

# Specific Gravity for Beer

## What is a Hydrometer?

A Hydrometer is a scientific instrument which measures the density of a liquid in relation to water (water being 1.000 on the Specific Gravity Scale). In the Brewing Industry, this instrument allows us to calculate the alcohol content of the liquid being tested. Like many scientific processes, using a Hydrometer requires careful steps to insure accurate results. The steps involved are *not difficult* but do require concentration and consistency.

## Using the Hydrometer

Place a sample of the liquid to be tested in a testing jar and gently lower the Hydrometer into the sample. Spin the Hydrometer until no air bubbles cling to the exterior of the instrument.

Once the Hydrometer stops moving, take the "Original Gravity Reading" (before fermentation) on the specific gravity scale. Be sure to take the reading according to the "True Reading" principle as shown in **Figure 1**. Use the *Temperature Correction Chart* (on reverse side) to insure that the reading is accurate then record the results.

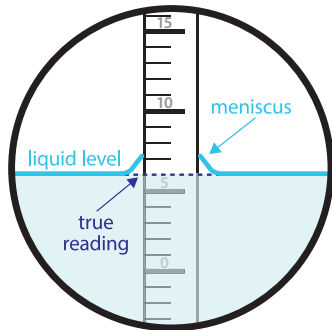


Figure 1.

Once the beer or wine is fermented, it is now time to take the "Final Gravity Reading." Using the following equation, the alcohol content of the beer or wine can be calculated.

$$\frac{(\text{Original Gravity Reading}) - (\text{Final Gravity Reading})}{1.000 - \text{Final Gravity Reading}} \times 131 = \% \text{ Alcohol Content}$$

## Cleanliness

It is extremely important to be sure that the Hydrometer is clean and free of any dirt and debris. Be sure to sanitize the hydrometer and test jar after every use. Once the reading has been taken, it is best to discard the tested liquid rather than risk contamination.

## Temperature

Since liquids become less dense at higher temperatures and more dense at lower temperatures, it is important to use the *Temperature Correction Chart* to achieve accurate readings.

This Hydrometer has been calibrated to give a 100% accurate reading at 60 degrees F. This means that if the temperature of the liquid being tested is other than 60 degrees F, the *Temperature Correction Chart* below must be used to obtain an accurate reading.

## Correction Example

If the temperature of the liquid is 84 degrees F. and the reading is 1.040, the true reading would be:

$$\begin{aligned} \text{The Initial Reading} &= 1.040 \\ \text{The Correction Figure} &= \text{Add } +.003 \\ &= 1.043 \end{aligned}$$

## THE HYDROMETER CORRECTION CHART

Using a °F thermometer, add or subtract correction variable to your hydrometer reading. Your liquid's temperature determines the value.

| TEMP °F | CORRECTION VARIABLE     |
|---------|-------------------------|
| 30      | - .003                  |
| 40      | - .002                  |
| 50      | - .001                  |
| 60      | NO CORRECTION NECESSARY |
| 70      | + .001                  |
| 77      | + .002                  |
| 84      | + .003                  |
| 90      | + .004                  |
| 95      | + .005                  |
| 100     | + .006                  |
| 105     | + .007                  |
| 110     | + .008                  |



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