



CONDUCTIVITY TEST FOR COLD STABILITY

Equipment

- Conductivity meter with appropriate conductivity cell
- Circulating water bath
- 250 mL Jacketed beaker
- Magnetic stirrer
- Stir bar
- Timer
- Lab filtration set-up
- 250 mL sample bottles
- 0.45 μ membrane filters
- Distilled water bottle

Reagents

- Potassium bitartrate, reagent grade
- Conductivity calibration solution, 1413 μ S

Procedure

SAMPLE PREPARATION

- Filter 200 mL sample with 0.45 μ filter as soon as possible after sampling tanks. Place filtered sample in 250 mL bottle. Filtering the sample removes solids that could interfere with the seeding material during the test, and if Potassium bitartrate was already present, filtration will remove it before it has a chance to redissolve. Bottled wine should be decanted into 250 mL bottles. Some samples are very clear at room temperature, so filtering may not be required. If sample is received cold, filter immediately or store in refrigerator until it can be filtered.
- Turn on circulating water bath and set to desire testing temperature. Samples may be refrigerated or placed in water bath to pre-chill.

CONDUCTIVITY MEASUREMENT

- Pour the 200 mL sample into the jacketed beaker set up on stirrer. While the sample is stirring, measure the conductivity at the temperature specified. The initial reading takes a while to stabilize, the conductivity cell and the sample have to reach the temperature of the test.
- After the initial reading stabilizes, turn on the chart recorder. While stirring, seed the sample with one rounded teaspoon, about 3 grams (equivalent to 15g/L) of Potassium bitartrate.
- Record the Conductivity (the units are mS or μ S) and temperature at 5 minute intervals for 15 minutes. After 15 minutes, record readings each minute until the reading does not increase more than 2mS for 3 readings. The chart recorder aids in interpreting the readings.
- Calculate the % change in Conductivity from the initial reading (R_1) to the final reading (R_2).
 $(R_1 - R_2) / R_1 \times 100 = \% \text{ Change}$

Note: Observations regarding measurements, the slope of change in conductivity, the results in relation to a freeze test on the same wine, etc. may be pertinent, also for a comprehensive assessment.