FREE SO2 by AERATION OXIDATION

EQUIPMENT

Aeration/Oxidation apparatus with flowmeter
10ml Buret Apparatus
Sink aspirator or other source of vacuum
10 ml serological pipet
20 ml volumetric pipet
Pipet safety bulb

REAGENTS

3% Hydrogen Peroxide adjusted to pH 5.5 to 6.0
SO2 Indicator (Methyl Red + Methylene Blue in 50% Ethanol)
0.01N NaOH
25% Phosphoric Acid CAUTION: CORROSIVE

PROCEDURE

Fill impinger tube to the 10ml mark with 3% Hydrogen peroxide.

Add 3 drops of the indicator. (Should turn gray-green in color).
*May need to adjust acidity of Hydrogen Peroxide with dilute NaOH or HCL.
If too purple - use dilute NaOH
If too green - use dilute HCL

Pipet 20mls of sample into 100ml round bottom flask.
Pipet 10mls 25% Phosphoric acid into flask with sample.
Insert bubbler/stopper into flask.

Connect flask to apparatus, turn on vacuum, aspirate for 10 minutes at a flow rate ca. 1000ml/min. Turn off and release vacuum. Blow out any drops left into impinger by using safety bulb on bubbler tube.

Titrate Hydrogen peroxide solution with 0.01N NaOH to a gray-green color, ending with the same color you started with.

CALCULATIONS

Free SO2 (ppm) = N NaOH x mls NaOH x 1600

example: If N of NaOH is 0.01, then: Free SO2 (ppm) = mls NaOH x 16

NOTES

Standardize NaOH frequently. Store Hydrogen Peroxide in refrigerator, but warm to room temperature prior to running analysis. Make sure all tubing connections are tight.

Hydrogen Peroxide concentration is greatly in excess and should be more than sufficient to handle any normal winery application.

Recommended rate for aspiration is 1000 ml/min.

Tubing on apparatus needs to be changed routinely.

DISPOSAL

Hydrogen peroxide: dispose with water in sink.

Phosphoric Acid: add approximately 5 mls (or to pH >3) of Kolorsafe neutralizer and dispose with water in sink.