pH

The analysis of pH could be considered the most important analytical component a winemaker should track. It can affect practical decisions such as when to pick grapes and how much SO_2 to add. pH also has an affect on wine properties like protein stability, microbial stability, color stability, mouthfeel, and ageability. Knowing the pH of your wine or juice is an indispensable piece of information needed for good winemaking decisions.

Components

pH is the concentration of free hydrogen ions (H+) found in a solution, in this case juice or wine. Free hydrogen ions form when wine acids (i.e. tartaric, malic, citric) dissociate and form hydrogen ions and anions. The hydrogen ions exist in a molar concentration expressed on a pH scale through the relationship of the equation pH = - log [H+].

When to Test for pH

pH should be measured many times throughout the life of wine. Following are practical guidelines for when to test for pH:

- As juice or must
- During fermentation monitoring
- Upon completion of primary and/or malolactic fermentation
- At intervals during ageing
- Upon blending
- At bottling
- Before or after cold stabilization

Analysis

pH is measured with an electrode that is connected to a meter calibrated in pH units. The electrode has two parts; a reference electrode and a sensing electrode. The two parts pass a current between themselves that is affected by the amount of active hydrogen ions in the solution. The meter “translates” the current, or voltage potential, into pH units for the user to identify. Temperature is an important factor in pH measurements. For best accuracy, an auto temperature compensating (ATC) probe is used to influence the calibration. A calibration curve is established using known concentrations of pH buffers. The buffers normally used in the wine industry are pH 4.0 and pH 7.0. Known buffer solutions are measured for confirmation, then unknown concentrations of wine/juice samples can be analyzed as compared to the calibration curve already established.
Vinquiry has automated equipment, called an autotitrator, for all of these functions so that pH analysis can be run accurately and efficiently.

Sampling

Vinquiry requires 200mL of wine to test for pH. Minimal headspace is essential. Complimentary plastic sample bottles are available from all three Vinquiry locations. Please call the phone number below to have sample bottles shipped to you.

For further information on pH testing, please call 707-838-6312.

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