

HI84500

Sulfur Dioxide Mini Titrator

for Wine Analysis

- Piston driven pump with dynamic dosing
 - For highly accurate, repeatable results
- Log-on-demand
 - Log data up to 400 samples (200 for titration; 200 for ORP/mV)
- Graphic mode/exportable data
 - Displays in-depth data on titration, which can then be stored and exported to either a USB drive or PC using the USB connection
- Automatic stirrer speed control
 - Maintains stirrer speed at 700 RPM regardless of viscosity of solution
- GLP features
 - Date, time, offset, slope and buffers used
- Easy-to-use interface
 - User intuitive design with large keys and easy to navigate screens
- HELP features
 - Dedicated HELP key for content sensitive help
- mV meter



An Easy-to-Use, Fast and Affordable All-in-one Solution

The HI84500 is an easy to use, fast and affordable automatic mini titrator designed for testing free or total sulfur dioxide (SO₂) levels in wine. It includes a pre-programmed analysis method and uses a powerful algorithm in order to determine when the titration reaction has reached completion. The HI84500 incorporates a precision dosing pump which allows for a highly accurate determination of the amount of titrant used. Pump calibrations, performed with the provided Hanna standards, help assure the measurement accuracy. The HI84500 also features a new low range measurement and can also be used as a mV meter for direct ORP measurements.

This new generation of mini automatic titrator improves upon the titrant delivery system and measuring ranges for increased accuracy compared to previous models. This meter reflects Hanna's years of experience as a manufacturer of analytical instruments.

Why Free & Total Sulfur Dioxide is Important

Winemakers add sulfur dioxide to wine in order to inhibit bacteria and wild yeast growth and to serve as an antioxidant to prevent browning. When SO₂ is added to wine, a portion of it becomes immediately bound while a remaining portion is unbound SO₂. The portion that is unbound is also called free SO₂; it is responsible for protecting the wine.

The bound and free SO₂ together are referred to as total SO₂. The relationship between the amount of SO₂ added and the amount of free SO₂ is complex. This relationship is governed by the total amount of SO₂ in the wine and the ability of compounds (e.g. sugars, aldehydes, ketonic acid, quinones, anthocyanin) in the wine to bind SO₂.

The exact relationship between free and bound SO₂ will vary from wine to wine. The amount of free SO₂ depends on how much is added, how much was present before the

addition, and how much was immediately bound. Free SO₂ exists in two forms: bisulfite (HSO₃⁻) is the predominant form but is relatively ineffective and molecular SO₂ is the minor form and is responsible for protecting the wine. The amount of molecular SO₂ available in wine is dependent on the amount of free SO₂ present and the pH. Typically 0.8 ppm of molecular SO₂ provides adequate protection against bacteria growth and oxidation. In order to obtain this value for a wine sample that has a pH of 3.2 you would need 22 ppm of free SO₂; if the pH was at 3.5 you would need double the amount, 44 ppm of free SO₂.

Molecular SO₂ can be detected by human senses at about 2.0 ppm. This level is needed for maximum protection of wine. Higher levels are needed for sweet and most notable, botrytised wine. The HI84500 can be used to test for free and total SO₂ in all wines, including red, which are difficult to test using traditional methods associated with a distinctive color change to determine the endpoint.