

TEST METHOD FOR PSL STANDARDS ON LA-350

Mono-disperse polystyrene latex (PSL) standards are commonly used to verify accuracy and proper operation of laser diffraction particle size analyzers. As these materials are somewhat different from normal materials, proper conditions and procedures are necessary to ensure correct results. The following NIST-traceable polystyrene latex standards are recommended to verify acceptable performance of the LA-350 particle size analyzer.

Analytical Test Method

Applicable instruments: LA-350 with aqueous pump or solvent-resistant pump
Dispersant fluid: Deionized water

Set the following conditions:

- Basic Measurement Conditions
 - Sample Information:
 - Sample Name: (nominal size of standard and tolerance)
 - Material: PSL standard
 - Source: (name of vendor)
 - Lot Number: (lot number of standard being tested)
 - Refractive Index: SINGLE-PSL in water (created while connected to the LA-350)
 - Iteration mode: Manual (default)
 - Condition for Convergence Factor: 1000 (default)
 - Distribution base: Volume
- Advanced Measurement Conditions
 - Measurement tab
 - Feed liquid level: Medium
 - Data acquisition times (Sample): 5000
 - Data acquisition times (Blank): 5000
 - Alignment before measurement: Yes

- Sample handling
 - Circulation Speed: 3
 - Ultrasonic Setting: No

Test Procedure:

1. Fill circulation system with de-ionized water.
2. Start Circulation.
3. De-bubble.
4. Wait 10 seconds.
5. Align the laser and verify that the cell is clean by visually inspecting the channel baseline (lower than 500 for each channel).
6. Take the system Blank.
7. Add the standard dropwise directly into the sample bath of the flow system until the laser transmittance is below 95%.
8. Take 3 measurements on each standard to verify repeatability.
9. Rinse with deionized water between samples.

Results

Verify that the Mean Diameter is within 1.4% of the bottle tolerance value for each standard. Here is the result of 1.0 μm PSL standard, as an example.

Results

