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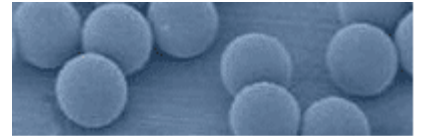
Nano Particle Technology

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PSL SPHERES, POLYSTYRENE LATEX BEADS, PARTICLES

PSL spheres and polystyrene latex beads are used for size calibration of aerosol particle sizing instruments and SSIS (Surface Scanning Inspection System) tools, also known as Wafer Inspection Systems. PSL Spheres are available in DI Water Solution at 1% concentration below 2 micron in diameter and < 1% concentration from 2 microns to 160 microns.

Aerosol instruments such as laser particle counters require size calibration down to and below 100nm (nanometers); and up to 10 microns. Surface inspection tools, such as wafer particle inspection tools from KLA-Tencor, KLA-Tencor SP1, KLA-Tencor SP2, KLA-Tencor SP3, KLA-Tencor SP5, KLA-Tencor SP5-xp, Hitachi, Topcon require size calibration and use PSL Spheres for size calibration from 20 nm up to 10 μm . Alternatively, silica nanoparticles are used.



PSL Spheres

PSL Nanosphere Size Standards are uniformly sized, polystyrene latex spheres calibrated within nanometers of accuracy using NIST traceable methodology. One nanometer is equivalent to 0.000000001 micron (μm) or 10 angstroms.

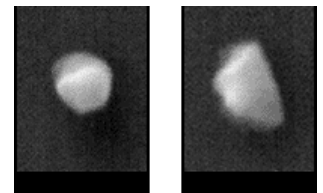
Polystyrene Latex spheres have a density of 1.05 g/cm³ and an index of refraction of 1.59 at 589nm (25°C). Particle sizes under 1.0 μm are described in nanometer (nm) size references.

- Uniform latex spheres are available in precise sizes between 20nm to and 160 μm
- Sphere diameter is calibrated with linear dimensions transferred from NIST SRM standards
- Polystyrene Latex spheres reduce the response of particle counters during calibration
- PSL Spheres are packaged in DI Water suspensions in 15 mL bottles with drip tip and sealable lid
- PSL Spheres can be mixed with DI Water Solutions to dilute the heavy concentrations in the bottle
- Each polystyrene latex bottle is packaged with a lot-number for service and support
- MSDS included with each package
- Size Certificate included with each PSL Size

PSL Spheres are provided in 15ml bottles with 1% or less concentrations in DI Water at $\leq 2.0 \mu\text{m}$. PSL sizes from 1 μm to 160 μm are provided at < 1% concentration in 15 ml bottles. We also offer premixed PSL Spheres in DI Water at a precise 1E10 concentration. The premixed PSL Spheres need only gently shaken in bottle and poured directly into a sonication device or nebulizer for immediate use with aerosol instrument size calibration and surface size wafer inspection system calibration.

PSL Spheres Size Certificate is valid for 3 years from production date, noted on bottle.
Keep PSL Spheres stored in dark area at about 5-8 degrees C temperature.

More and more particle inspection tools, laser particle counters, Surface Scanning Inspection Instruments such as KLA-Tencor SP3, SP5, SP5-xp, SEMs, TEMs, etc. require more robust particles for size calibration, such as Silica particles. PSL Spheres and SiO₂ have nearly the identical refractive index and calibration curve. Silica nanoparticles can easily stand up to the increased laser power of the instruments being produced today, while PSL Spheres will whither under the intense laser beam power of high powered laser beam systems.



SiO₂ **Si**
*SEM images of process particles
taken using the SMART-200 Tool.*