

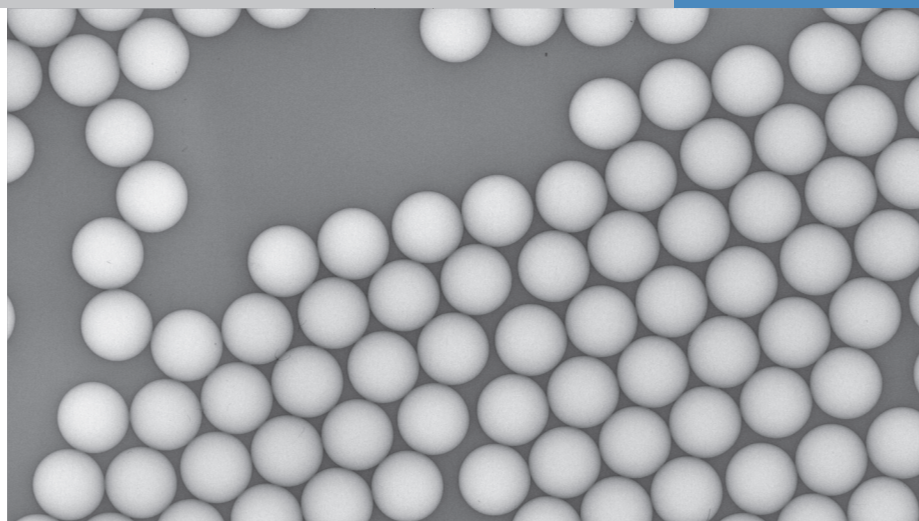
## Thermo Scientific Duke Standards

### 3K/4K - Particle Counter Size Standards

Thermo Scientific Duke Standards are certified, NIST traceable particles that provide a simple, precise method for calibrating or checking the performance of laser particle counters used in cleanrooms and other contamination monitoring applications. By ensuring accurate instrument performance, these particles prevent costly, time-consuming errors due to misleading or inconsistent data.



Thermo Scientific Duke Standards have very narrow diameter standard deviations, making them an excellent calibration material for applications requiring NIST traceability.



- Certified NIST traceable mean diameter delivers unbiased evidence of instrument calibration gained from audits of your measurement system
- Calculated concentration simplifies the dilution process and minimizes the need to make multiple adjustments during sample preparation
- Particles are suspended in a low residue diluent to minimize any background interference, allowing for more precise calibration and insight into the dynamic range and calibration of the instrument

The mean diameters of Thermo Scientific Duke Standards 3K-4K Series Particle Counter Size Standards are traceable to the standard meter through the National Institute of Standards and Technology (NIST). As a result, these particles provide a simple, convenient method for calibrating particle counter instrumentation.

Prepared and supplied as low residue aqueous suspensions for minimal background interference, these monodisperse polystyrene particles are designed for use in airborne or liquid particle dispersion systems. The product is also precisely diluted for immediate use in laser particle counters, minimizing any need for time-consuming adjustments of the concentration.

We have over 30 years experience in synthesis, measuring, packaging and technical support of NIST traceable particle counter size standards that you can rely on.

## Thermo Scientific Duke Standards 3K/4K Series - Particle Counter Size Standards

### Specifications

Particle Composition	Polystyrene
Particle Sizes Available	0.1 µm - 100 µm nominal diameter
Concentration	Various (see list below)
Particle Density	1.05 g/cm <sup>3</sup>
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 Calibration	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 count analyzers.
Particle Counter Validation	By running count controls and performing routine checks, the user is alerted to any shift in laser function or calibration curve shape that could result in costly errors due to misleading or inconsistent data.

Product Number	Nominal Diameter	Particle Count per mL
<b>Aqueous Suspensions, Calibrated by TEM*</b>		
3K-100	0.1 µm	10 <sup>9</sup>
3K-150	0.15 µm	10 <sup>9</sup>
3K-200	0.2 µm	10 <sup>9</sup>
3K-220	0.22 µm	10 <sup>9</sup>
3K-269	0.27 µm	10 <sup>9</sup>
3K-300	0.3 µm	10 <sup>9</sup>
3K-350	0.35 µm	10 <sup>9</sup>
3K-400	0.4 µm	10 <sup>9</sup>
3K-500	0.5 µm	10 <sup>9</sup>
3K-600	0.6 µm	10 <sup>9</sup>
3K-700	0.7 µm	10 <sup>9</sup>
3K-800	0.8 µm	10 <sup>9</sup>
3K-900	0.9 µm	10 <sup>9</sup>
<b>Aqueous Suspensions, Calibrated by Optical Microscopy*</b>		
3K-990	<1.0 µm	10 <sup>9</sup>
3K1000	>1.0 µm	10 <sup>9</sup>
3K1600	1.6 µm	10 <sup>9</sup>

Product Number	Nominal Diameter	Particle Count per mL
4K-02	2.0 µm	5 x 10 <sup>8</sup>
4K-03	3.0 µm	5 x 10 <sup>7</sup>
4K-04	4.0 µm	5 x 10 <sup>7</sup>
4K-05	5.0 µm	10 <sup>7</sup>
4K-06	6.0 µm	10 <sup>7</sup>
4K-07	7.0 µm	10 <sup>7</sup>
4K-10	10 µm	10 <sup>6</sup>
4K-15	15 µm	10 <sup>6</sup>
4K-20	20 µm	3 x 10 <sup>5</sup>
4K-25	25 µm	3 x 10 <sup>5</sup>
4K-30	30 µm	3 x 10 <sup>5</sup>
4K-40	40 µm	8 x 10 <sup>4</sup>
4K-50	50 µm	8 x 10 <sup>4</sup>
4K-60	60 µm	8 x 10 <sup>4</sup>
4K-70	70 µm	8 x 10 <sup>4</sup>
4K-80	80 µm	3 x 10 <sup>4</sup>
4K100	100 µm	3 x 10 <sup>4</sup>

\* To learn about our traceable sizing methods, review TN-010 "Internal Standard Method for Size Calibration of Sub-Micrometer Spherical Particles by Electron Microscope" and TN-018 "Improved Array Method for Size Calibration of Monodisperse Spherical Particles by Optical Microscope". These documents can be obtained by request or are available at [www.thermofisher.com/particletechnology](http://www.thermofisher.com/particletechnology)