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USING THE HYDROMETER

A Hydrometer is simply a float with a built in scale that shows the density of a liquid by how high or low it floats in that liquid. The most common hydrometer is made of glass which is entirely sealed closed and leak-tight. It consists of a stem with a weighted bulb at its bottom which causes the hydrometer to float with the stem upward. The stem contains inside it a graduated paper scale glued in place along the stem length. The reading on this scale is made where the liquid surface intersects the stem. (See the illustration on the back side of this page.) The heavier the liquid is, the higher the hydrometer will float in it, and the higher will be the density reading.

Among various ways to express liquid density, specific gravity (Sp. Gr. or S.G.) is convenient for fermentation. It is simply the numeric ratio of the density of the liquid being measured compared to pure water at some definition temperature, usually 15 or 20 ^{O}C (59 or 68 ^{O}F). A specific gravity reading of 1.000 means the liquid has the same density as water. A reading of 1.080 means the liquid is 1.08 times as heavy as water.

Some hydrometers have a scale which shows the weight in grams of a liter of the liquid being measured. This scale is equivalent to specific gravity without the decimal point. By inserting the decimal point it is converted to S.G.

We know that generally the more dissolved material a liquid contains, the heavier it will be and that this will be reflected in a higher density reading. This property allows hydrometers to be used to measure such things as the strength of battery acid or radiator coolant, or the sugar level in wine must before and during fermentation.

Since alcohol is produced from the sugar in a predictable way, the density reading before fermentation begins can also predict how much alcohol will be present in the finished wine if all the sugar is consumed. Many hydrometers have a second scale (in addition to density) which makes this prediction.

To make the reading, be sure the hydrometer, hydrometer jar and sampling device such as a gravy baster are clean and well rinsed. Place the hydrometer in the hydrometer jar and add liquid to be

measured as necessary to float the hydrometer so that the stem protrudes above the top of the jar. Spin the hydrometer several times to dislodge any bubbles on its surface and to be sure it finds its own free floating level. Hold the jar at eye level so that you can sight across the liquid surface to make the reading. In most cases the liquid can be returned to its original container. Rinse and dry the hydrometer and return it to its shipping tube for safe keeping.