STABILITY TESTS

DETERMINATION OF TARTRATE STABILITY

Alcohol test. Method: J. Perin

1. Add 1.5 ml of 90º alcohol G.L. into each sample of 100 ml of wine.
2. Store the samples in cold storage at –4 to –5ºC for 4 days.
3. Then observe:
   - Without crystals = stable wine
   - With crystals = unstable wine.

Test of tartaric stability in freezer

1. Simulate your pre-bottling filtration regime (i.e. pads, membranes, etc.) into a clear glass bottle, stopper and freeze. For red wines, bottle two samples: put one in the freezer and the other into the refrigerator for 24 hours to measure the color stability.
2. To verify the tartaric stability, check the results after 4 days exposure at –4ºC in the freezer and after thawing.

   Note: White wines are usually membrane filtered at 3.0, 1.2 and 0.45 µ.

   Red wines are usually filtered at 3.0, 1.2 and 0.65µ.

   Champagne is filtered by sterile pad and 0.45µ membrane.

IRON HAZE

1. Filter the wine to be tested through a 0.45µ membrane and fill a 750 ml bottle halfway.
2. Shake this wine or expose it to air for one minute. Then close the sample and monitor the results after 7 days.
   - A negative test result is when wine does not suffer any type of physical change.
   - A positive result is when there is any formation of haze or turbidity.

     If the test is positive, perform a microscopic examination to confirm that the instability is not due to microbial spoilage. If so, the test should be repeated.

     If a haze appears in the wine and it is non-microbial, take 10 ml of the sample and add 2 ml of 5% sodium hydrosulfate. If the sample clears this shows that an excess of iron caused the haze.

OXIDATIVE HAZE

1. If the sample changes to brown color after 24 – 48 hours, this indicates an oxidative haze.
2. Add 100 ml of absolute alcohol to 50 ml of wine and let stand 15 minutes before filtering.
3. Remove sediment with cool water and add some drops of guaiacol tincture (0.1 g of guaiacol resin into 100 ml of alcohol of 50º G.L.), shake it and a blue coloration will indicate polyphenolase presence.

COPPER HAZE

1. Filter the wine through a 0.45 membrane and store in a clear 750 ml bottle filled to normal fill level.
2. Expose the bottle to sunlight for 7 days before observing and tasting the wine.
   - A negative test result is when wine does not suffer any type of physical change.
   - A positive result is when there is any formation of haze or turbidity.

     If the test is positive, perform a microscopic examination to confirm that the instability is not due to microbial spoilage. If so, the test should be repeated.

     If a haze appears in the wine and it is non-microbial, take 10 ml of the sample and add 2 ml of 5% sodium hydrosulfate. If the sample clears this shows that an excess of iron caused the haze.

BROWNING TEST

Potential

1. Bubble oxygen for one minute into 100 ml of wine, stopper and store at 55°C in a vacuum oven during 5 days.
2. At the end of storage, measure the absorbency at 420 nm.

   Potential browning = absorbance @ 420 final - absorbance @ 420 initial

Partial

1. Saturate 233 ml of wine with air in 250 ml beaker. If this container size and volume of wine is used, the sample will contain 21 mg of oxygen per liter.
2. Stopper and hermetically seal the sample and store at 55°C for 5 days.
3. At the end of the 5-day storage, measure the absorbance at 420 nm.

   Partial browning = absorbance @ 420 final – absorbance @ 420 initial

   The difference should not be significant.

VOLATILE ACIDITY STABILITY – LAVAL TEST

This test measures the capacity to produce volatile acidity.

1. Check the volatile acidity on the wine to be tested.
2. Put 150 ml of wine into 250 ml Erlenmeyer flask.
3. Stopper it with a cotton plug and store it at 27ºC in a vacuum oven for 4 days.
4. Remove from of the vacuum oven and determine the volatile acidity again.
5. Verify volatile differences. If there is no difference, the wine stable. If there is a difference the wine is VA unstable.