

# MALLS Quick Start Guide

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## **LC Startup**

- Change the in-line filter upon changing buffers or change after ~60 days of use
- Filter mobile phase using a 0.1 micron filter for aqueous buffers and a 0.02 micron filter for organic solvents
- Wyatt recommends using 200 ppm Sodium Azide (NaN<sub>3</sub>) for aqueous buffers
- Adjust the flow rate in 0.1 ml/min increments, allowing pressure to stabilize after each increase
- Upon storing LC for more than 2 days, change to filtered water containing ≥ 20 % EtOH  
\*\*Be careful to flush LC with miscible solvents ie. Toluene → 100% EtOH → 100% H<sub>2</sub>O\*\*

## **DAWN HELEOS/TREOS**

- Turn on Laser using the main LCD display
- Run the COMET (if applicable) while the instrument is warming up (~10 min)
- Upon starting, the 90° angle should be ~ 0.02 V or less (in aqueous systems)
- Turn off the COMET before starting run (COMET running time can be set in System window)  
\*Check the following instrument parameters in Astra Configuration:
  - ✓ Make sure that your physical instrument is selected when starting a new method
  - ✓ Normalize the detector for any new mobile phase (NIST BSA [https://srmors.nist.gov/view\\_detail.cfm?srm=927d](https://srmors.nist.gov/view_detail.cfm?srm=927d))
  - ✓ Set calibration constant for MALS detector (calibrate detector with filtered Toluene about every 6 months)
  - ✓ Set solvent refractive index (can be determined from the Optilab rEX)
  - ✓ Set DNDC of sample ([www.ampolymer.com](http://www.ampolymer.com)) - protein DNDC is ~0.185

## **Optilab rEX**

(This instrument should not have backpressure so make sure outlet tubing is 0.030" ID or greater)

- Adjust temp to desired setting and allow instrument to warm up for ~30 min
- set the purge button to ON on the main LCD display during any change in buffer
- Adjust the LED intensity under the System Tab so that it is ~7.6 volts (adjust max power % manually)
- Turn off purge and zero instrument using the main LCD display
- Re-purge and re-zero the instrument until the drift is less than 5.0 E-8 RIU/min

\*Check the following instrument parameters in Astra Configuration:

- ✓ If using the RI detector for your concentration, make sure that you select the RI detector in Astra 6
- ✓ Make sure that you select your physical instrument when starting a new method
- ✓ Set volume delays (alignment) for each new concentration detector

### **QELS (only for internal QELS)**

- Calculate the solvent viscosity to the MALS temp on the front LCD display using SEDNTERP ([www.cauma.uthscsa.edu/software](http://www.cauma.uthscsa.edu/software))
- Turn on the QELS using the front LCD panel, under the QELS tab
- Make sure that the Dither is in the on position

\*Check the following instrument parameters in Astra Configuration

- ✓ Set the correct viscosity for your solvent (correct for the changes due to run temp using SEDNTERP)

### **UV Detector**

- Turn on the lamps and allow them to warm up for ~30 minutes

\*Check the following instrument parameters in Astra Configuration

- ✓ If using the UV detector for your concentration, make sure that you select the UV detector in Astra 6
- ✓ Set the appropriate wavelength for your analysis
- ✓ Set the correct AU/Volt, Path Length and extinction coefficient (careful of the units, ASTRA 6 uses mL/(mg cm))
- ✓ Set volume delays (alignment) for each new AUX detector

### **Viscostar**

- DO NOT START THE LC WITHOUT THE VISCOSTAR BEING POWERED UP
  - When running the system, both the IP and DP purges must be off
  - Increase the LC flow rate slowly so that the DP pressure remains on scale ( $\pm 0.73$  psi)
  - Set the flow rate to desired value, allow the instrument to stabilize, and zero the DP (Viscostar total volume is ~28mL)
  - Each week, purge the IP and DP separately with ~10 mL of solvent and re-zero the DP
- \*\*When changing solvents, activate the DP purge from the main LCD display and flush instrument for 15 minutes at a flow rate of 0.2 mL/min. After 15 minutes, activate the IP purge and flush both for another 15 minutes. Set the flow rate to 0.1 ml/min and disable the IP and DP purge. Follow the startup procedure.