

Technology and Maintenance on the TurboVap II Concentration Workstation

Sensor Endpoint Technology

The TurboVap II sensor is designed to monitor the concentration process. It does this with light and logic. The sample tube stem sits in a light beam at about 0.8mL for 1mL tubes and at 0.5mL for the 0.5mL tubes. Every second, a microprocessor receives an indication of the change in optical density of the solution being concentrated. Small changes in optical density over a thirty second period are registered to memory and become the new initial or zero point for the sensor to look at the next change. When the sample is done and the meniscus crosses the sensor beam, a large change in optical density takes place and the TurboVap II beeps. The change for either dark or clear must persist for several seconds for the sensor to beep. At this point the gas flow stops and an alarm sounds to indicate that the sample is complete. When the attendant looks at the control panel, a blinking light indicates which position is complete.

Maintaining the Sensors

The sensors in the TurboVap II are optical sensors. Sensors have a life expectancy of about one year with average use and six to nine months for labs that may be operating two shifts daily. Six sensors come installed and ready to operate. To prolong the life of the sensors, keep the water bath clean (see below). If you believe the sensors are failing, follow the sensor diagnostics in your Operator's Manual. As routine maintenance, the sensor diagnostics should be done periodically to confirm proper operation.

Glassware Specifications

In order to keep glassware costs at a minimal for our customers, Caliper Life Sciences provides TurboVap II tubes that are calibrated to 5% tolerances at only the 0.5mL and 1.0mL markings. There are other marking on the tubes at larger volumes that are for estimation only.

Maintaining the Water Bath

Always use distilled water. Add Clear Bath to help keep the water clean. Periodically change the water in the bath. With average use, change every two months or sooner if it becomes cloudy. The cleaner the water is, the better the sensors operate. If residue begins to build up in the bath, then sensors may begin to give false readings.

Maintaining the Glassware

Clean and rinse the TurboVap II sample tubes following your laboratory protocol. Residue remaining on either the inside or outside of the stem can impact sensor operation.

TurboVap II Solvent Vapors

The TurboVap II has a fan at the back of the unit that is pulling air out through a ventilation hose that is placed under the sash of a hood. Therefore, the TurboVap II can be placed on a benchtop with the ventilation hose directed into an exhaust hood. Ambient air surrounding the TurboVap II is pulled through a small slot in the front to create a substantial airflow that helps to void the TurboVap II unit (including the electronics compartment) of vapors that then exhaust out the back. The exhaust is composed of ambient air, water vapor from the internal water bath, nitrogen (gas source) and solvent vapors.

Gas Consumption

At 11 psi: 0.08 cfm/nozzle OR 2.3 L/min/nozzle. If your laboratory is interested in a gas generator or dewar system, please contact the appropriate manufacturers of this equipment. The inlet source of gas to the TurboVap II must be at a minimum of 30 psi and maximum of 80 psi.

Summary of Daily Maintenance

- During "Power Up" diagnostics, confirm that all displays are accurate.
- Check to ensure water bath is full and clean.
- Check that your tank has enough Nitrogen for daily operation.
- Avoid spilling any solvents on the control panel.
- Avoid spilling any solvents in the water bath.



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