

# PRESQUE ISLE WINE CELLARS

“Serving the Winemaker Since 1964”

(814) 725-1314      [www.piwine.com](http://www.piwine.com)

## DETERMINATION OF TOTAL ACIDITY IN WINES AND JUICES

The ideal total acidity of a finished wine ranges from about 0.6% to 0.8% , expressed as tartaric acid. A fresh juice should run 0.1% to 0.3% higher because some acidity is lost during the process. This test will permit you to make prudent corrections with unbalanced musts or wines and to indirectly observe the progress of malo-lactic fermentations as well as spoilage by vinegar production. The latter problem is marked by an increase in acidity in the wine.

**1. EQUIPMENT NEEDED:** Buret with stand and clamp, 5 mL volumetric pipette, N/10 sodium hydroxide, distilled or boiled tap water and beaker or glass.

### **2. PROCEDURE FOR WHITE WINES OR JUICES**

- a.) Fill buret with sodium hydroxide. Run enough through the buret so that no air bubbles remain below the pinchcock or stopcock.
- b.) Using the pipette, add a 5 mL sample of wine or juice to be tested to the beaker or water glass.
- c.) Add about 100 mL of distilled water to the wine or juice sample. If using tap water instead, see paragraph 4 below before proceeding.
- d.) Add about 5 drops of phenolphthalein indicator to the sample.
- e.) Place the wine sample container under the buret. Record the sodium hydroxide (NaOH) level in the buret before starting. Begin running NaOH into the sample; this will cause it to turn pink. Upon stirring or swirling the sample the pink color will disappear quickly. As you approach the end point the pink takes longer to fade. The end point is the first faint pink blush what will not fade within 20 seconds.
- f.) Upon reaching the end point, record the level the NaOH in the buret. Subtract your first reading from this to determine the mL of NaOH used. Millimeters of NaOH x 0.15 equals percent acidity expressed as tartaric acid. (Example: 4.8 mL x 0.15 = 0.72%)

### **3. PROCEDURE FOR RED WINES OR JUICES**

- a.) Do not immediately add the phenolphthalein indicator as you would with a white wine or must. The red pigments make it difficult to see the end point unless you first titrate without phenolphthalein until the color turns the red to a blue or green. Only then will you add the indicator and then continue to the first pink that persists.
- b.) Determine how many mL of NaOH were used and multiply by 0.15 to determine the percent acidity expressed as tartaric acid.
- c.) If the sample is deeply pigmented you can dilute it with more distilled water which does not affect the result. A bright light under the sample (or behind it) makes it easier to see the color changes.

### **3. PROCEDURE WHEN USING TAP WATER**

- a.) The pH of tap water may vary from pH7. If you use it instead of distilled water you should use the same volume each time and run a blank test with the water to see what correction you should make. The amount of NaOH used should be subtracted from the amount used in the test for wine or juice. If the phenolphthalein turns the water pink before any NaOH is added you will not be able to use it.