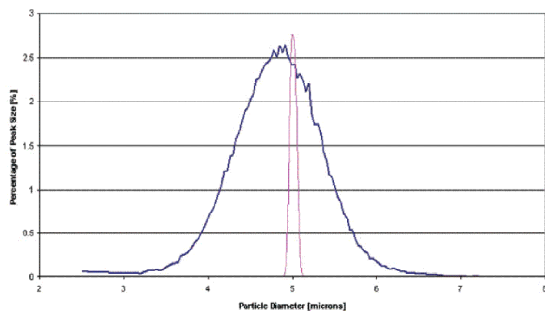
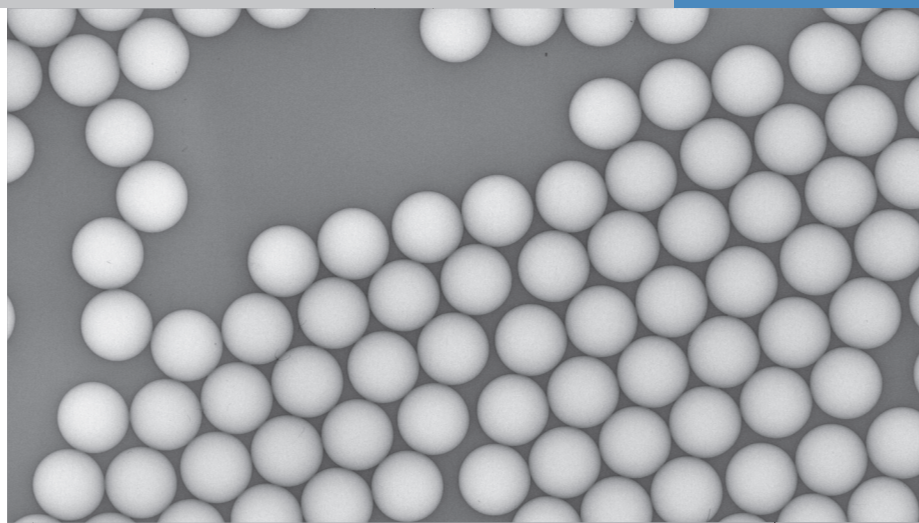
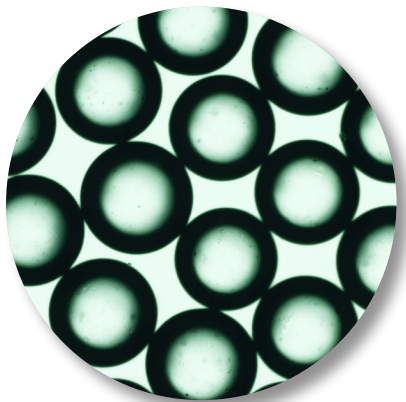


Thermo Scientific Duke Standards

2000 Series Uniform Polymer Particles

Thermo Scientific Duke Standards 2000 Series Uniform Polymer Particles meet the need for NIST traceable size standards that provide a wider distribution of the particle population as compared to the tighter distribution provided by our monodisperse 3000 or 4000 Series of size standards. This makes them ideal for laser diffraction and other methods designed for analyzing wide size range material such as concrete, food ingredients, pharmaceutical solids, slurries, powders, granules, grains, and more.



This graph compares the wide distribution of our 2005A (see blue line) particles with the more narrow distribution of our 4205A (see red line) particles. While both particles have a nominal diameter of 5 μm , the 2000 Series particles often give more repeatable results on specific types of laser diffraction instruments for analysis of wet and dry samples.

- National Institute of Standards and Technology (NIST) traceability enables reliable development, standardization and validation of most particle counting and sizing instruments.
- Wider distribution provides light scatter across a range of detectors, resulting in a more repeatable measurement
- Polystyrene crosslinked with divinylbenzene gives the particle excellent durability and chemical stability
- Excellent product stability results in confident instrument performance and compliance with most QC programs
- Ability to accurately analyze wider size material makes the 2000 Series ideally suited for instruments that abide by ISO 13320:2009 standards

The 2000 Series are used to develop and test analytical instruments for particle size characterization of materials.

Available in a range of discrete sizes from 5 μm to 40 μm , these highly uniform particles minimize the response of analytical systems to shape effects.

They also provide third party traceability of calibration procedures to NIST, enabling laboratories to satisfy ISO, ANSI/NCCL Z540, GMP/GLP and other such quality regulations.

Each package of standards contains a Certificate of Calibration and Traceability to NIST, as well as a Material Safety Data Sheet (MSDS) with handling and disposal instructions. All packages are lot numbered for convenient after-the-sale technical service and support.

Thermo Scientific Duke Standards

2000 Series Uniform Polymer Particles

Specifications

Particle Composition	Polystyrene divinylbenzene
Particle Sizes Available	5 µm - 40 µm nominal diameter
Concentration	1 % solids
Particle Density	1.05 g/cm ³
Index of Refraction	1.59 @ 589 nm (25°C)
Fill Volume	15 mL
Expiration Date	≥ 12 months
Content	Polymer particles in water
Additives	Contains trace amounts of surfactants to inhibit agglomeration and promote stability
Documentation	Certificate of Calibration and Traceability to NIST and Material Safety Data Sheet (MSDS)
Storage and Handling	Unless otherwise stated, refrigerate (2-8°C) product when not in use but do not freeze. Store upright and keep bottle tightly sealed. Mix product with gentle inversion by hand or vortex mixer.

Applications

Instrument Validation

Particle size standards provide third party traceability to national and international standards. Traceability is documented through an unbroken chain of measurements (with specified uncertainties) that are tied back to the standards. Our products can also help in the development and testing of new analytical instruments and particle size analyzers.

Routine Checks

By performing routine checks, the user will be alerted to any shift in laser function. These checks will alert the user to instrument problems thus avoiding misleading or inconsistent data.

Nominal Diameter	Bottle Size	% Solids	Catalog Number
Aqueous Suspensions, Calibrated by Optical Microscopy			
5 µm	15 mL	1%	2005A
6 µm	15 mL	1%	2006A
7 µm	15 mL	1%	2007A
8 µm	15 mL	1%	2008A
9 µm	15 mL	1%	2009A
10 µm	15 mL	1%	2010A
11 µm	15 mL	1%	2011A
14 µm	15 mL	1%	2014A
15 µm	15 mL	1%	2015A
20 µm	15 mL	1%	2020A
25 µm	15 mL	1%	2025A
30 µm	15 mL	1%	2030A
40 µm	15 mL	1%	2040A