TESTING 3-30 μm ON PARTICA LA-960V2 WITH POWDERJET DRY FEEDER

Introduction

Glass bead standards are commonly used to verify accuracy and proper operation of laser diffraction particle size analyzers. The PowderJet Dry Feeder (LY-9605) is the dry feeder attachment for the Partica LA-960V2, allowing powders to be run with air pressure dispersion. The sniffer attachment (Figure 1) is used with small amounts of samples, allowing the user to manually feed sample into the instrument.

Analytical Test Method

Set the following conditions:

Basic Measurement Conditions

- Sample Information:
  - Sample Name: (nominal size of standard)
  - Material: Glass Beads
  - Source: (name of vendor)
  - Lot Number: (found on bottle)
  - Refractive Index: Glass Beads (1.51 - 0.00i)
  - Form of Distribution: Automatic
  - Distribution Base: Volume

Advanced Measurement Conditions

- Measurement tab
  - Data acquisition times (Sample): 5000
  - Data acquisition times (Blank): 10000
  - Alignment before measurement: Yes

Sample Handling

- T% for sampling
  - Yes
  - Max T%: 99.5
  - Min T%: 95
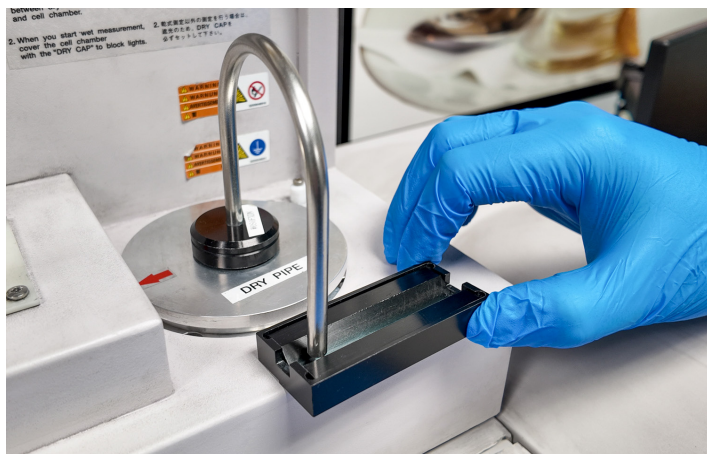

Figure 1. An operator slides the sample tray underneath the intake of the sniffer accessory attached to the PowderJet.

- Stop Trigger
  - Yes
  - Setting T%: 99.5
  - Stop after Waiting

- Actuator Setting
  - Feeder Speed: 1
  - Initial Coefficient: 1
  - Pressure: 0.40 MPa

Test Procedure:

1. Attach the small nozzle into the head of the cell.
2. Set the Dry cell inside the instrument.
3. Remove the chute from the PowderJet Dry Feeder.
4. Insert the sniffer accessory directly into the dry pipe of the PowderJet Dry Feeder.
5. Add sample (1 bottle of PS205 ,1 g) to the sample tray and set next to the sniffer intake pipe.
6. Click auto measure.
7. When the Partica LA-960V2 starts measuring, slowly and evenly slide the sample tray underneath the sniffer intake to pick up small amounts of sample.
8. Once measurement is complete, clean the sample tray to prepare for the next sample.
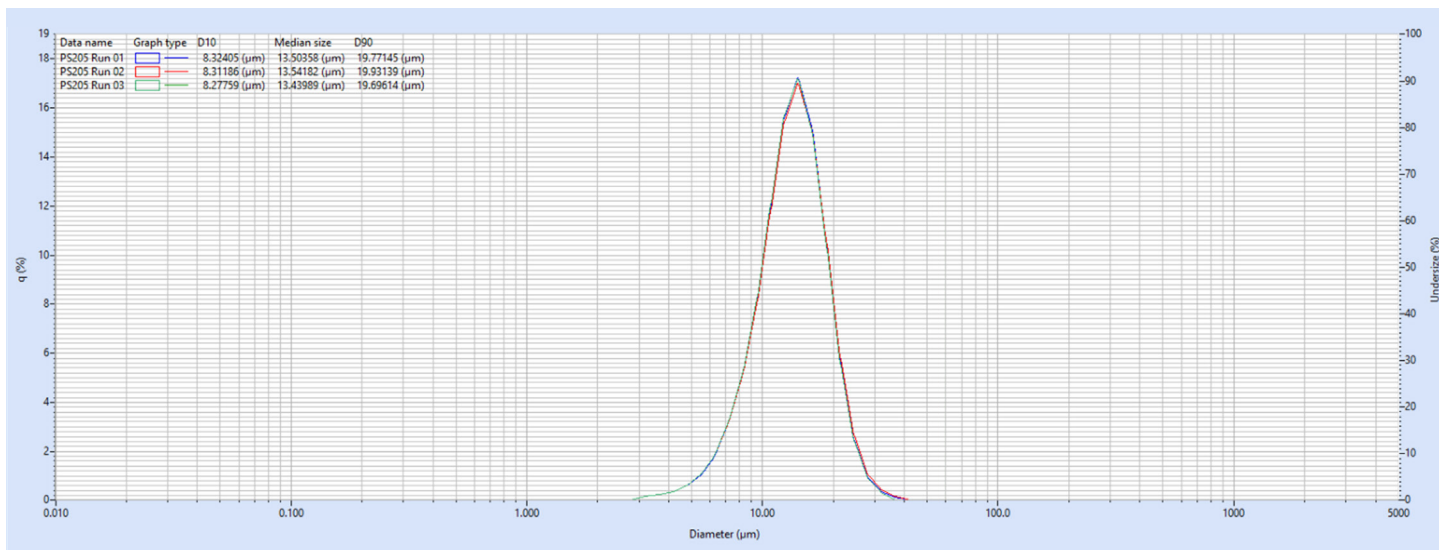
Figure 2. Three runs of PS205 measured on the Partica LA-960V2 using the PowderJet Dry Feeder with sniffer attachment. Size reported in Microns (μm).

	D(v, 0.1)	D(v, 0.25)	D(v, 0.5)	D(v, 0.75)	D(v, 0.9)
Bottle Value*	9.14	11.02	13.43	16.52	20.34
Uncertainty (95% Confidence)*	0.86	0.72	0.86	1.14	1.44
Acceptable Range	8.28 - 10.00	10.30 - 11.74	12.57 - 14.29	15.38 - 17.66	18.90 - 21.78
File name					
PS205 Run 1	8.324	10.673	13.504	16.624	19.771
PS205 Run 2	8.312	10.680	13.542	16.715	19.931
PS205 Run 3	8.278	10.620	13.440	16.551	19.696
Average	8.305	10.658	13.495	16.630	19.799
Std. Dev.	0.024	0.033	0.052	0.082	0.120
CV (%)	0.287	0.308	0.382	0.494	0.606

*Values provided by Whitehouse Scientific.

Results

The above example shows results from measuring 3 runs of the PS205 3-30 μm standard. D10, D25, D50, D75 and D90 are all within the tolerance for the PS205.

Additional sample information:
Whitehouse Scientific 3-30μm Polydisperse Particle Standard

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