

TEST METHOD FOR PS-202 POLY-DISPERSE GLASS BEAD STANDARDS ON PARTICA LA-350

Poly-disperse glass bead standards were developed as a better test of complete system performance for laser diffraction analyzers, compared to mono-disperse polystyrene latex dispersions that are not representative of the vast majority of materials tested on these instruments. The PS-202 glass bead standard has been tested and incorporated as a performance specification for the LA-350 particle size analyzer.

Analytical Test Method

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

Set the following conditions:

- Basic Measurement Conditions
 - Sample Information:
 - Sample Name: PS-202
 - Material: Glass beads
 - Source: Whitehouse Scientific
 - Lot Number: XX-XXXX
 - Refractive Index: STD-GLASSBEADS (1.51-0.0i) in water.
 - Iteration mode: Manual
 - Condition for Convergence Factor: 15
 - 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: 5
 - Ultrasonic Setting
 - Power: 7
 - Time: 5 minutes
 - Ultrasonic on during measurement: Yes

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. Transfer all of the powder in the bottle to the sample cup.
 - Note: static interaction between the glass beads and bottle may necessitate rinsing the bottle remnants into the sample cup with water and/or the use of surfactant.
8. Activate the internal Ultrasonic probe. Wait for the five-minute ultrasonic treatment to elapse before proceeding.
9. Take 3 measurements to verify repeatability.
10. Rinse with deionized water.

Results

Verify that the median (D50) is within 3% of the nominal value and the D10 and D90 are within 5% of the nominal values for the standard.

D10: 7.87 to 10.50 μm
D50: 12.20 to 14.71 μm
D90: 17.96 to 22.86 μm

Results

