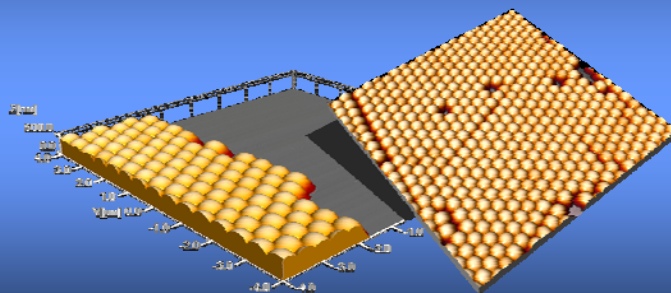


# Size certified nanoparticles for reference purposes



## Advantages

When you choose DFM size certified nanoparticles, your Quality Assurance rests on well-documented and transparent measurement procedures, which are accredited according to internationally recognised ISO standards. This ensures a broad acceptance of the certificate and the traceability of the measurement in conformity with the highest metrologic requirements.

DFM offers polystyrene latex (PSL) particle suspensions with a certified mean diameter from 100 nm to 5 000 nm. The particles can be applied to calibrate particle measurement instruments. One bottle contains 15 ml with typically 1-2 % (weight) suspended particles.

Each bottle is issued with a calibration certificate. The calibration results are traceable to recognised national and international standards. The calibration is performed under DANAK accreditation no. 255, following DS/EN ISO/IEC 17025. DANAK is the Danish Accreditation and Metrology Fund and one of the signatories to the EA Multilateral Agreement and the ILAC multilateral agreement for the mutual recognition of calibration certificates. This ensures that the calibration certificate meets highest international metrologic standards.

The uncertainty is estimated in accordance with GUM<sup>1</sup> and EA-4/02. Each size can be used as calibration particles for optical particle counters according to ISO 21501-4.

In addition, DFM offers to calibrate PSL suspensions of customer's choice within the limits stated above.

## Available sizes

Name	Mean	St.dev.	CV	Exp. unc.
DFM.NP01	105 nm	6 nm	5.7 %	5 nm
DFM.NP03	277 nm	6 nm	2.2 %	7 nm
DFM.NP05	500 nm	9 nm	1.8 %	9 nm
DFM.NP07	697 nm	13 nm	1.9 %	11 nm
DFM.NP10	1027 nm	19 nm	1.9 %	13 nm
DFM.NP20	1998 nm	42 nm	2.1 %	22 nm
DFM.NP30	3066 nm	45 nm	1.5 %	32 nm
DFM.NP50	5045 nm	78 nm	1.5 %	50 nm

The stated values are indications. Each bottle is certified individually. Further sizes available on request.

## Material properties

Form:	15 ml aqueous suspension
Concentration:	1-2 % typically (weight)
Composition:	Polystyrene
Advised storage:	dark at 2-8°C
Density:	1.05 g/cm <sup>3</sup>
Refractive index:	1.59
Melting point:	74 - 105°C
Flash point:	210°C
Selfignition:	444°C

Soluble and/or swellable in organic solvents  
(dependent on the degree of cross-linking)

## Contact:

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## Safety recommendations

Personal protective equipment: eyeshield, gloves  
Aerosolised use: respirator filter



<sup>1</sup> Guide to the expression of uncertainty of measurement, ISO/IEC Guide 98-3:2008, (GUM:1995)