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Laboratory Set-Up

Vinquiry is available for all your analytical needs, from professional services to the equipment and chemicals necessary to set-up your own wine laboratory. There are times when it is most cost-effective to send wine samples to Vinquiry, however there are some analyses that can be done in-house. Here are a few tips to help set-up a laboratory of your own.

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 SO₂ to add. pH also has an affect on wine properties, including 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.

pH Meters

Vinquiry offers a complete range of pH meters at various prices and parameter options. For example, the Orion Star line of pH meters has models that only measure pH and multi-parameter meters that measure pH, dissolved oxygen, conductivity, and ISE. The meters are also available in benchtop and portable models and with application kits.

The following are some pH meters available at Vinquiry:

Beckman 350 pH meter kit
Orion 320A0 pH meter with Ross electrode
Orion 1111204 2-Star pH meter kit
Orion 1112003 3-Star pH meter kit
Orion 1212001 portable 3-Star pH meter with triode
Orion 1010109 4-Star benchtop meter with Ammonia ISE kit

For more information on pH measurement in wine, please see our [Technical Sheet](#) and [SOP](#).

Titratable Acidity

Titratable acidity (TA) is an analysis that is useful in multiple winemaking situations. In juice, titratable acidity is a quick snapshot of the major acids present. In wine, titratable acidity can be used as an indicator of sensory properties. Knowing the TA of a wine can help a winemaker determine if a wine is in balance or is stylistically correct.

Labware and Reagents required for Titratable Acidity

For Direct Evaluation of Wine:

Buret and Stand
0.1N Sodium Hydroxide
Deionized Water

By Visual Endpoint:

1% Phenolphthalein
By pH Endpoint:
pH Meter
Good Quality pH Electrode
ATC Probe

5mL Volumetric Pipet
Pipet Safety Bulb
Wash Bottle
Kimwipes

Hot Water Source
250mL Erlenmeyer Flasks

pH Buffers
150mL Beakers
Magnetic Stirrer
Stirbars

For more information on Titratable Acidity, please see the [Technical Sheet](#) and SOP's on [Visual Endpoint](#) and [pH Endpoint](#) Titration.

Volatile Acidity

Volatile acids can be formed by yeast activity during fermentation and by spoilage bacteria during fermentation or ageing. Testing for volatile acidity (VA) is important to maintain quality and monitor the possible presence of spoilage organisms. Performing a test for volatile acidity early in the winemaking process is best for establishing a baseline for tracking increases of VA. The incidence of volatile acidity can be reduced by diligent monitoring of both volatile acidity and the presence of bacteria. Once wine has a high VA, there are few options available to winemakers to reduce the concentration and improve sensory effects.

Labware and Reagents needed for Testing

Volatile Acidity

Cash Still System

250mL Erlenmeyer Flask

10mL Class A Volumetric Pipet

Phenolphthalein and Starch Indicators

Titration Assembly for 0.1N Sodium Hydroxide

Titration Assembly for 0.02N Iodine

Antifoam B

1 + 3 Sulfuric Acid

For more information on Volatile Acidity, please see the [Technical Sheet](#) and [SOP](#) on our website.

Sulfur Dioxide (SO₂)

It is important to monitor Sulfur Dioxide (SO₂) levels in wine throughout the winemaking process. SO₂ is added to must, juice or wine to aid in the prevention of oxidation and microbial spoilage. Due to binding reactions, it is necessary to determine the actual concentration of free and bound SO₂ present in juice or wine after additions. The molecular component is active against microorganisms, however if you have too much free and bound SO₂ it will inhibit malolactic bacteria during ML fermentation. High concentrations of SO₂ can cause adverse sensory effects and the bleaching of certain red wine pigments.

Labware and Reagents needed to SO₂ by Aeration-Oxidation

Aeration-Oxidation Assembly

20mL Class A Volumetric Pipet for Sample

SO₂ Indicator

10mL Pipet or Dispenser for 25% Phosphoric Acid

Titration Assembly for 0.01N Sodium Hydroxide

3% Hydrogen Peroxide Adjusted to pH 5.7 (do not use pharmaceutical peroxide)

Timer

For more information on SO₂ by Aeration-Oxidation, please see the [Technical Sheet](#) and [SOP](#) on our website.

Consulting Services

Vinquiry also offers a full range of consulting services, including lab set-up assistance. Our consultants can help you decide what equipment is required to set-up a lab that best fits your needs.

For more information on laboratory set-up and Vinquiry consulting services, please call 707-838-6312.

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