



TEST METHOD FOR PARTICLE SIZE REFERENCE MATERIAL LUDOX TM ON LB-550

LUDOX silica is a well known and characterized colloid that has been studied using various particle size analysis techniques including acoustic spectroscopy, laser diffraction, and dynamic light scattering. One such product, LUDOX TM-50, is a 50 wt% suspension of colloidal silica in water. It can be used as a “real world” reference material to test the performance of laser diffraction particle size analyzers. As with many colloids, good dispersion is critical for LUDOX TM to meet specifications. The importance of using a simple salt solution to dilute this material is shown below. LUDOX TM-50 has been tested and incorporated as a particle size reference material for the LB-550.

Test Requirements

Applicable instruments: LB-550

Dispersant fluid: De-ionized water

Pre-dispersed sample: LUDOX TM 10 wt% in 0.01N KCl

Sample: LUDOX TM

Materials: Measurement cell, 1 μ m filter

Instrument Setup

- Sample Information
 - Sample Name: LUDOX TM-50 10 wt% in 0.01N KCl
 - Material: Colloidal silica
- Display Conditions
 - Distribution Graph
 - Form of Distribution: Standard
 - Distribution Base: Volume
 - Refractive Index
 - Particle RI: 1.47-0.0i
 - Dispersant RI: 1.33 (Water)
- Measure Conditions
 - Sampling Times: 100

Measurement Procedure

1. Dilute LUDOX TM-50 to 10 wt% in 0.01N KCl solution.
2. Pass 3 mL of diluted sample through a 1 μ m filter into the measurement cell.
3. Insert the measurement cell into the instrument.
4. Open the Measurement Panel and activate the temperature control.
5. Once the temperature has stabilized click the *Measure* button.
6. Save the measurement data.



Example data

The LUDOX™ particle size distribution will provide a single peak near 30 nanometers when properly prepared using 0.01N KCl salt solution.

Figure 1 shows an example of good LUDOX™ dispersion.

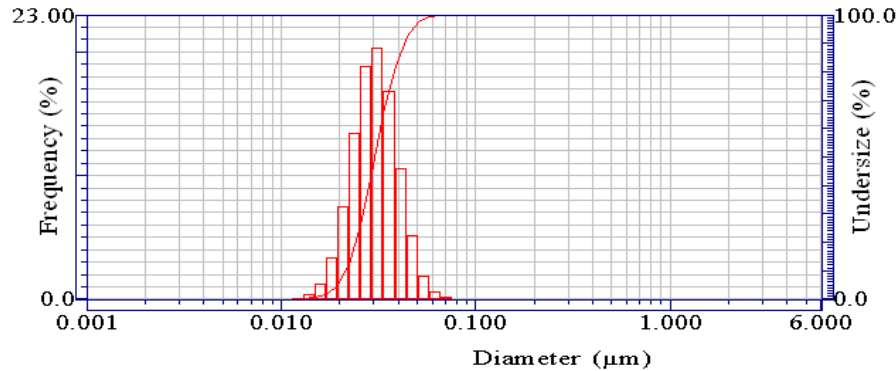


Figure 1: A typical particle size distribution result for LUDOX™ measured with 0.01N KCl diluent. Properly prepared LUDOX™ possesses only particles in the nanometer scale.

The median size (D50) should be within 10% of the nominal value. In this example the median diameter is 31 nanometers.

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