

NANOSPHERE™ SIZE STANDARDS NIST Traceable Mean Diameter

1. DESCRIPTION. These particle size standards provide accurate and traceable size calibration for particle size analysis. They are part of a series of polymer microspheres with calibrated mean diameters traceable to the Standard Meter through the National Institute of Standards and Technology (NIST). Diameters from 20 nanometers (nm) to 160 micrometers (µm) are available as aqueous suspensions in dropper-tipped vials, calibrated by photon correlation spectroscopy (PCS), transmission electron microscopy (TEM) or optical microscopy. The aqueous medium has been prepared to promote dispersion and reduce clumping of the particles. The approximate particle concentration in percent solids is given to facilitate dilution for the calibration and validation of particle analyzers. Diameters from 200 µm to 1000 µm are available as dry spheres, calibrated by optical microscopy. The certified mean diameter is traceable to NIST. Other values are for information only and should not be used as calibration values.

2. PHYSICAL DATA.	Catalog Number: 3400A, Nominal 400 nm
Certified Mean Diameter:	401 nm ± 6 nm, k=2
Standard Deviation:	5.0 nm
Coefficient of Variation:	1.3%
Hydrodynamic Diameter:	398 - 435 nm (PCS)
Microsphere Composition:	Polystyrene
Microsphere Density:	1.05 g/cm ³
Index of Refraction:	1.59 @ 589 nm
Approximate Concentration:	1% solids

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CERTIFICATE OF CALIBRATION AND TRACEABILITY

This certifies that the calibrated mean diameter was transferred by transmission electron microscopy (TEM) from the National Institute of Standards and Technology (NIST) certified microspheres (Standard Reference Material 1963, 1691 or 1690).

Catalog Number: 3400A, Nanosphere™ Size Standards

Certification Date:	October 2, 2018
Certified Batch:	3400-004
Production Batch:	3400-020
Certified Mean Diameter:	401 nm
Expanded Uncertainty:	± 6 nm, k=2



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Packaging Lot # 239874

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