

Measuring 2 μm and 2.5 μm Polystyrene Latex Standards on LA-960V2

Introduction

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.

Analytical Test Method

Applicable instrument: LA-960V2
Dispersant fluid: RO water.

Set the following conditions:

Basic Measurement Conditions

- Sample Information:
 - o Sample Name: (nominal size of standard)
 - o Material: PSL
 - o Source: (name of vendor)
 - o Lot Number (found on bottle)
 - o Refractive Index: Single PSL in water
 - o Form of Distribution: Manual
 - o Iteration Number: 1000
 - o Distribution Base: Volume

Advanced Measurement Conditions

- Measurement tab
 - o Data acquisition times (Sample): 5000
 - o Data acquisition times (Blank): 5000
 - o Alignment before measurement: Yes

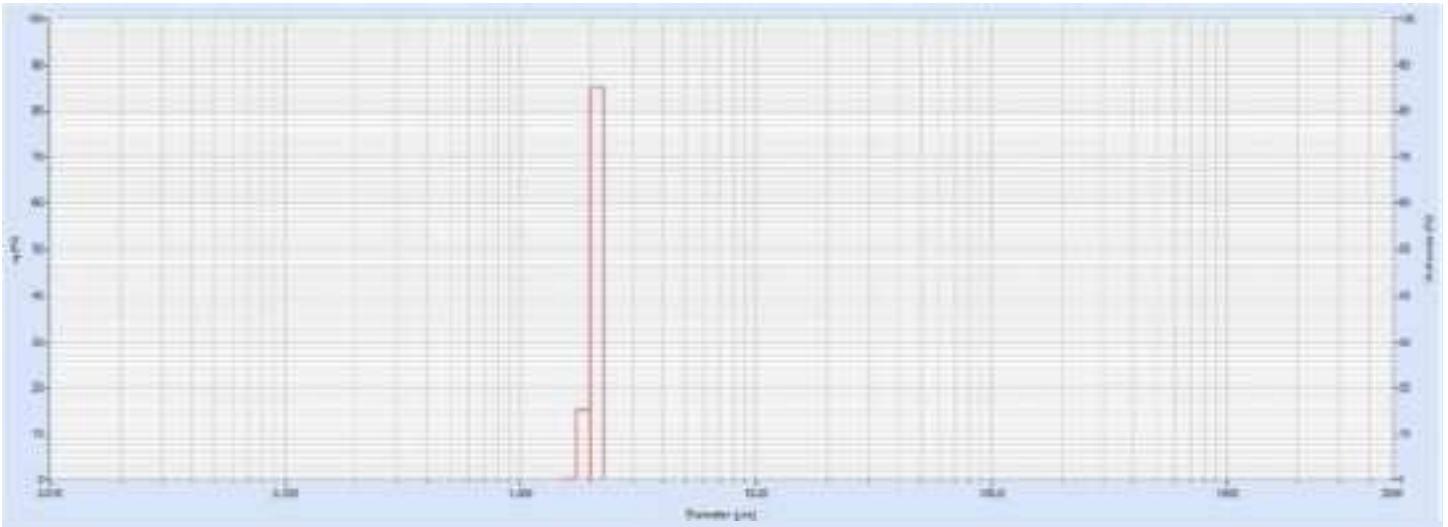
Test Procedure:

1. Feed the LA-960V2 with RO water.
2. Activate circulation and agitation.
3. De-bubble.
4. Align the laser and verify that the cell is clean by inspecting the channel baseline for any channels reading below 500.
5. Take the system Blank.
6. Add sample.
7. Take 5 measurements.
8. Rinse the LA-960V2 with RO water.

Results

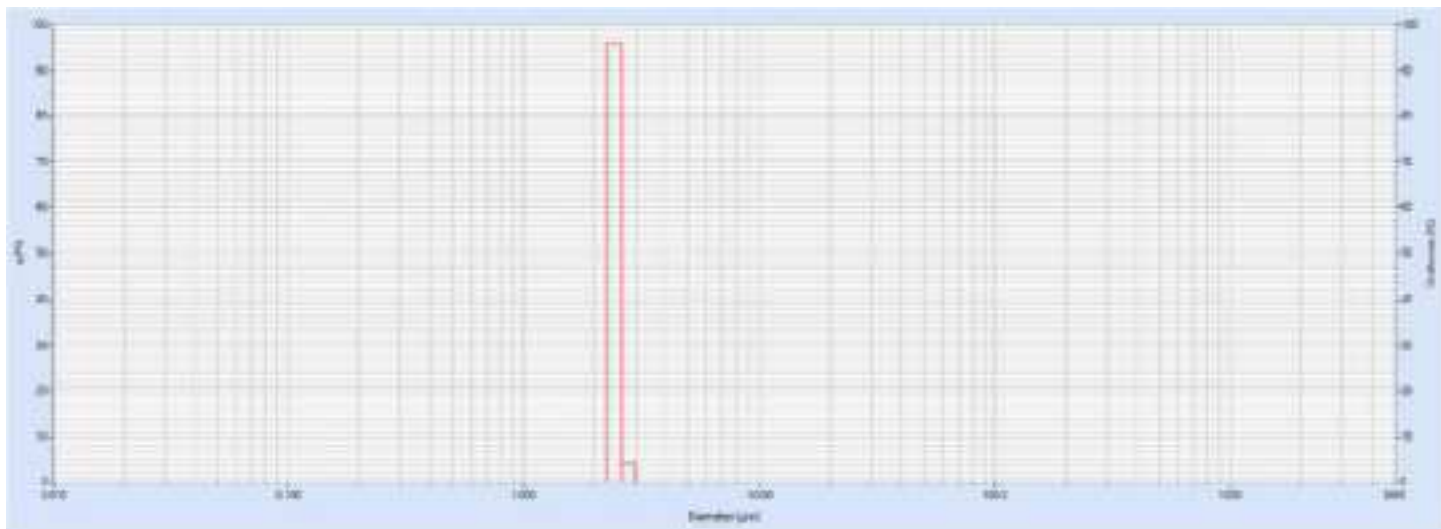
Verify that the Mean Diameter is within 5% of the published value for each test. The following are the results of 2 μm and 2.5 μm PSL standards on the 2 different units of LA-960V2. All data are in the bottle tolerance values without additional 5%.





Catalog Number: 4202, Duke Standards, Microsphere Sizer Standards
Packaging Lot # 282917
Certified mean diameter: 2.020 µm
Expanded uncertainty: +/-0.015 µm

	Unit 1	Unit 2
File Name	Mean	Mean
sampling 1-a	2.031	2.019
sampling 1-b	2.031	2.019
sampling 1-c	2.030	2.019
sampling 1-d	2.030	2.019
sampling 1-e	2.031	2.018
sampling 2-a	2.031	2.019
sampling 2-b	2.030	2.019
sampling 2-c	2.030	2.019
sampling 2-d	2.030	2.019
sampling 2-e	2.030	2.018
sampling 3-a	2.030	2.019
sampling 3-b	2.031	2.019
sampling 3-c	2.031	2.019
sampling 3-d	2.030	2.019
sampling 3-e	2.031	2.019
Average	2.030	2.019
Std. Dev.	0.001	0.000
CV (%)	0.025	0.017



Catalog Number: 4025A, Duke Standards, Microsphere Sizer Standards
Packaging Lot # 288145
Certified mean diameter: 2.514 µm
Expanded uncertainty: +/-0.027 µm

	Unit 1	Unit 2
File Name	Mean	Mean
sampling 1-a	2.516	2.506
sampling 1-b	2.516	2.507
sampling 1-c	2.516	2.507
sampling 1-d	2.516	2.507
sampling 1-e	2.517	2.507
sampling 2-a	2.516	2.506
sampling 2-b	2.516	2.506
sampling 2-c	2.516	2.507
sampling 2-d	2.516	2.507
sampling 2-e	2.516	2.507
sampling 3-a	2.516	2.506
sampling 3-b	2.516	2.506
sampling 3-c	2.516	2.506
sampling 3-d	2.516	2.507
sampling 3-e	2.516	2.507
Average	2.516	2.507
Std. Dev.	0.000	0.001
CV (%)	0.010	0.020

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