

DUKE STANDARDS™ Microsphere 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

Certified Mean Diameter:	2.020 μm ± 0.015 μm, k=2
Standard Deviation:	0.021 μm
Coefficient of Variation:	1.0%
Microsphere Composition:	Polystyrene
Microsphere Density:	1.05 g/cm ³
Index of Refraction:	1.59 @ 589 nm
Approximate Concentration:	0.44% solids

Catalog Number: 4202 and 4202A, Nominal 2 μm

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CERTIFICATE OF CALIBRATION AND TRACEABILITY

This certifies that the calibrated mean diameter dimension of this product was transferred by optical microscopy from a stage micrometer calibrated by the National Institute of Standards and Technology (SRM 2800 SN411). NIST Standard Reference Materials 1690, 1692, 1960, and 1961 were used to validate the accuracy and traceability of the calibration methods.

Catalog Number: 4202 and 4202A, Duke Standards™ Microsphere Size Standards	
Certification Date:	March 13, 2014
Certified Batch:	4202-010
Production Batch:	4202-046
Certified Mean Diameter:	2.020 μm
Expanded Uncertainty:	± 0.015 μm, k=2



S. Hashemi 4/22/2015
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 Thermo Fisher Scientific Particle Technology

Packaging Lot # 44870

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