that we are able to monitor the progress of the fermentation and track the alcohol that has been produced.

- The Hydrometer Scales -

* Specific Gravity.

This particular scale is the most commonly used among home wine makers and is referred to in most home wine making books. It should be thought of only as a way of keeping in step with any recipes you may be using that make references to this particular scale.

The Specific Gravity scale is based on the weight of water. If you float a hydrometer in water it will read 1.000 on the Specific Gravity scale. At the beginning of fermentation a typical reading might be 1.090. This means, for example, that the juice at that point weighs 9 percent more than water, or the juice is 9 percent thicker than water.

When all the sugar is turned into alcohol you will have a reading on the Specific Gravity scale that is less than water typically around .995. This means the juice weighs less than water, or it is thinner than water by a half of a percent.

Again, simply think of the Specific Gravity scale as just a very common scale that allows you to follow the progress of your wine's fermentation, and to stay on track with books and recipes that mention it.

* Potential Alcohol.

This scale tells the winemaker how much alcohol can be made from the sugars that are currently in the juice. A single reading on the Potential Alcohol scale can NOT tell the winemaker how much alcohol is already in the wine. It can only tell the winemaker how much more alcohol can be made, based on the liquid's current weight or thickness, or in other words, how much sugar still remains in the juice.

The Potential Alcohol scale on most hydrometers usually ranges from 0 to 20 percent alcohol. So, for example if you mixed a recipe together and took a reading of 13 percent on the Potential Alcohol scale before the fermentation began, this means that there is enough sugars in that juice at that point in time to potentially produce 13 percent worth of alcohol.

Now, not all fermentations use up every bit of sugar, so when the fermentation has finished, you can take a second reading to see how much "potential alcohol sugar" has been left over, if any. By comparing these two readings, you can then determine the current alcohol level of your wine.

Let's say for example, that a juice started out with a reading of 13 percent before the fermentation started, and had a reading of 1 percent after the fermentation stopped. By comparing the two readings you can determine that the juice now contains 12 percent alcohol. Another way to look at it is that the fermentation moved 12 points across the scale, resulting in 12% alcohol.

*Brix Scale (Also known as Balling).

This hydrometer scale is used mostly by grape growers and commercial wineries. It is also referred to in more advanced home wine making books.

The Brix scale is based on percentage of sugar that is in the liquid by weight. Typically the scale will go from 0 to 30 on most wine making hydrometers. If you have a grape juice that reads 24 on the Brix scale, that means that the juice is made up of 24% sugar by weight.

Vineyards use this scale to determine if the sugar level of the grape is sufficient for harvest. Wineries use this scale to determine if the juice has sufficient sugar to produce the alcohol level they desire.