

Article No. 2

The Smart Hydrometer

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No other piece of equipment can give both the home brewer or wine maker so much control over the fermentation process, yet this essential piece of equipment is often put aside and forgotten

With the reliability of brewing products today, and the availability of specialised fermentation yeast, consistent results have helped to delegate the hydrometer to the bottom drawer. However, if you ever need more information it will surely give you the answers you are looking for.

By choosing quality laboratory precision hydrometers available from ibrew on line or from the Bett-A-Brew retail showroom, like those produced by Widder, Germany, you can be assured that the readings are accurate.

The hydrometer is used to determine the Specific Gravity of the beer or wine either before fermentation begins, or at the end of fermentation. It does this by reading the fermentable sugar content in the wort (brewing recipe) or grape juice. The more sugar there is in the liquid the thicker or denser it will become and the higher the Specific Gravity

The conversion of sugar to alcohol begins when the yeast is added and the fermentation process begins.

Why should I need to know what the Specific Gravity is?

If you are brewing beer packs where the alcohol level is pre-determined you don't really need to know the before fermentation Specific Gravity reading. However, knowing how much fermentable sugar is in the product you are about to ferment, particularly in the case of grape or fruit juices for wine making, will help you to determine the potential alcohol level. If the specific gravity reading is low, you could add more fermentable sugar to increase the specific Gravity and thus the potential alcohol.



I can't tell if my beer brewed properly because no gas escaped through the airlock?

Most importantly, the hydrometer can be used to gauge the process of fermentation. This can be invaluable, particularly if for some reason (like a leaking lid on your fermenter) you did not see the gas escaping.

If you are in doubt as to whether fermentation took place and in fact is complete, simply float your hydrometer in the beer or wine. If it sinks down to show a reading of between SG 1000 to 1010 then you have on your hands a product that has fermented, whether you saw it or not. All sugars are converted to alcohol when the reading is S.G. 1000.

Generally most beers start with a specific Gravity reading around SG 1045 to 1055, so any reading less than this would indicate that the yeast is reducing the sugar and that fermentation is taking place.

I've heard that home brewing is volatile and bottles can easily explode!

Thanks to the hydrometer becoming an essential part of the home brewers equipment, the days of exploding bottles are way behind us, as brewers become more aware of the importance of bottling beer that has fully fermented out. Testing with the hydrometer prior to bottling eliminates the risk of bottling too soon and on the very rare occasion that a bottle should explode, it's most likely to be a cracked or faulty bottle rather than bottling too soon.

My beer has come down to SG 1010 and won't go any lower!

The finishing specific gravity can vary from beer to beer but in most cases is 1000 (00 on some hydrometers). The exception to this rule is often seen in fuller bodied beers like stout or old beers or some beers that are designed to have a higher finishing specific gravity. Double check the instructions on the beer pack to see what the recommended finishing gravity should be.

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How to read the Hydrometer

How do I use the hydrometer?

Your hydrometer has long glass section containing the calibrated scale and it is weighted at the bottom, (with a bulbous lower end) so that it will float upright in a liquid. The scale of figures on the hydrometer appear to be 'upside down' the smallest being at the top and the largest at the bottom.

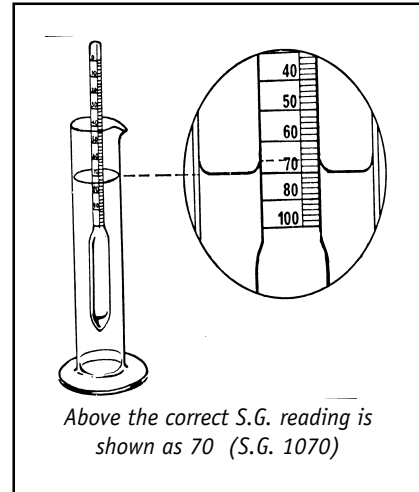
In water the hydrometer will float with the 1000 mark (or 00) level with the surface of the liquid. The more sugar is in the liquid the higher the hydrometer will float.

The accuracy of the hydrometer can be tested in water, where it should float at S.G. 1000. at 60 F.

Note: By sugar we mean any fermentable sugar which can be either cane sugar, grape or fruit sugars, dextrose, or fermentable sugars in malt, corn, grain etc.....not just cane sugar.

To read the hydrometer you can either float it directly in the fermenter or decant some of the liquid into a tall test jar.

Always spin the hydrometer after placing it in the liquid to remove any air or gas bubbles clinging to the glass which will give an inaccurate reading. Steady the hydrometer and take your reading immediately it stops bobbing as all hydrometers will slowly rise up.



Here is an example to determine potential alcohol of a beer

Starting SG reading.....	1045
Final SG reading.....	<u>1000</u>
	45

Subtracting one from the other leaves a figure of 45. To determine potential alcohol you then have to divide this figure by 7.46 and you have the approximate alcohol in your beer.. In this case 6.03 percent.