

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:	3.002 μm ± 0.019 μm, k=2	Catalog Number: 4203 and 4203A, Nominal 3 μm
Standard Deviation:	0.029 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	

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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: 4203 and 4203A, Duke Standards™ Microsphere Size Standards	
Certification Date:	August 18, 2010
Certified Batch:	4203-004
Production Batch:	4203-027
Certified Mean Diameter:	3.002 μm
Expanded Uncertainty:	± 0.019 μm, k=2


Joe Vasiliou, Metrologist
Thermo Fisher Scientific Particle Technology



Packaging Lot # **40078**

Expiration Date:

FEB'15