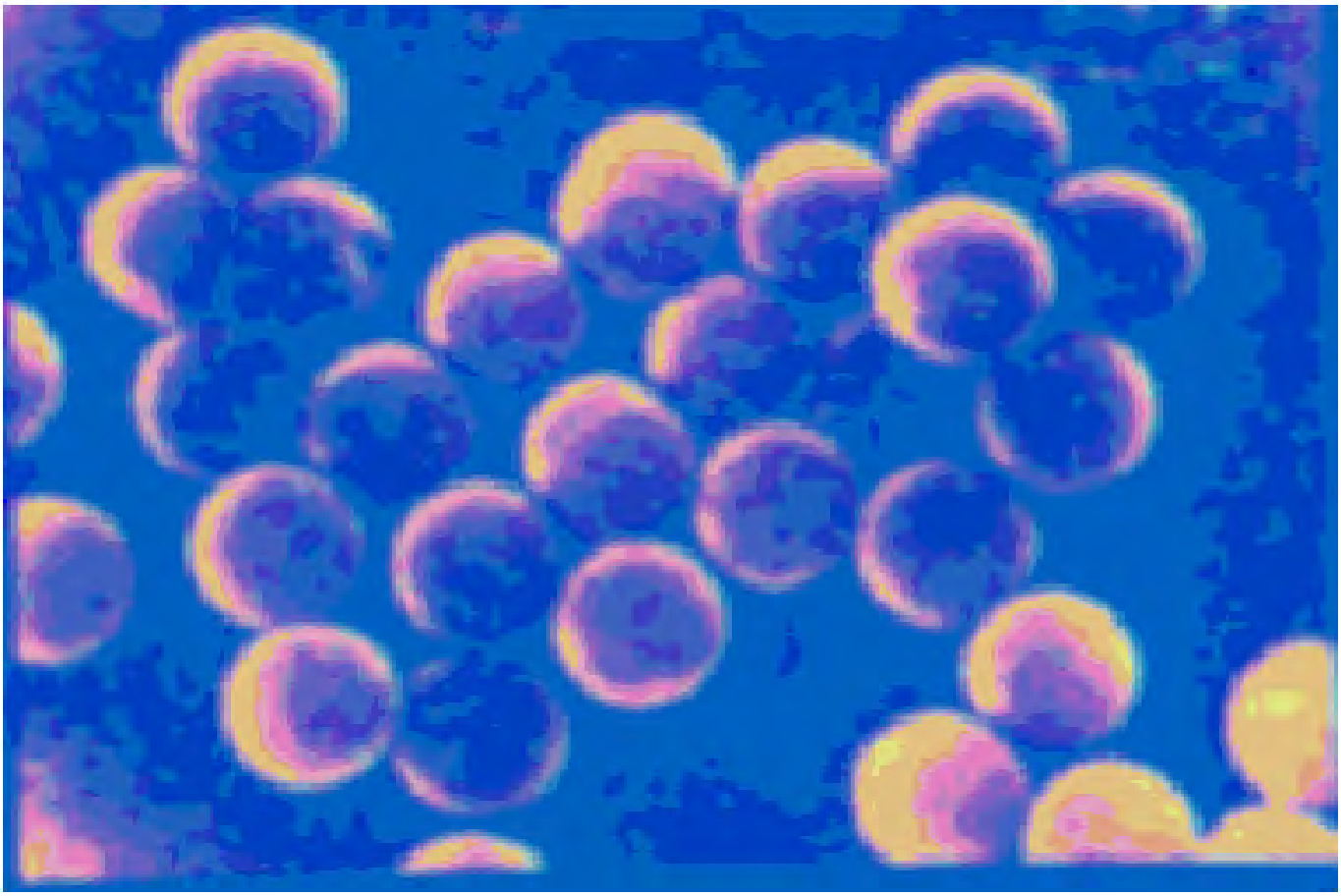
postnova analytics
advanced analytical products

Particle Standards & Nanoparticles



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INFORMATION TO OUR CUSTOMERS

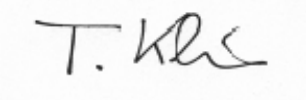
Postnova Analytics is a young and innovative company offering you a complete portfolio of analytical systems, supplies, services and standard materials for your special needs in the field of polymer, biopolymer, and particle characterization. Postnova is a leading innovator in the design and manufacturing of modern instruments for the characterization of macromolecular and particular materials, e.g. polymers, biopolymers, bioparticles, colloids for diagnostics, drug delivery and material science.

Dr. Thorsten Klein
President Postnova Analytics

Beside Postnova´s know-how in the development of analytical instrumentation, we can offer you a wide range and a great variety of different, completely characterized and defined particle products. These particles can be extremely monodisperse size standards for calibration of particle sizing instruments, they can be particles with a broader size range for more general research experiments or they can be latex beads for your diagnostic test kit development, for catalyst development or for drug delivery systems. In every case you can rely on our product know-how and the wide particle assortment that we are able to offer you. If you need your particles quickly – no problem! Most of our particle products can be delivered within a few days to all locations in Europe.

Our philosophy is to offer you a broad range of different high quality particles. We deliver the requested particles as fast as possible so that you don't have to waste time by waiting for your standards during your research. We also have the ambition to be your source not only for standard particles, but as well for extraordinary particles. If you need special particle products, don't hesitate to contact our product representatives directly via internet, phone or mail. We are committed to deliver you all, however and wherever, available particles straight on your bench.

I hope that you enjoy reading our particle catalog and that you get a first introduction into the fascinating field of particle sciences in the nanometer to micrometer range. I'm convinced that you will find at least some particles you can need for your research and for quality assurance.



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APPLICATION RANGE OF POSTNOVA PARTICLES

Postnova Analytics offers an extremely broad selection of organic and inorganic particles with different properties and sizes. These particles can be used for many applications in research and QA: clinical/veterinary medicine, agriculture, aerosol sciences, nephelometric assays, particle size analysis methods, particle membrane capture procedures, microsphere based ELISA, immunology, water quality control etc ...

Take a look at the list below to find the best fitting particle products for your application.

APPLICATION	PRODUCT
Anisotrope glues	Metal coated particles
Calibration of aerosol instruments	Polymer particles/ Silica particles
Calibration of electrophoretic equipment	Polymer particles
Calibration of Field-Flow Fractionation systems	All kind of standards
Calibration of laser instruments	Polymer particles
Calibration of optical equipment	Polymer particles
Calibration of particles sizers	Polymer particles
Calibration/verification of cell counters	Fluorescent particles
Calibration/verification of particle counters	Fluorescent particles
Catalysis	Metal coated particles
Cellseparation	Fluorescent particles
Challenge particles for large pore-size filtration systems	Polymer particles
Colloid research applications	Polymer particles
Controlling common industrial contaminants	Spherical pollens and spores
Diagnostics tests and assays	Polymer particles
Drug delivery systems	MF, Templates
Filter media evaluation test particles	Polymer particles
Heterogeneous reactions in ion exchange processes	Polymer particles
Heterogeneous reactions in support media for enzymes	Polymer particles
Histological applications	Polymer particles
Laser particle levitation	MF
Laser spectroscopy	Polymer particles
Marker for tracing ground water flows	Polymer particles
Metallurgical studies	Metal and mineral particles
Model of biological cells	Spherical pollens and spores
Nano / high-tech materials development	Glass particles
Neuroanatomical tracers	Fluorescent particles
Peptidsynthesis	Particles with surface functionalities
Phagocytosis research	Fluorescent particles
Reproducibility of specific surface area measurements	Powders with measured surface areas
Self-assembled monolayers	Metal coated particles
Spacer in liquid crystal displays	Polymer particles
Spacer in separation of clear plastic wrap	Polymer particles
Studies of transport across cell membranes	Fluorescent particles
Substrate for surface enhanced raman scattering	Metal coated particles
Tracer for immobilized enzymes	Particles with surface functionalities
Tracer for particle imaging velocimetry	Metal coated particles
Tracer materials	Fluorescent particles
Validation of flow cytometry instruments	Polymer particles
Visualization in fluorescence microscopy	Fluorescent particles

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1 POLYMER PARTICLES

Postnova Analytics offers you hundreds of ultra-clean polystyrene particles, melamine resin particles or other polymer particles with diameters from 15 nm to 2000 µm. You have the choice between particle standards without surface functionalities and a big variety of different surface functionalities.

We offer dyed particles in both the visible and the fluorescent spectra in a wide range of diameters as well as coated polymer particles, including metallic, biotin and streptavidin coatings. We are also able to deliver you custom coatings with proteins of your choice such as antibodies or antigens for the use in diagnostic applications. We can also provide you with custom made dyed and labeled particles for your specific needs. Postnova Analytics offers you special packs of polymer particles for specific applications which include biomedical research, calibration, diagnostics, electrophoresis and much more. Most products are available from milliliter to liter quantities for immediate delivery (ask if your requested particle is on stock).

The uniformity of the size, represented as CV % (coefficient of variation) is usually 5 to 20 % for particles smaller than 100 nm in diameter, less than 5 % for particles between 100 nm to 3 µm in diameter, and 3 to 15 % for particles larger than 3 µm in diameter.

1.1 MELAMINE RESIN PARTICLES

1.1.1 Fluorescent

The incorporation of the special chosen fluorescent dyes (like FITC, Rhodamin B, acridin orange, cresol violet, ethidium bromide and nile blue) is carried out by a co-condensation process of methylolmelamins. Depending upon the ratio particles with volume or edge fluorescence can be produced. Customer requestd synthesized particles with up to three fluorescent dyes can be produced, too.

1.1.1.1 FITC-marked Melamine Resin Particles

Excitation: 490 nm, Emission: 525 nm

Please request for further information.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-1,1FIT	1,05	0,05	5	2,5	5
Z-PS-MFH-000-1,4FIT	1,44	0,05	3,5	2,5	5
Z-PS-MFH-000-1,5-FIT	1,45	0,05	3,8	2,5	5
Z-PS-MFH-000-2,2-FIT	2,21	0,06	2,9	2,5	5
Z-PS-MFH-000-2,8-FIT	2,78	0,07	3	2,5	5
Z-PS-MFH-000-2,9-FIT	2,89	0,07	2,5	2,5	5
Z-PS-MFH-000-3,2-FIT	3,16	0,08	2,6	2,5	5
Z-PS-MFH-000-3,4a-FIT	3,36	0,08	2,3	2,5	5
Z-PS-MFH-000-3,4b-FIT	3,39	0,11	3	2,5	5
Z-PS-MFH-000-3,6-FIT	3,58	0,08	2,3	2,5	5
Z-PS-MFH-000-3,7-FIT	3,69	0,11	2,9	2,5	5
Z-PS-MFH-000-3,9a-FIT	3,91	0,11	2,7	2,5	5
Z-PS-MFH-000-3,9b-FIT	3,91	0,09	2,2	2,5	5
Z-PS-MFH-000-4,3a-FIT	4,25	0,09	2,2	2,5	5
Z-PS-MFH-000-4,3b-FIT	4,33	0,08	1,7	2,5	5
Z-PS-MFH-000-4,5-FIT	4,54	0,11	2,5	2,5	5

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-4,9a-FIT	4,91	0,08	1,6	2,5	5
Z-PS-MFH-000-4,9b-FIT	4,92	0,08	1,9	2,5	5
Z-PS-MFH-000-5,4-FIT	5,41	0,12	2,2	2,5	5
Z-PS-MFH-000-5,5-FIT	5,51	0,12	2,2	2,5	5
Z-PS-MFH-000-6,5-FIT	6,47	0,14	2,2	2,5	5
Z-PS-MFH-000-6,7-FIT	6,7	0,18	2,7	2,5	5
Z-PS-MFH-000-7,6-FIT	7,62	0,17	2,2	2,5	5
Z-PS-MFH-000-8,1-FIT	8,13	0,14	1,8	2,5	5
Z-PS-MFH-000-8,6-FIT	8,59	0,13	1,5	2,5	5
Z-PS-MFH-000-9,4-FIT	9,42	0,13	1,4	2,5	5
Z-PS-MFH-000-9,6-FIT	9,58	0,18	1,9	2,5	5
Z-PS-MFH-000-9,9-FIT	9,92	0,21	2,2	2,5	5

1.1.1.2 Acridin orange-marked Melamine Resin Particles

Excitation: 502 nm; Emission: 625 nm

Please request for further information.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-1,1-AOG	1,12	0,08		2,5	5
Z-PS-MFH-000-1,7-AOG	1,74	0,04	2,6	2,5	5
Z-PS-MFH-000-2,0-AOG	1,95	0,04	2,2	2,5	5
Z-PS-MFH-000-2,2-AOG	2,15	0,05	2,4	2,5	5
Z-PS-MFH-000-2,3-AOG	2,32	0,05	2,1	2,5	5
Z-PS-MFH-000-2,9-AOG	2,89	0,06	2,1	2,5	5
Z-PS-MFH-000-3,0-AOG	2,99	0,07	2,3	2,5	5
Z-PS-MFH-000-4,3-AOG	4,34	0,07	1,7	2,5	5
Z-PS-MFH-000-5,9-AOG	5,86	0,09	1,7	2,5	5
Z-PS-MFH-000-6,5-AOG	6,47	0,16	2,4	2,5	5
Z-PS-MFH-000-6,7-AOG	6,72	0,19	2,8	2,5	5
Z-PS-MFH-000-7,0-AOG	7,04	0,09	1,4	2,5	5

1.1.1.3 Ethidium bromide-marked Melamine Resin Particles

Excitation: 510 nm; Emission: 595 nm

Please request for further information.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-2,0-EBD	2,02	0,05	2,3	2,5	5
Z-PS-MFH-000-2,7-EBD	2,67	0,05	2	2,5	5
Z-PS-MFH-000-2,8-EBD	2,84	0,06	3,2	2,5	5
Z-PS-MFH-000-4,3-EBD	4,27	0,1	2,3	2,5	5
Z-PS-MFH-000-4,5-EBD	4,51	0,08	1,7	2,5	5
Z-PS-MFH-000-5,1-EBD	5,09	0,09	1,7	2,5	5
Z-PS-MFH-000-5,4-EBD	5,44	0,09	1,7	2,5	5
Z-PS-MFH-000-5,6a-EBD	5,59	0,09	1,6	2,5	5
Z-PS-MFH-000-5,6b-EBD	5,62	0,09	1,6	2,5	5
Z-PS-MFH-000-6,5-EBD	6,48	0,1	1,5	2,5	5
Z-PS-MFH-000-6,7-EBD	6,72	0,09	1,4	2,5	5
Z-PS-MFH-000-7,9-EBD	7,93	0,09	1,2	2,5	5
Z-PS-MFH-000-8,1-EBD	8,07	0,14	1,8	2,5	5

1.1.1.4 Rhodamin B-marked Melamine Resin Particles

Excitation: 540 nm; Emission 625 nm

Please request for further information.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-1,2-RDB	1,21	0,05		2,5	5
Z-PS-MFH-000-1,3-RDB	1,25	0,06		2,5	5
Z-PS-MFH-000-1,9a-RDB	1,85	0,08	3,2	2,5	5
Z-PS-MFH-000-1,9b-RDB	1,88	0,04	2,3	2,5	5
Z-PS-MFH-000-2,0a-RDB	1,95	0,05	2,8	2,5	5
Z-PS-MFH-000-2,0b-RDB	2,03	0,07	3,4	2,5	5
Z-PS-MFH-000-2,2-RDB	2,24	0,06	2,8	2,5	5
Z-PS-MFH-000-2,3-RDB	2,33	0,07	2,6	2,5	5
Z-PS-MFH-000-2,8-RDB	2,81	0,14	4,7	2,5	5
Z-PS-MFH-000-3,0-RDB	2,91	0,13	3,4	2,5	5
Z-PS-MFH-000-4,4-RDB	4,43	0,11	2,4	2,5	5
Z-PS-MFH-000-4,8-RDB	4,81	0,11	2,3	2,5	5
Z-PS-MFH-000-5,6-RDB	5,55	0,11	2	2,5	5
Z-PS-MFH-000-6,1-RDB	6,09	0,09	1,5	2,5	5
Z-PS-MFH-000-6,2-RDB	6,18	0,13	2	2,5	5
Z-PS-MFH-000-6,5-RDB	6,5	0,11	1,7	2,5	5
Z-PS-MFH-000-6,8-RDB	6,8	0,17	2,6	2,5	5
Z-PS-MFH-000-7,3a-RDB	7,27	0,11	1,5	2,5	5
Z-PS-MFH-000-7,3b-RDB	7,31	0,13	1,8	2,5	5
Z-PS-MFH-000-7,7a-RDB	7,65	0,13	1,8	2,5	5
Z-PS-MFH-000-7,7b-RDB	7,68	0,19	2,5	2,5	5
Z-PS-MFH-000-8,4-RDB	8,36	0,14	1,7	2,5	5
Z-PS-MFH-000-8,6-RDB	8,55	0,12	1,3	2,5	5
Z-PS-MFH-000-9,6-RDB	9,55	0,15	1,5	2,5	5
Z-PS-MFH-000-9,8-RDB	9,84	0,26	2,6	2,5	5
Z-PS-MFH-000-10,5-RDB	10,46	0,18	1,8	2,5	5
Z-PS-MFH-000-15,0-RDB	15,09	0,21	1,4	2,5	5

1.1.1.5 Nile blue A-marked Melamine Resin Particles

Excitation: 633 nm; Emission: 672 nm

Please request for further information.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-1,0-NBA	1,01	0,05	5,1	2,5	5
Z-PS-MFH-000-1,1-NBA	1,05	0,06	5,6	2,5	5
Z-PS-MFH-000-2,5-NBA	2,51	0,07	2,7	2,5	5
Z-PS-MFH-000-3,0-NBA	3,03	0,09	2,9	2,5	5
Z-PS-MFH-000-3,6-NBA	3,62	0,08	2,1	2,5	5
Z-PS-MFH-000-3,7-NBA	3,72	0,07	1,9	2,5	5
Z-PS-MFH-000-5,1-NBA	5,06	0,09	1,7	2,5	5
Z-PS-MFH-000-5,4-NBA	5,38	0,08	1,5	2,5	5
Z-PS-MFH-000-5,9-NBA	5,92	0,09	1,5	2,5	5
Z-PS-MFH-000-6,4-NBA	6,37	0,07	1,1	2,5	5
Z-PS-MFH-000-7,8a-NBA	7,82	0,08	1,1	2,5	5
Z-PS-MFH-000-7,8b-NBA	7,84	0,09	1,1	2,5	5
Z-PS-MFH-000-8,8-NBA	8,82	0,13	1,5	2,5	5
Z-PS-MFH-000-9,1-NBA	9,1	0,1	1,1	2,5	5
Z-PS-MFH-000-10,5-NBA	10,49	0,11	1	2,5	5

1.1.1.6 Fluorescent/Carboxyl

Fluorescence marked melamine resin particles with high carboxyl group density: 1 – 10 µm

1.1.2 Functional Groups

1.1.2.1 Carboxyl

Melamine resin particles with high carboxyl group density: 1 – 10 µm

1.1.3 Without surface functionality

1.1.3.1 Melamine Resin Particles with 2 % Solids (NIST-, BCR-Traceable)

Advantages of the melamine resin particles are their extremely high monodispersity and uniformity, the spherical form, the hydrophilic surface. Besides that the stability of the aqueous polymer dispersions of melamine resin is unlimited and they are resistant against microbial growth (alga, bacteria, fungus). The aqueous polymer dispersions can be frozen and thawed without a loss of quality. Melamine resin particles in the size range from 0,5 to 15 µm can be synthesized as monodisperse pulvers, that are resuspensible without aggregates in the aqueous phase. The particles are also stable against acids and alkaline solutions and not swellable and insoluble in most of the organic solvents.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-000-1,0	0,992	0,038		2	15
Z-PS-MFH-000-2,0	2,043	0,039	1,9	2	15
Z-PS-MFH-000-2,5	2,435	0,043	1,8	2	15
Z-PS-MFH-000-3,0	3,078	0,045	1,5	2	15
Z-PS-MFH-000-3,5	3,619	0,055	1,5	2	15
Z-PS-MFH-000-4,0	3,937	0,068	1,7	2	15
Z-PS-MFH-000-4,5	4,326	0,067	1,5	2	15
Z-PS-MFH-000-5,0	4,876	0,064	1,3	2	15
Z-PS-MFH-000-5,5	5,374	0,069	1,3	2	15
Z-PS-MFH-000-6,0	6,311	0,061	1	2	15
Z-PS-MFH-000-6,5	6,366	0,061	1	2	15
Z-PS-MFH-000-7,0	7,16	0,059	0,8	2	15
Z-PS-MFH-000-7,5	7,58	0,001	1,2	2	15
Z-PS-MFH-000-8,5	8,469	0,102	1,2	2	15
Z-PS-MFH-000-9,0	8,904	0,083	0,9	2	15
Z-PS-MFH-000-9,5	9,461	0,091	1,0	2	15
Z-PS-MFH-000-10,0	9,755	1,04	1,1	2	15
Z-PS-MFH-000-10,5	10,44	0,11	1	2	15
Z-PS-MFH-000-11,0	10,81	0,15	1,4	2	15
Z-PS-MFH-000-12,0	11,82	0,13	1,1	2	15
Z-PS-MFH-000-12,5	12,52	0,18	1,4	2	15
Z-PS-MFH-000-13,0	12,85	0,16	1,3	2	15
Z-PS-MFH-000-14,0	13,8	0,15	1,1	2	15
Z-PS-MFH-000-15,0	14,8	0,25	1,7	2	15
Z-PS-MFH-000-17,0	16,98	0,27	1,6	2	15

1.1.3.2 Melamine Resin Particles with 10 % Solids

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-MFH-001-1,0	0,99	0,04		10	15
Z-PS-MFH-001-1,8	1,78	0,04	2,1	10	15
Z-PS-MFH-001-1,9	1,87	0,04	2	10	15
Z-PS-MFH-001-2,2	2,19	0,05	2,2	10	15
Z-PS-MFH-001-2,4	2,42	0,04	1,7	10	15
Z-PS-MFH-001-3,3	3,27	0,09	2,8	10	15
Z-PS-MFH-001-3,4	3,38	0,09	2,7	10	15
Z-PS-MFH-001-3,5	3,47	0,09	2,5	10	15
Z-PS-MFH-001-3,8	3,81	0,09	2,4	10	15
Z-PS-MFH-001-4,0	3,97	0,09	2,2	10	15
Z-PS-MFH-001-4,1	4,08	0,08	2	10	15
Z-PS-MFH-001-4,3	4,33	0,08	1,8	10	15
Z-PS-MFH-001-4,4	4,41	0,08	1,9	10	15
Z-PS-MFH-001-4,9	4,88	0,11	2,1	10	15
Z-PS-MFH-001-5,0	5,01	0,08	1,6	10	15
Z-PS-MFH-001-5,2	5,22	0,13	2,5	10	15
Z-PS-MFH-001-5,8	5,77	0,12	1,8	10	15
Z-PS-MFH-001-6,2	6,15	0,11	1,6	10	15
Z-PS-MFH-001-7,1	7,13	0,12	1,7	10	15
Z-PS-MFH-001-7,3	7,32	0,11	1,3	10	15
Z-PS-MFH-001-7,4	7,36	0,08	1,1	10	15
Z-PS-MFH-001-7,5	7,52	0,1	1,3	10	15
Z-PS-MFH-001-7,7	7,69	0,1	1,3	10	15
Z-PS-MFH-001-7,8	7,81	0,12	1,6	10	15
Z-PS-MFH-001-8,1	8,11	0,12	1,4	10	15
Z-PS-MFH-001-8,2	8,22	0,11	1,3	10	15
Z-PS-MFH-001-8,3	8,34	0,09	1,1	10	15
Z-PS-MFH-001-8,6	8,64	0,14	1,6	10	15
Z-PS-MFH-001-8,7	8,69	0,12	1,4	10	15
Z-PS-MFH-001-8,8	8,77	0,14	1,4	10	15
Z-PS-MFH-001-8,9	8,89	0,11	1,1	10	15
Z-PS-MFH-001-9,2	9,22	0,11	1,2	10	15
Z-PS-MFH-001-9,5	9,55	0,13	1,4	10	15
Z-PS-MFH-001-9,6	9,56	0,13	1,3	10	15
Z-PS-MFH-001-9,8	9,81	0,17	1,8	10	15
Z-PS-MFH-001-10,2	10,21	0,12	1,2	10	15
Z-PS-MFH-001-10,6	10,61	0,13	1,2	10	15
Z-PS-MFH-001-12,1	12,07	0,21	1,8	10	15
Z-PS-MFH-001-12,9	12,85	0,21	1,6	10	15
Z-PS-MFH-001-13,9	13,91	0,15	1,1	10	15

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1.2 PMMA

1.2.1 Without surface functionality

Article	Ø µm	Standard Deviation (µm)	CV (%)	Solids (%)	Volume (mL)
Z-PS-PMMA-000-4,2	4,18	0,08	1,9	10	15
Z-PS-PMMA-000-4,3	4,33	0,12	2,8	10	15
Z-PS-PMMA-000-4,4	4,36	0,09	2,0	10	15
Z-PS-PMMA-000-4,6	4,59	0,09	1,9	10	15
Z-PS-PMMA-000-4,7	4,71	0,15	3,2	10	15
Z-PS-PMMA-000-5,8	5,75	0,09	1,6	10	15
Z-PS-PMMA-000-6,4	6,44	0,11	1,7	10	15
Z-PS-PMMA-000-7,4	7,42	0,10	1,4	10	15
Z-PS-PMMA-000-8	8,01	0,13	1,4	10	15
Z-PS-PMMA-000-8,3	8,28	0,12	1,5	10	15
Z-PS-PMMA-000-9,5	9,51	0,15	1,6	10	15
Z-PS-PMMA-000-12,4	12,42	0,21	1,7	10	15
Z-PS-PMMA-000-17,5	17,52	0,33	1,9	10	15
Z-PS-PMMA-000-17,7	17,65	0,39	2,2	10	15
Z-PS-PMMA-000-20	20	0,34	1,7	10	15
Z-PS-PMMA-000-21,8	21,83	0,35	1,6	10	15
Z-PS-PMMA-000-23,7	23,72	0,45	1,9	10	15
Z-PS-PMMA-000-25,3	25,33	0,59	2,3	10	15
Z-PS-PMMA-000-31,6	31,59	0,52	1,6	10	15
Z-PS-PMMA-000-32,8	32,76	0,48	1,5	10	15
Z-PS-PMMA-000-33	33,02	0,65	2,0	10	15
Z-PS-PMMA-000-35,8	35,82	0,57	1,6	10	15
Z-PS-PMMA-000-36	35,95	0,49	1,4	10	15
Z-PS-PMMA-000-36,9	36,94	0,93	2,5	10	15
Z-PS-PMMA-000-38,1	38,06	0,97	2,6	10	15
Z-PS-PMMA-000-38,2	38,24	0,99	2,6	10	15
Z-PS-PMMA-000-40,1	40,15	0,76	1,9	10	15
Z-PS-PMMA-000-40,4	40,41	0,74	1,8	10	15
Z-PS-PMMA-000-41	41	0,65	1,6	10	15
Z-PS-PMMA-000-42,5	42,53	0,67	1,6	10	15
Z-PS-PMMA-000-73,8	73,77	2,09	2,8	10	15
Z-PS-PMMA-000-103,5	103,53	1,68	1,6	10	15
Z-PS-PMMA-000-119	119	2,1	1,8	10	15
Z-PS-PMMA-000-127	127	2,8	2,2	10	15

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1.3 POLY(LACTIC-ACID) PARTICLES

1.3.1 Dyed

1.3.1.1 Blue (Nile Blue A; Reactive Blue)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000B-2	2	1	10
Z-PS-PLA-000B-30	30	1	10
Z-PS-PLA-000B-100	100	1	10
Z-PS-PLA-000B-250	250	1	10

1.3.1.2 Red (Reactive Red)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000R-2	2	1	10
Z-PS-PLA-000R-30	30	1	10
Z-PS-PLA-000R-100	100	1	10
Z-PS-PLA-000R-250	250	1	10

1.3.2 Fluorescent

1.3.2.1 Green (Fluorescein)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000GF-2	2	1	5
Z-PS-PLA-000GF-30	30	1	5
Z-PS-PLA-000GF-100	100	1	5
Z-PS-PLA-000GF-250	250	1	5

1.3.2.2 Red (Rhodamin B)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000RF-2	2	1	5
Z-PS-PLA-000RF-30	30	1	5
Z-PS-PLA-000RF-100	100	1	5
Z-PS-PLA-000RF-250	250	1	5

1.3.3 Functional Groups

1.3.3.1 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-005-2	2	1	10
Z-PS-PLA-005-30	30	1	10
Z-PS-PLA-005-100	100	1	10
Z-PS-PLA-005-250	250	1	10

1.3.3.2 Collagen

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-033-30	30	1	1
Z-PS-PLA-033-100	100	1	1

1.3.3.3 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-004-2	2	1	10
Z-PS-PLA-004-30	30	1	10
Z-PS-PLA-004-100	100	1	10
Z-PS-PLA-004-250	250	1	10

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1.3.4 Magnetic

1.3.4.1 Amino (NH2)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-004M-2-1	2	1	10
Z-PS-PLA-004M-30-1	30	1	10
Z-PS-PLA-004M-100-1	100	1	10

1.3.4.2 Carboxyl (COOH)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-005M-2	2	1	10
Z-PS-PLA-005M-30	30	1	10
Z-PS-PLA-005M-100	100	1	10

1.3.4.3 Green (Fluorescein)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000GFM-2	2	1	10
Z-PS-PLA-000GFM-30	30	1	10
Z-PS-PLA-000GFM-100	100	1	10

1.3.4.4 Red (Rhodamin B)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-024M-2	2	1	10
Z-PS-PLA-024M-30	30	1	10
Z-PS-PLA-024M-100	100	1	10

1.3.4.5 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000M-2	2	1	10
Z-PS-PLA-000M-30	30	1	10
Z-PS-PLA-000M-100	100	1	10

1.3.5 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PLA-000-2	2	1	10
Z-PS-PLA-000-30	30	1	10
Z-PS-PLA-000-100	100	1	10
Z-PS-PLA-000-250	250	1	10

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1.4 POLYSACCHARIDE PARTICLES

1.4.1 Dyed

1.4.1.1 Blue (Nile Blue A; Reactive Blue)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-000B-2	2	2,5	10

1.4.1.2 Red (Reactive Red)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-000R-2	2	2,5	10

1.4.2 Fluorescent

1.4.2.1 Green (Fluorescein)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-000GF-2	2	2,5	10

1.4.3 Functional Groups

1.4.3.1 Aldehyde

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-002-2	2	2,5	10

1.4.3.2 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-004-2	2	2,5	10

1.4.3.3 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-005-2	2	2,5	10

1.4.3.4 DTPA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-006-2	2	2,5	10

1.4.3.5 EDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-007-2	2	2,5	10

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1.4.4 Magnetic (Cross linked magnetite chitosan composite)

1.4.4.1 Albumin (BSA)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-001M-0,1	0,1	0,25	10
Z-PS-PSC-001M-0,13	0,13	1	10
Z-PS-PSC-001M-0,25	0,25	1	10

1.4.4.2 Alkyl-OH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-020M-0,1	0,1	0,5	10
Z-PS-PSC-020M-0,13	0,13	1	10
Z-PS-PSC-020M-0,25	0,25	1	10

1.4.4.3 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-004M-0,1	0,1	0,5	10
Z-PS-PSC-004M-0,13	0,13	1	10
Z-PS-PSC-004M-0,25	0,25	1	10

1.4.4.4 Avidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-021M-0,1	0,1	0,25	5
Z-PS-PSC-021M-0,13	0,13	1	5
Z-PS-PSC-021M-0,25	0,25	1	5

1.4.4.5 Biotin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-022M-0,05	0,05	0,25	2
Z-PS-PSC-022M-0,1	0,1	1	2
Z-PS-PSC-022M-0,13	0,13	1	2
Z-PS-PSC-022M-0,25	0,25	1	2

1.4.4.6 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-005M-0,05	0,05	0,5	10
Z-PS-PSC-005M-0,1	0,1	1	10
Z-PS-PSC-005M-0,13	0,13	1	10
Z-PS-PSC-005M-0,25	0,25	1	10

1.4.4.7 DTPA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-006M-0,13	0,13	1	10
Z-PS-PSC-006M-0,25	0,25	1	10

1.4.4.8 EDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-007M-0,13	0,13	1	10
Z-PS-PSC-007M-0,25	0,25	1	10

1.4.4.9 Glutathione

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-034M-0,13	0,13	1	10
Z-PS-PSC-034M-0,25	0,25	1	10

1.4.4.10 HDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-009M-0,13	0,13	1	10
Z-PS-PSC-009M-0,25	0,25	1	10

1.4.4.11 Ni-NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-012M-0,13	0,13	1	10
Z-PS-PSC-012M-0,25	0,25	1	10

1.4.4.12 PEG 300

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-024M-0,1	0,1	0,5	10
Z-PS-PSC-024M-0,13	0,13	1	10
Z-PS-PSC-024M-0,25	0,25	1	10

1.4.4.13 PEG-COOH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-027M-0,13	0,13	1	10
Z-PS-PSC-027M-0,25	0,25	1	10

1.4.4.14 PEG-NH_2

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-028M-0,13	0,13	1	10
Z-PS-PSC-028M-0,25	0,25	1	10

1.4.4.15 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-000M-0,05	0,05	0,25	10
Z-PS-PSC-000M-0,1	0,1	0,25	10
Z-PS-PSC-000M-0,13	0,13	0,5	10
Z-PS-PSC-000M-0,25	0,25	0,5	10

1.4.4.16 Protein A

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-014M-0,1	0,1	0,25	1
Z-PS-PSC-014M-0,13	0,13	1	1
Z-PS-PSC-014M-0,25	0,25	1	1

1.4.4.17 SO_3H

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-037M-0,1	0,1	0,5	10
Z-PS-PSC-037M-0,13	0,13	1	10
Z-PS-PSC-037M-0,25	0,25	1	10

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1.4.4.18 Streptavidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-015M-0,1	0,1	0,25	10
Z-PS-PSC-015M-0,13	0,13	1	10
Z-PS-PSC-015M-0,25	0,25	1	10

1.4.5 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PSC-000-2	2	2,5	10

1.5 POLYSTYRENE PARTICLES

1.5.1 Dyed Particles

This product line consist of two general types of dyed particles: particles dyed after polymerization, i.e., solvent-absorbed dyed latexes particles dyed during the polymerization process, i.e., dye-polymerized standards. Neither product exhibits any detectable leaching of dye from the particles in aqueous media under a wide variety of conditions. Addition of the dyes produces no significant change in the surface charge or surface properties of the standards when compared with the equivalent undyed product. There has been a substantial increase in the use of colored standards for diagnostic tests ranging from mixtures of standards, each of a different color for slide agglutination tests, to applications in membrane particle capture and dyed-particle sandwich tests and assays. Additionally, colored particles offer visual advantages in many of the simple test formats, for example, black slide in combination with yellow particles or white slide with bright blue or red standard particles. Please contact us if you are interested in stock or custom colored standards.

Standard colors	Absorbance	Standards
Canary Yellow	400-470	
Yellow	350-490	Carboxyl
Mango Red	470-570	CML
Red	470-570	Sulfate
Royal Blue	640-690	Aldehyede/Sulfate
Blue	640-690	
Navy Blue	650-700	

1.5.2 Fluorescent

The fluorescent dyes are incorporated into the polystyrene particles. Characterization studies have demonstrated that incorporation of dyes into the particles does not produce any significant changes in their physicochemical properties, and does not appear to affect protein binding properties. Fluorescent standard particles are available with negatively-charged sulfate, carboxyl, or carboxylate modified surface groups, or positively-charged amidine surface groups in a range of uniform sizes. Custom colors and sizes are available.

Applications for fluorescent standard particles include:

Immunologic markers for cell surface antigens, immunodiagnostics where their high fluorescence intensity makes them well suited for diagnostic applications, tracers in cell biology and in the phagocytosis research.

Standard colors	Absorbance	Standards
Blue	360/415	
Yellow/Green	490/515	Carboxyl
Orange	530/560	CML
Nile Red	520/580	Sulfate
Red	580/605	Aldehyde/Sulfate
Crimson	625/645	
Dark Red	650/690	

1.5.3 Functional Groups

Most of the polymer particles products are prepared by surfactant-free emulsion polymerization techniques, unless ultra-fine particle size or a high concentration is desired. postnova analytics polymer particles are rigid, consisting of amorphous polymer with a high glass transition temperature. The molecular weight of the polymer is around 300.000 Da. All of our ultra-clean monodisperse polymer particles are characterized by diameter, size uniformity, type of surface functional groups present, surface charge, density by conductometric titration and particle concentration. We can offer our customers custom synthesis and characterization of nearly all polymer particles available on the market. Our polymer particles are monodisperse and suspended in distilled water with no preservatives or other additives. However, bacteriostatic agents can be added upon request.

1.5.3.1 Aliphatic Chains

Polystyrene particles with longchained aliphatic groups on the surface: 1 – 10 µm
Please request for further information.

1.5.3.2 Aldehyde

Please request for further information.

1.5.3.3 Aldehyde/Amidine

These particles are similar to aldehyde/sulfate particles, but with a positively-charged amidine functional groups to provide colloidal stability. Typical aldehyde density is ~500 Å/group. This particle is not sensitive to multivalent cations. This is a hydrophobic latex particle.

Article	Ø µm	CV %	Solids (%)	NH_2 (µEq/g)	NH_2(µC/cm^2)	Å^2/NH_2	CHO(µEq/g)	Å^2/CHO	Volume (mL)
Z-PS-POS-004-0,037	0,037	14,3	4	53,6	3,4	476			15
Z-PS-POS-004-0,124	0,124	9,4	4	19,1	4,0	399	24	324	15
Z-PS-POS-004-0,515	0,515	3,9	4	16,4	14,3	112	2,2	834	15
Z-PS-POS-004-0,729	0,729	8,4	4	13,4	16,6	97	1	1295	15
Z-PS-POS-004-0,767	0,767	2,2	4	16,7	21,8	74	2	684	15
Z-PS-POS-004-0,812	0,8	2,4	4	14,2	19,6	82			15
Z-PS-POS-004-0,870	0,870	8,4	4	14,7	21,7	74	2	603	15
Z-PS-POS-004-0,875	0,875	8,5	4	8,3	12,4	129			15
Z-PS-POS-004-1,220	1,220	3,1	4	8,7	18,1	89	2	430	15
Z-PS-POS-004-1,240	1,240	6,9	4	9,6	20,1	80			15
Z-PS-POS-004-3,418	3,418	12,2	4	7,9	45,7	35	2	140	15

1.5.3.4 Aldehyde/Sulfate

These super-active latexes contain an abundance of aldehyde groups grafted to the surface of the polymer particle. Typical aldehyde density is ~50 Å^2/group. The high density of aldehyde groups enables facile coupling of proteins and other material to the latex particles in a one-step process. The sulfate charge groups on the microspheres enable retention of stability during the covalent coupling process. These particles are ideal candidates for a variety of applications in diagnostic kit production. This is a hydrophobic latex.

Article	Ø µm	CV %	Solids (%)	SO_4(µEq/g)	SO_4(µC/cm^2)	Å^2SO_4	CHO(µEq/g)	Å^2/CHO	Volume (mL)l
Z-PS-POS-009-0,029	0,029	20,1	4	85,3	4,2	382	33	99	15
Z-PS-POS-009-0,043	0,043	22,5	4	14,8	1,1	1488			15
Z-PS-POS-009-0,054	0,054	16,0	4	11,8	1,1	1486			15
Z-PS-POS-009-0,111	0,111	4,8	4	13,2	2,5	643	64	134	15
Z-PS-POS-009-0,155	0,155	7,3	4	12,0	3,2	508			15
Z-PS-POS-009-0,273	0,273	3,2	4	11,6	5,4	299	36,4	95	15
Z-PS-POS-009-0,328	0,328	4,3	4	11,4	6,4	251	44	65	15
Z-PS-POS-009-0,486	0,486	5,7	4	13,5	11,1	144	29	67	15
Z-PS-POS-009-0,571	0,571	4,4	4	11,9	11,5	139	20	81	15
Z-PS-POS-009-0,769	0,769	2,0	4	10,5	13,7	117			15
Z-PS-POS-009-1,032	1,032	2,7	4	5,2	9,1	176	16	56	15
Z-PS-POS-009-1,518	1,518	2,3	4	5,2	13,5	119			15
Z-PS-POS-009-1,600	1,600	5,8	4	5,9	15,9	101			15
Z-PS-POS-009-1,720	1,720	4,1	4	5,4	15,8	101			15
Z-PS-POS-009-1,870	1,870	3,8	4	3,1	9,7	165	12,3	41	15
Z-PS-POS-009-1,884	1,884	1,9	4	2,8	8,9	180	14	37	15
Z-PS-POS-009-2,021	2,021	5,5	4	2,7	9,4	171	11	43	15
Z-PS-POS-009-2,025	2,025	3,9	4	3,0	10,1	158	9	51	15
Z-PS-POS-009-2,029	2,029	3,4	4	1,1	3,6	439	9,4	49	15
Z-PS-POS-009-2,100	2,100	2,3	4	2,7	9,5	168			15
Z-PS-POS-009-2,102	2,102	4,9	4	2,7	9,7	165	13	36	15
Z-PS-POS-009-2,122	2,122	3,2	4	2,0	7,2	224	13	34	15
Z-PS-POS-009-2,231	2,231	6,0	4	3,1	11,7	137	10	44	15
Z-PS-POS-009-2,291	2,291	4,6	4	3,6	13,9	115			15
Z-PS-POS-009-2,373	2,373	2,0	4	2,3	9,3	172			15
Z-PS-POS-009-2,442	2,442	3,2	4	2,2	9,0	177	12	32	15
Z-PS-POS-009-2,785	2,785	8,4	4	2,0	9,3	173			15
Z-PS-POS-009-2,874	2,874	4,2	4	3,1	15,0	107	1	235	15
Z-PS-POS-009-3,042	3,042	5,8	4	1,5	7,6	210	10	31	15
Z-PS-POS-009-3,096	3,096	4,7	4	2,2	11,5	139	6	50	15
Z-PS-POS-009-3,218	3,218	4,8	4	1,3	7,1	226	10	31	15
Z-PS-POS-009-3,235	3,235	7	4	1,7	9,3	172			15
Z-PS-POS-009-3,847	3,847	7,9	4	1,5	10,0	160			15
Z-PS-POS-009-4,518	4,518	9,2	4	0,2	1,5	1045			15
Z-PS-POS-009-4,769	4,769	5,7	4	1,4	11,5	139	14,5	14	15
Z-PS-POS-009-5,037	5,037	7,3	4				3	72	15
Z-PS-POS-009-6,100	6,100	14,5	4				2	67	15
Z-PS-POS-009-9,744	9,744	6,4	4	0,2	4,0	404	1	69	15

1.5.3.5 Aliphatic Amine

The aliphatic amine particle has a high density of amine groups attached to the terminus of an aliphatic six-carbon spacer arm. This product can be used to covalently couple proteins. Location of the amine at the end of the spacer arm minimizes difficulties with steric hindrance and conformation since the group has a greater freedom to rotate. In addition, spacer arms improve the kinetics of particle agglutination reactions.

The particles are stabilized by the positively-charged amine groups under low to neutral pH conditions. Care should be taken not to use them under high pH. This is a hydrophobic particle.

Article	Ø µm	CV %	Solids (%)	Volume (mL)
Z-PS-POS-005-0,04	0,04	15	4	15
Z-PS-POS-005-0,1	0,1	5	4	15
Z-PS-POS-005-0,2	0,2	5	4	15
Z-PS-POS-005-0,4	0,4	5	4	15
Z-PS-POS-005-0,7	0,7	5	4	15
Z-PS-POS-005-0,9	0,9	5	4	15
Z-PS-POS-005-1,0	1,0	3	4	15
Z-PS-POS-005-2,2	2,2	5	4	15
Z-PS-POS-005-5,0	5,0	10	4	15

1.5.3.6 Amide/Carboxyl Modified (AAM)

Article	Ø µm	cv %	Solids (%)	COOH(µEq/g)	Volume (mL)
Z-PS-POS-010-1,040-4	1,04	5	4	84	15

1.5.3.7 Amidine

The amidinated positively-charged hydrophobic particle is particularly suitable for the preparation of particle intermediates. The only surface functional groups present on the particle is amidine, which is not sensitive to the aggregating effects of polyvalent cations. These particles are sensitive to negatively charged contaminants or multivalent anions. As a result, there is usually a certain percentage of aggregates (< 3 %) present in latex. The amidine particles should be used in low to neutral pH environments. These amidine particles are available in a range of sizes and surface charge densities (70-1000 Á per charge group).

Article	Ø µm	CV %	Solids (%)	NH_2 (µEq/g)	NH_2(µC/cm2)	$Å^2/NH_2$	Volume (mL)
Z-PS-POS-003-0,015	0,015	23,3	4	66,7	1,7	944	15
Z-PS-POS-003-0,017	0,017	30,0	4	80,2	2,3	693	15
Z-PS-POS-003-0,027	0,027	21,7	4	87,7	4,0	399	15
Z-PS-POS-003-0,040	0,040	26,1	4	46,7	3,2	505	15
Z-PS-POS-003-0,051	0,051	33,9	4	69,0	6,0	269	15
Z-PS-POS-003-0,053	0,053	15,9	4	49,3	4,4	361	15
Z-PS-POS-003-0,068	0,068	12,5	4	41,8	4,8	332	15
Z-PS-POS-003-0,074	0,074	20,3	4	59	7,4	216	15
Z-PS-POS-003-0,078	0,078	14,2	4	32,7	4,3	370	15
Z-PS-POS-003-0,123	0,123	14,0	4	39,7	8,3	193	15
Z-PS-POS-003-0,133	0,133	10,9	4	36,3	8,2	196	15
Z-PS-POS-003-0,288	0,288	4,2	4	31,5	15,4	104	15
Z-PS-POS-003-0,372	0,372	5,7	4	24,3	15,3	104	15
Z-PS-POS-003-0,472	0,472	2,9	4	20,0	16,0	100	15
Z-PS-POS-003-0,487	0,487	2,2	4	18,6	15,3	104	15
Z-PS-POS-003-0,501	0,501	5,5	4	21,3	18,1	88	15
Z-PS-POS-003-0,519	0,519	5,7	4	18,0	15,8	101	15
Z-PS-POS-003-0,720	0,720	4,8	4	12,4	15,2	105	15
Z-PS-POS-003-0,755	0,755	5,6	4	16,5	21,1	76	15
Z-PS-POS-003-0,769	0,769	2,7	4	17,5	22,9	70	15
Z-PS-POS-003-0,779	0,779	3,5	4	12,4	16,4	98	15
Z-PS-POS-003-0,784	0,784	3,4	4	14,8	19,7	81	15
Z-PS-POS-003-0,811	0,811	2,7	4	14,9	20,4	78	15
Z-PS-POS-003-0,813	0,813	1,7	4	12,6	17,4	92	15
Z-PS-POS-003-0,834	0,834	4,6	4	13,9	19,6	82	15
Z-PS-POS-003-0,883	0,883	2,5	4	13,1	19,6	82	15
Z-PS-POS-003-0,890	0,890	2,5	4	13,1	19,8	81	15
Z-PS-POS-003-0,951	0,951	3,6	4	14,7	23,7	67	15
Z-PS-POS-003-1,030	1,030	4,3	4	9,2	16,1	100	15
Z-PS-POS-003-1,400	1,400	4,3	4	8,1	19,2	83	15
Z-PS-POS-003-2,060	2,060	3,7	4	6,1	21,4	75	15
Z-PS-POS-003-2,546	2,546	5,2	4	7,5	32,2	50	15

1.5.3.8 Amino

Polystyrene particles with free amino groups: 2 – 10 µm

Please request for further information.

1.5.3.9 Carboxyl (NIST-Traceable)

Article	Ø µm	cv %	Solids (%)	COOH(µEq/g)	Volume (mL)
Z-PS-POS-011-0,488	0,488	2	1	16	15

1.5.3.10 Carboxyl

This product line consists of carboxyl charge-stabilized hydrophobic polystyrene microspheres. Only carboxyl groups are present on the particle surface. The particles are the carboxyl analogue of the sulfate particles. The pka of the carboxyl group is relatively high, and consequently these particles are not suitable for work in acidic media. Carboxyl particles are available in an range of sizes and surface charge densities (70 Å per charge group down to 3000 Å per charge group). They may be used either for physical adsorption of antigens or antibodies, or for covalent coupling of components to the particle surface. We have even more particles as listed. For more information, please request.

Article	Ø µm	CV %	Solids (%)	COOH (µEq/g)	COOH (µC/cm^2)	Å^2/COOH	Volume (mL)
Z-PS-POS-006-0,067	0,067	13,7	4	5,1	0,6	2764	15
Z-PS-POS-006-0,092	0,092	16,7	4	13,5	2,1	761	15
Z-PS-POS-006-0,093	0,093	10,6	4	15,4	2,4	662	15
Z-PS-POS-006-0,095	0,095	12,3	4	5,1	0,8	1945	15
Z-PS-POS-006-0,097	0,097	12,9	4	26,4	4,3	369	15
Z-PS-POS-006-0,100	0,100	10,5	4	6,3	1,1	1504	15
Z-PS-POS-006-0,102	0,102	10,7	4	34,5	6,0	269	15
Z-PS-POS-006-0,104	0,104	10,0	4	43,4	7,7	209	15
Z-PS-POS-006-0,110	0,110	9,6	4	13,9	2,6	618	15
Z-PS-POS-006-0,111	0,111	11,5	4	18,4	3,5	461	15
Z-PS-POS-006-0,117	0,117	11,9	4	8,8	1,8	914	15
Z-PS-POS-006-0,127	0,127	12,8	4	25,1	5,4	297	15
Z-PS-POS-006-0,216	0,216	4,6	4	34,1	12,5	128	15
Z-PS-POS-006-0,279	0,279	1,5	4	25,6	12,1	132	15
Z-PS-POS-006-0,309	0,309	2,8	4	17,5	9,2	174	15
Z-PS-POS-006-0,401	0,401	1,9	4	11,7	8,0	201	15
Z-PS-POS-006-0,450	0,450	1,1	4	19,1	14,6	110	15
Z-PS-POS-006-0,630	0,630	1,6	4	16,5	17,7	91	15
Z-PS-POS-006-0,640	0,640	1,9	4	13,3	14,5	111	15
Z-PS-POS-006-0,860	0,860	2,1	4	5,8	8,4	190	15
Z-PS-POS-006-1,06	1,06	5,5	4	9,7	17,5	92	15
Z-PS-POS-006-1,44	1,440	6,0	4	6,2	15,1	106	15
Z-PS-POS-006-1,522	1,522	5,4	4	4,5	11,6	138	15
Z-PS-POS-006-1,717	1,717	4,9	4	5,2	15,1	106	15
Z-PS-POS-006-3,214	3,214	6,0	4	2,2	12,0	134	15

1.5.3.11 Carboxyl/Bromo

Article	Ø µm	cv %	Solids (%)	COOH(µEq/g)	Volume (mL)
Z-PS-POS-012-0,046	0,046	17	4	13	15
Z-PS-POS-012-0,100	0,100	12	4	4	15
Z-PS-POS-012-0,142	0,142	9,5	4	243	15
Z-PS-POS-012-0,749	0,749	3	4	3	15

1.5.3.12 Carboxylate Modified (CML)

These CML particles have a core-shell structure and possess a high density of carboxyl groups on the particle surface and throughout the shell. The sulfate groups are also present as surface groups, but their number is insignificant compared to the carboxyl groups.

The CML particles are considered to be hydrophilic only at high pH or ionic strength. Under such conditions the particles swell, rendering the surface porous and gel-like, rather than rigid and smooth.

For large bio-molecules only those carboxyl groups on the surface are accessible, while a large portion of the carboxyl groups is „buried“ underneath and only accessible to small inorganic ions. Therefore the µEq/g data by titration can only be used as a reference to represent the maximum potential of reactive carboxyl groups where protein coupling is concerned. An area occupied by each carboxyl group on the surface can not be obtained for the titration data.

Article	Ø µm	CV %	Solids (%)	COOH (µEq/g)	COOH (µC/cm^2)	Å^2/COOH	Volume (mL)
Z-PS-POS-002-0,087	0,087	6,8	4	430,6	63,6	25	15
Z-PS-POS-002-0,095	0,095	6,2	4	7,9	1,3	1254	15
Z-PS-POS-002-0,101	0,101	5,5	4	26,7	4,6	350	15
Z-PS-POS-002-0,102	0,102	3,7	4	89,3	15,4	104	15
Z-PS-POS-002-0,141	0,141	4,5	4	220,4	52,7	30	15
Z-PS-POS-002-0,145	0,145	3,8	4	193,1	47,5	34	15
Z-PS-POS-002-0,172	0,172	3,0	4	207,9	60,7	26	15
Z-PS-POS-002-0,235	0,235	4,7	4	49,6	19,8	81	15
Z-PS-POS-002-0,24	0,240	4,5	4	220,6	89,8	18	15
Z-PS-POS-002-0,242	0,242	4,4	4	285,8	117,4	14	15
Z-PS-POS-002-0,249	0,249	4,3	4	188,8	79,8	20	15
Z-PS-POS-002-0,263	0,263	8,1	4	90,8	40,5	40	15
Z-PS-POS-002-0,273	0,273	5,3	4	28,3	13,1	122	15
Z-PS-POS-002-0,3	0,300	8,9	4	165,8	84,4	19	15
Z-PS-POS-002-0,323	0,323	8,0	4	201,2	110,3	15	15
Z-PS-POS-002-0,34	0,340	4,5	4	184,7	106,6	15	15
Z-PS-POS-002-0,373	0,373	7,1	4	42,6	27,0	59	15
Z-PS-POS-002-0,463	0,463	3,4	4	84,2	66,2	24	15
Z-PS-POS-002-0,604	0,604	4,8	4	306,4	314,0	5	15
Z-PS-POS-002-0,641	0,641	1,7	4	275,9	300,0	5	15
Z-PS-POS-002-0,833	0,833	2,8	4	803,2	1135,1	1	15
Z-PS-POS-002-0,933	0,933	4,0	4	917,6	1452,4	1	15
Z-PS-POS-002-0,965	0,965	1,5	4	70,8	115,9	14	15
Z-PS-POS-002-1,028	1,028	6,4	4	20,4	35,5	45	15
Z-PS-POS-002-1,552	1,552	2,9	4	16,3	42,9	37	15
Z-PS-POS-002-1,71	1,710	3,9	4	25,4	73,8	22	15
Z-PS-POS-002-1,89	1,890	4,6	4	16,6	53,1	30	15
Z-PS-POS-002-1,896	1,896	2,4	4	14,7	47,3	34	15
Z-PS-POS-002-1,937	1,937	4,4	4	21,4	70,3	23	15
Z-PS-POS-002-1,95	1,950	6,7	4	107,6	355,8	5	15
Z-PS-POS-002-2,05	2,05	3,4	4	26	90,5	18	15
Z-PS-POS-002-2,9	2,900	4,0	4	25,3	124,5	13	15
Z-PS-POS-002-3	3,000	2,9	4	31,9	162,6	10	15
Z-PS-POS-002-3,02	3,020	7,7	4	35,1	179,8	9	15
Z-PS-POS-002-3,03	3,030	6,0	4	27,4	141,0	11	15
Z-PS-POS-002-3,05	3,050	5,3	4	34,7	179,7	9	15
Z-PS-POS-002-3,1	3,100	6,4	4	38,6	203,0	8	15
Z-PS-POS-002-3,12	3,120	7,1	4	40,2	212,9	8	15
Z-PS-POS-002-3,932	3,932	6,8	4	56,3	375,5	4	15
Z-PS-POS-002-4,365	4,365	1,9	4	32,5	240,6	7	15
Z-PS-POS-002-4,6	4,6	6,5	4	11,9	93,3	17	15
Z-PS-POS-002-4,837	4,837	13,0	4	1,6	13,1	122	15
Z-PS-POS-002-5,255	5,255	6,9	4	4,1	36,4	44	15
Z-PS-POS-002-5,304	5,304	5,4	4	8,2	73,9	22	15
Z-PS-POS-002-5,497	5,497	7,4	4	4,3	39,8	40	15
Z-PS-POS-002-5,527	5,527	7,1	4	6,5	61,2	26	15
Z-PS-POS-002-5,549	5,549	4,3	4				15
Z-PS-POS-002-9,516	9,516	6,9	4	11,4	184,5	9	15
Z-PS-POS-002-9,721	9,721	6,9	4	3,4	55,2	29	15

1.5.3.13 Carboxyl/Sulfate

These hydrophobic polystyrene particle possess carboxyl and sulfate groups in comparable number. Hydroxyl groups are also likely to be present. The particle has been designed for applications in which the reactivity of the carboxyl group combined with the charge stabilizing characteristics of the sulfate groups is requestd, for example in acidic media. The total effective charge is pH-dependent. They are available in a range of proportions of surface charge groups to one another, and particle size.

Article	Ø µm	CV %	Solids (%)	SO_4(µEq/g)	SO_4(µC/cm^2)	Å^2/SO_4	COOH(µEq/g)	Å^{2}COOH	Volume (mL)
Z-PS-POS-007-0,098	0,098	15	4	8,5	1,4	1134	3	3442	15
Z-PS-POS-007-0,104	0,104	5	4	2,8	0,5	3266	7	1376	15
Z-PS-POS-007-0,306	0,306	1	4	13,5	7	229	1	2374	15
Z-PS-POS-007-0,424	0,424	2,6	4	6,9	5	323	9	237	15
Z-PS-POS-007-0,466	0,466	1,4	4	5,9	4,6	345			15
Z-PS-POS-007-0,876	0,876	2,8	4	1,7	2,5	634	3	431	15
Z-PS-POS-007-1,514	1,514	3,9	4	2,3	5,9	271	4	142	15
Z-PS-POS-007-1,872	1,872	10,3	4	5,1	16,1	100	22	23	15

1.5.3.14 Chloromethyl

The chloromethyl latex has a high density of chloromethyl groups attached to the styrene monomeric unit. These reactive surface functional groups react directly with amino groups in antibodies, antigens, or other ligand under mild aqueous conditions to yield a stable covalent product by a one-step process.

The particles are stabilized by negatively-charged sulfate groups. This type of particle can be used at both high and low pH conditions. This is a hydrophobic latex.

Article	Ø µm	CV %	Solids (%)	SO_4(µEq/g)	SO_4(µC/cm^2)	Å/SO_4	CH_2Cl	Å^2CH_2Cl	Volume (mL)
Z-PS-POS-008-0,044	0,044	21,7	4	19,9	1,5	1080			15
Z-PS-POS-008-0,048	0,048	23,2	4	18,4	1,5	1054			15
Z-PS-POS-008-0,069	0,069	6,9	4	13,5	1,6	1014			15
Z-PS-POS-008-0,077	0,077	7,3	4	18,1	2,4	679			15
Z-PS-POS-008-0,083	0,083	6,8	4	3,3	0,5	3469			15
Z-PS-POS-008-0,104	0,104	6,5	4	4,4	0,8	2078	5	1896	15
Z-PS-POS-008-0,110	0,11	4,6	4	2,4	0,4	3577			15
Z-PS-POS-008-0,114	0,114	6,6	4	2,4	0,5	3409	3	3314	15
Z-PS-POS-008-0,115	0,115	4,8	4	3	0,6	2784	5	1700	15
Z-PS-POS-008-0,117	0,117	5,1	4	3,3	0,6	2484	3	2957	15
Z-PS-POS-008-0,118	0,118	4,7	4	3,7	0,7	2151	4	2179	15
Z-PS-POS-008-0,119	0,119	7,9	4	3,2	0,6	2480	4	1960	15
Z-PS-POS-008-0,122	0,122	4,3	4	4,6	1	1683	6	1206	15
Z-PS-POS-008-0,124	0,124	3,4	4	2,5	0,5	3109			15
Z-PS-POS-008-0,125	0,125	5,9	4	3	0,6	2535	4	2019	15
Z-PS-POS-008-0,126	0,126	4,1	4	3,7	0,8	2031	4	2082	15
Z-PS-POS-008-0,128	0,128	6,5	4	5,3	1,2	1387	6	1311	15
Z-PS-POS-008-0,130	0,13	8,8	4	4,6	1	1586	3	2179	15
Z-PS-POS-008-0,133	0,133	9,1	4	3,3	0,7	2139	5	1511	15
Z-PS-POS-008-0,134	0,134	6,8	4	2,1	0,5	3293	2	3405	15
Z-PS-POS-008-0,138	0,138	5,1	4	4,4	1	1548	2	3168	15
Z-PS-POS-008-0,141	0,141	9,1	4	4,7	1,1	1428	4	1558	15
Z-PS-POS-008-0,150	0,15	4,4	4	5,6	1,4	1124			15
Z-PS-POS-008-0,210	0,21	5,8	4	2,3	0,8	1938			15

1.5.3.15 CML/Bromo

Article	Ø µm	cv %	Solids (%)	COOH(µEq/g)	Volume (mL)
Z-PS-POS-013-0,032	0,032	21	4	424	15
Z-PS-POS-013-0,128	0,128	3,6	4	299,8	15
Z-PS-POS-013-0,132	0,132	4,9	4	251,2	15
Z-PS-POS-013-0,140	0,140	4,6	4	267	15
Z-PS-POS-013-0,147	0,147	7,7	4	581,4	15
Z-PS-POS-013-0,157	0,157	7	4	238	15

1.5.3.16 CML/Sulfonate

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	COOH(µEq/g)	Volume (mL)
Z-PS-POS-014-0,094	0,094	6	4		23	15
Z-PS-POS-014-0,099	0,099	6	4		23	15
Z-PS-POS-014-2,645	2,645	4	4	1	19	15
Z-PS-POS-014-3,032	3,032	8	4	2	40	15

1.5.3.17 DVB/Sulfate

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-015-0,100-4	0,1	6	4	5	15

1.5.3.18 DVB/Carboxyl

Article	Ø µm	cv %	Solids (%)	COOH(µEq/g)	Volume (mL)
Z-PS-POS-016-0,127	0,127	10	4	24	15
Z-PS-POS-016-0,213	0,213	5	4	18	15
Z-PS-POS-016-0,510	0,510	2	4	15	15
Z-PS-POS-016-0,940	0,940	4,7	4	31,4	15
Z-PS-POS-016-1,323	1,323	5,3	4	27,5	15

1.5.3.19 Epoxy

Please request for further information.

1.5.3.20 Epoxy/Sulfate

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-017-2,969	2,969	5	4	2	15
Z-PS-POS-017-3,589	3,589	5	4	1	15
Z-PS-POS-017-3,769	3,769	9	4	1	15

1.5.3.21 Hydroxyl

Please request for further information.

1.5.3.22 Mercapto

Please request for further information.

1.5.3.23 MMA/Styrene/Sulfate

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-018-0,351	0,351	2	4	11	15

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1.5.3.24 Nonionic

Article	Ø µm	cv %	Solids (%)	Volume (mL)
Z-PS-POS-019-2,393	2,393	1,2	4	15
Z-PS-POS-019-2,688	2,688	2	4	15
Z-PS-POS-019-3,377	3,377	1	4	15
Z-PS-POS-019-3,768	3,768	2,4	4	15
Z-PS-POS-019-4,181	4,181	4,1	4	15
Z-PS-POS-019-4,444	4,444	3,7	4	15
Z-PS-POS-019-4,781	4,781	2,6	4	15
Z-PS-POS-019-4,855	4,855	7,5	4	15
Z-PS-POS-019-4,879	4,879	2	4	15
Z-PS-POS-019-5,07	5,070	4,1	4	15
Z-PS-POS-019-5,079	5,079	6	4	15
Z-PS-POS-019-5,302	5,302	8,5	4	15
Z-PS-POS-019-5,408	5,408	2,7	4	15
Z-PS-POS-019-5,459	5,459	4,9	4	15
Z-PS-POS-019-5,629	5,629	3,7	4	15
Z-PS-POS-019-5,956	5,956	6,1	4	15
Z-PS-POS-019-6,039	6,039	3,5	4	15
Z-PS-POS-019-6,27	6,270	4,2	4	15
Z-PS-POS-019-6,549	6,549	6,3	4	15
Z-PS-POS-019-6,844	6,844	5,2	4	15
Z-PS-POS-019-7,394	7,394	8,4	4	15
Z-PS-POS-019-7,824	7,824	3,5	4	15
Z-PS-POS-019-8,17	8,170	5,6	4	15
Z-PS-POS-019-8,748	8,748	7	4	15
Z-PS-POS-019-9,55	9,550	5	4	15
Z-PS-POS-019-9,618	9,618	12,9	4	15
Z-PS-POS-019-9,778	9,778	7,3	4	15
Z-PS-POS-019-10,6	10,600	9	4	15
Z-PS-POS-019-10,689	10,689	11,7	4	15
Z-PS-POS-019-10,727	10,727	12,4	4	15
Z-PS-POS-019-15,213	15,213	15,6	4	15

1.5.3.25 Quaternary Amine

Article	Ø µm	cv %	Solids (%)	NH_2	Volume (mL)
Z-PS-POS-024-0,215	0,215	2	4	94	15
Z-PS-POS-024-0,553	0,553	4	4	18	15
Z-PS-POS-024-1,028	1,028	5	4	10	15

1.5.3.26 Sulfate (NIST-Traceable)

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-020-0,043	0,043	19	1	38	15
Z-PS-POS-020-0,067	0,067	7	1	22	15
Z-PS-POS-020-0,144	0,144	4	1	3	15
Z-PS-POS-020-0,287	0,287	2,7	1	5,2	15
Z-PS-POS-020-0,717	0,717	2	1	6	15
Z-PS-POS-020-0,968	0,968	3	1	4	15
Z-PS-POS-020-2,037	2,037	2,8	1	0,8	15

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1.5.3.27 Sulfate (Surfactant free!)

These microspheres are stabilized by sulfate charges. The surface functional groups present are sulfate and hydroxyl. Depending upon the conditions of manufacture and the particle size, the surface charge density of sulfate groups ranges from about one charge group for every 200 Å of particle surface down to one group for every 2000 Å of surface. The pka of the sulfate group is < 2 and consequently the particles are stable up to about 0.30 M univalent electrolyte concentrations and therefore may be used in media of physiological ionic strength. However they are hydrophobic particles and will undergo aggregation in the presence of low concentrations of divalent cations unless stabilized by a hydrophilic coating. These latexes are suitable for calibration of particle size analysis equipment and are also appropriate for use in diagnostic test systems which rely upon physical adsorption of antigens or antibodies. We have even more particles as listed. For more information, please request.

Article	Ø µm	CV %	Solids (%)	SO_4(µEq/g)	SO_4(µC/cm^2)	Å^2/SO4	Volume (mL)
Z-PS-POS-001-0,021	0,021	14,8	8	41,5	1,5	1088	15
Z-PS-POS-001-0,038	0,038	13,9	8	38,0	2,4	654	15
Z-PS-POS-001-0,047	0,047	14,1	8	55,1	4,4	365	15
Z-PS-POS-001-0,051	0,051	8,9	8	15,0	1,3	1231	15
Z-PS-POS-001-0,055	0,055	8,2	8	10,1	0,9	1703	15
Z-PS-POS-001-0,058	0,058	8,4	8	11,2	1,1	1454	15
Z-PS-POS-001-0,06	0,060	8,7	8	10,5	1,1	1496	15
Z-PS-POS-001-0,061	0,061	8,2	8	4,8	0,5	3199	15
Z-PS-POS-001-0,062	0,062	8,6	8	9,8	1,0	1548	15
Z-PS-POS-001-0,067	0,067	9,0	8	13,9	1,6	1015	15
Z-PS-POS-001-0,071	0,071	9,8	8	2,6	0,3	5038	15
Z-PS-POS-001-0,072	0,072	6,9	8	4,2	0,5	3145	15
Z-PS-POS-001-0,077	0,077	7,0	8	3,1	0,4	3956	15
Z-PS-POS-001-0,08	0,080	8,3	8	13,9	1,9	846	15
Z-PS-POS-001-0,085	0,085	6,0	8	11,4	1,6	979	15
Z-PS-POS-001-0,087	0,087	6,7	8	3,5	0,5	3110	15
Z-PS-POS-001-0,089	0,089	8,7	8	2,4	0,4	4367	15
Z-PS-POS-001-0,094	0,094	4,8	8	4,3	0,7	2353	15
Z-PS-POS-001-0,095	0,095	5,4	8	7,4	1,2	1336	15
Z-PS-POS-001-0,096	0,096	4,2	8	16,7	2,7	590	15
Z-PS-POS-001-0,098	0,098	5,4	8	7,4	1,2	1299	15
Z-PS-POS-001-0,1	0,100	4,1	8	6,0	1,0	1585	15
Z-PS-POS-001-0,105	0,105	5,1	8	5,3	1,0	1681	15
Z-PS-POS-001-0,11	0,110	4,1	8	10,4	1,9	824	15
Z-PS-POS-001-0,12	0,120	9,1	8	7,6	1,6	1033	15
Z-PS-POS-001-0,137	0,137	2,3	8	3,4	0,8	2010	15
Z-PS-POS-001-0,143	0,143	6,2	8	2,2	0,5	3002	15
Z-PS-POS-001-0,171	0,171	2,3	8	5,4	1,6	1015	15
Z-PS-POS-001-0,196	0,196	5,1	8	1,9	0,6	2549	15
Z-PS-POS-001-0,223	0,223	5,3	8	2,4	0,9	1787	15
Z-PS-POS-001-0,226	0,226	6,2	8	5,6	2,1	750	15
Z-PS-POS-001-0,227	0,227	4,6	8	6,5	2,5	643	15
Z-PS-POS-001-0,229	0,229	7,6	8	4,2	1,6	975	15
Z-PS-POS-001-0,233	0,233	4,5	8	3,3	1,3	1243	15
Z-PS-POS-001-0,248	0,248	10,2	8	5,5	2,3	695	15
Z-PS-POS-001-0,254	0,254	5,2	8	4,4	1,9	837	15
Z-PS-POS-001-0,267	0,267	5,9	8	2,5	1,1	1409	15
Z-PS-POS-001-0,287	0,287	2,7	8	5,2	2,5	632	15
Z-PS-POS-001-0,315	0,315	2,0	8	2,3	1,2	1304	15
Z-PS-POS-001-0,335	0,335	7,9	8	3,6	2,0	738	15
Z-PS-POS-001-0,345	0,345	6,0	8	0,6	0,3	4802	15
Z-PS-POS-001-0,348	0,348	3,4	8	1,9	1,1	1399	15
Z-PS-POS-001-0,419	0,419	4,0	8	6,7	4,8	336	15
Z-PS-POS-001-0,469	0,469	4,3	8	5,4	4,3	371	15
Z-PS-POS-001-0,527	0,527	5,1	8	4,3	3,8	417	15
Z-PS-POS-001-0,549	0,549	6,3	8	5,8	5,4	296	15
Z-PS-POS-001-0,576	0,576	2,5	8	5,6	5,5	293	15
Z-PS-POS-001-0,629	0,629	1,9	8	4,4	4,7	344	15
Z-PS-POS-001-0,634	0,634	3,1	8	3,2	3,4	471	15

Z-PS-POS-001-0,647	0,647	3,0	8	7,8	8,5	188	15
Z-PS-POS-001-0,653	0,653	2,2	8	6,9	7,6	210	15
Z-PS-POS-001-0,72	0,720	1,9	8	5,5	6,7	241	15
Z-PS-POS-001-0,738	0,738	3,0	8	5,1	6,4	251	15
Z-PS-POS-001-0,75	0,750	1,9	8	6,0	7,6	211	15
Z-PS-POS-001-0,805	0,805	2,0	8	3,8	5,1	311	15
Z-PS-POS-001-0,816	0,816	1,8	8	4,3	5,9	272	15
Z-PS-POS-001-0,843	0,843	2,9	8	3,8	5,5	293	15
Z-PS-POS-001-0,864	0,864	2,3	8	3,4	4,9	326	15
Z-PS-POS-001-0,907	0,907	4,2	8	4,0	6,1	262	15
Z-PS-POS-001-0,96	0,960	2,6	8	3,8	6,2	259	15
Z-PS-POS-001-0,961	0,961	9,4	8	3,9	6,4	250	15
Z-PS-POS-001-1,01	1,010	7,6	8	3,4	5,7	279	15
Z-PS-POS-001-1,019	1,019	3,9	8	6,1	10,6	152	15
Z-PS-POS-001-1,1	1,100	2,1	8	4,5	8,4	191	15
Z-PS-POS-001-1,193	1,193	2,2	8	4,7	9,6	167	15
Z-PS-POS-001-1,254	1,254	1,8	8	2,9	6,2	258	15
Z-PS-POS-001-1,49	1,490	3,5	8	3,0	7,6	211	15
Z-PS-POS-001-1,5	1,500	3,9	8	3,2	8,1	197	15
Z-PS-POS-001-1,511	1,511	4,4	8	2,7	6,9	231	15
Z-PS-POS-001-1,53	1,530	2,9	8	3,4	8,8	182	15
Z-PS-POS-001-1,559	1,559	2,5	8	2,2	5,8	277	15
Z-PS-POS-001-1,575	1,575	2,0	8	1,8	4,7	341	15
Z-PS-POS-001-1,6	1,600	7,6	8	2,8	7,6	211	15
Z-PS-POS-001-1,628	1,628	7,7	8	3,2	8,9	180	15
Z-PS-POS-001-1,636	1,636	2,2	8	2,8	7,7	207	15
Z-PS-POS-001-1,63	1,630	2,5	8	3,4	9,4	170	15
Z-PS-POS-001-1,64	1,640	2,8	8	2,9	8,0	200	15
Z-PS-POS-001-1,657	1,657	3,2	8	1,5	4,3	373	15
Z-PS-POS-001-1,688	1,688	5,8	8	2,0	5,6	284	15
Z-PS-POS-001-1,72	1,720	3,2	8	2,9	8,3	192	15
Z-PS-POS-001-1,765	1,765	3,1	8	1,7	5,1	315	15
Z-PS-POS-001-1,768	1,768	3,6	8	1,6	4,9	326	15
Z-PS-POS-001-1,786	1,786	2,6	8	3,2	9,7	166	15
Z-PS-POS-001-1,799	1,799	1,2	8	1,5	4,5	355	15
Z-PS-POS-001-1,816	1,816	2,2	8	1,9	5,7	281	15
Z-PS-POS-001-1,825	1,825	3,5	8	2,2	6,8	236	15
Z-PS-POS-001-1,901	1,901	5,7	8	2,4	7,9	204	15
Z-PS-POS-001-1,922	1,922	7,4	8	1,9	6,5	248	15
Z-PS-POS-001-1,929	1,929	3,8	8	2,7	8,9	180	15
Z-PS-POS-001-1,959	1,959	2,6	8	2,5	8,3	194	15
Z-PS-POS-001-1,96	1,960	2,8	8	1,5	5,1	313	15
Z-PS-POS-001-2,1	2,100	5,2	8	1,5	5,3	300	15
Z-PS-POS-001-2,27	2,270	5,3	8	1,9	7,1	225	15
Z-PS-POS-001-2,367	2,367	3,0	8	2,5	10,0	160	15
Z-PS-POS-001-2,4	2,400	5,9	8	2,0	8,1	199	15
Z-PS-POS-001-2,511	2,511	7,4	8	2,7	11,5	139	15
Z-PS-POS-001-2,575	2,575	4,8	8	1,8	7,6	210	15
Z-PS-POS-001-2,58	2,580	5,9	8	2,2	9,7	166	15
Z-PS-POS-001-2,694	2,694	2,7	8	2,0	8,9	180	15
Z-PS-POS-001-2,696	2,696	5,9	8	0,5	2,3	687	15
Z-PS-POS-001-2,752	2,752	5,2	8	1,5	6,9	233	15
Z-PS-POS-001-2,764	2,764	3,2	8	2,2	10,5	153	15
Z-PS-POS-001-2,77	2,770	4,3	8	1,6	7,3	219	15
Z-PS-POS-001-2,9	2,900	4,5	8	1,7	8,4	192	15
Z-PS-POS-001-2,98	2,980	6,5	8	1,5	7,4	217	15
Z-PS-POS-001-2,984	2,984	4,0	8	1,3	6,5	248	15
Z-PS-POS-001-3	3,000	5,2	8	2,8	14,3	112	15
Z-PS-POS-001-3,04	3,040	3,5	8	1,5	7,6	210	15
Z-PS-POS-001-3,12	3,120	3,5	8	0,7	3,9	409	15
Z-PS-POS-001-3,6	3,600	4,3	8	1,0	6,0	265	15
Z-PS-POS-001-4,003	4,003	3,5	8	0,8	5,5	291	15
Z-PS-POS-001-4,078	4,078	5,1	8	1,0	6,9	232	15
Z-PS-POS-001-4,313	4,313	2,6	8	0,7	4,8	337	15
Z-PS-POS-001-4,606	4,606	5,4	8	0,7	5,5	293	15
Z-PS-POS-001-5	5,000	6,2	4	0,6	4,9	326	15
Z-PS-POS-001-5,246	5,246	5,7	4	0,7	6,4	250	15
Z-PS-POS-001-5,292	5,292	4,1	4	0,6	4,9	324	15
Z-PS-POS-001-5,411	5,411	5,1	4	0,5	4,7	342	15
Z-PS-POS-001-6,296	6,296	4,1	4				15
Z-PS-POS-001-7,924	7,924	10,7	4	0,4	5,6	284	15
Z-PS-POS-001-9,64	9,640	7,4	4				15

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1.5.3.28 Sulfate (Surfactant Prep.)

Katalog	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-021-0,186	0,186	4	30	18	15
Z-PS-POS-021-0,212	0,212	2	30	3	15
Z-PS-POS-021-0,270	0,270	2	30	2	15
Z-PS-POS-021-0,278	0,278	3	30	2	15
Z-PS-POS-021-0,286	0,286	2	30	3	15
Z-PS-POS-021-0,310	0,31	1,2	30	1,2	15
Z-PS-POS-021-0,312	0,312	2	30	4	15
Z-PS-POS-021-0,328	0,328	3	30	2	15
Z-PS-POS-021-0,332	0,332	2	30	10	15
Z-PS-POS-021-0,352	0,352	6	30	3	15
Z-PS-POS-021-0,573	0,573	3	30	1	15
Z-PS-POS-021-2,804	2,804	2,2	30		15
Z-PS-POS-021-4,610	4,610	2,8	30		15
Z-PS-POS-021-4,648	4,648	2	30		15
Z-PS-POS-021-5,068	5,068	3	30		15

1.5.3.29 Sulfate/Bromo

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-022-0,033	0,033	22	4	24	15
Z-PS-POS-022-0,099	0,099	9	4	3	15
Z-PS-POS-022-0,131	0,131	8,9	4	2,1	15
Z-PS-POS-022-0,133	0,133	5,7	4		15
Z-PS-POS-022-0,137	0,137	9	4	2	15
Z-PS-POS-022-0,158	0,158	5,8	4	1,6	15
Z-PS-POS-022-0,161	0,161	7,8	4	1	15
Z-PS-POS-022-0,217	0,217	13,1	4		15
Z-PS-POS-022-1,648	1,648	8,6	4	1,1	15
Z-PS-POS-022-2,800	2,800	5	4	2	15
Z-PS-POS-022-2,936	2,936	5	4		15

1.5.3.30 Sulfonate

Article	Ø µm	cv %	Solids (%)	SO_4(µEq/g)	Volume (mL)
Z-PS-POS-023-1,096	0,096	12	4	32	15
Z-PS-POS-023-0,105	0,105	9	4	39	15
Z-PS-POS-023-1,064	1,064	2	4	6	15
Z-PS-POS-023-4,215	4,215	2,8	4	0,4	15
Z-PS-POS-023-4,642	4,642	2,8	4	0,4	15
Z-PS-POS-023-6,200	6,200	4,2	4	0,4	15

Please request for further information.

1.5.3.31 Triazin-Amino

Monodisperse melamine resin particles with high surface density of triazin-amino groups: 1 – 10 µm.

Please request for further information.

1.5.3.32 Acrylate

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-801-1	1	5	10
Z-PS-POS-801-2	2	5	10
Z-PS-POS-801-3	3	5	10
Z-PS-POS-801-4	4	5	10
Z-PS-POS-801-5	5	5	10
Z-PS-POS-801-6	6	5	10
Z-PS-POS-801-7	7	5	10
Z-PS-POS-801-8	8	5	10
Z-PS-POS-801-10	10	5	10
Z-PS-POS-801-12	12	5	10

1.5.3.33 Albumin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-802-1	1	2,5	10
Z-PS-POS-802-2	2	2,5	10
Z-PS-POS-802-3	3	2,5	10
Z-PS-POS-802-4	4	2,5	10
Z-PS-POS-802-5	5	2,5	10
Z-PS-POS-802-6	6	2,5	10
Z-PS-POS-802-7	7	2,5	10
Z-PS-POS-802-8	8	2,5	10
Z-PS-POS-802-10	10	2,5	10
Z-PS-POS-802-12	12	2,5	10

1.5.3.34 Ag

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-803-1	1	2,5	10
Z-PS-POS-803-2	2	2,5	10
Z-PS-POS-803-3	3	2,5	10
Z-PS-POS-803-4	4	2,5	10
Z-PS-POS-803-5	5	2,5	10
Z-PS-POS-803-6	6	2,5	10
Z-PS-POS-803-7	7	2,5	10
Z-PS-POS-803-8	8	2,5	10
Z-PS-POS-803-10	10	2,5	10
Z-PS-POS-803-12	12	2,5	10

1.5.3.35 Alkyl-OH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-804-1	1	5	10
Z-PS-POS-804-2	2	5	10
Z-PS-POS-804-3	3	5	10
Z-PS-POS-804-4	4	5	10
Z-PS-POS-804-5	5	5	10
Z-PS-POS-804-6	6	5	10
Z-PS-POS-804-7	7	5	10
Z-PS-POS-804-8	8	5	10
Z-PS-POS-804-10	10	5	10
Z-PS-POS-804-12	12	5	10

1.5.3.36 Aryl-OH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-805-1	1	5	10
Z-PS-POS-805-2	2	5	10
Z-PS-POS-805-3	3	5	10
Z-PS-POS-805-4	4	5	10
Z-PS-POS-805-5	5	5	10
Z-PS-POS-805-6	6	5	10
Z-PS-POS-805-7	7	5	10
Z-PS-POS-805-8	8	5	10
Z-PS-POS-805-10	10	5	10
Z-PS-POS-805-12	12	5	10

1.5.3.37 Au

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-806-1	1	2,5	10
Z-PS-POS-806-2	2	2,5	10
Z-PS-POS-806-3	3	2,5	10
Z-PS-POS-806-4	4	2,5	10
Z-PS-POS-806-5	5	2,5	10
Z-PS-POS-806-6	6	2,5	10
Z-PS-POS-806-7	7	2,5	10
Z-PS-POS-806-8	8	2,5	10
Z-PS-POS-806-10	10	2,5	10
Z-PS-POS-806-12	12	2,5	10

1.5.3.38 Amino (NH_2)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-807-1	1	5	10
Z-PS-POS-807-2	2	5	10
Z-PS-POS-807-3	3	5	10
Z-PS-POS-807-4	4	5	10
Z-PS-POS-807-5	5	5	10
Z-PS-POS-807-6	6	5	10
Z-PS-POS-807-7	7	5	10
Z-PS-POS-807-8	8	5	10
Z-PS-POS-807-10	10	5	10
Z-PS-POS-807-12	12	5	10

1.5.3.39 Avidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-808-1	1	2,5	5
Z-PS-POS-808-2	2	2,5	5
Z-PS-POS-808-3	3	2,5	5
Z-PS-POS-808-4	4	2,5	5
Z-PS-POS-808-5	5	2,5	5
Z-PS-POS-808-6	6	2,5	5
Z-PS-POS-808-7	7	2,5	5
Z-PS-POS-808-8	8	2,5	5
Z-PS-POS-808-10	10	2,5	5
Z-PS-POS-808-12	12	2,5	5

1.5.3.40 C18

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-809-1	1	5	10
Z-PS-POS-809-2	2	5	10
Z-PS-POS-809-3	3	5	10
Z-PS-POS-809-4	4	5	10
Z-PS-POS-809-5	5	5	10
Z-PS-POS-809-6	6	5	10
Z-PS-POS-809-7	7	5	10
Z-PS-POS-809-8	8	5	10
Z-PS-POS-809-10	10	5	10
Z-PS-POS-809-12	12	5	10

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1.5.3.41 C8

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-810-1	1	5	10
Z-PS-POS-810-2	2	5	10
Z-PS-POS-810-3	3	5	10
Z-PS-POS-810-4	4	5	10
Z-PS-POS-810-5	5	5	10
Z-PS-POS-810-6	6	5	10
Z-PS-POS-810-7	7	5	10
Z-PS-POS-810-8	8	5	10
Z-PS-POS-810-10	10	5	10
Z-PS-POS-810-12	12	5	10

1.5.3.42 C8C18

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-811-1	1	5	10
Z-PS-POS-811-2	2	5	10
Z-PS-POS-811-3	3	5	10
Z-PS-POS-811-4	4	5	10
Z-PS-POS-811-5	5	5	10
Z-PS-POS-811-6	6	5	10
Z-PS-POS-811-7	7	5	10
Z-PS-POS-811-8	8	5	10
Z-PS-POS-811-10	10	5	10
Z-PS-POS-811-12	12	5	10

1.5.3.43 Carboxyl (COOH)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-812-0,1	0,1	2,5	10
Z-PS-POS-812-0,2	0,2	5	10
Z-PS-POS-812-0,5	0,5	5	10
Z-PS-POS-812-0,8	0,8	5	10
Z-PS-POS-812-1	1	5	10
Z-PS-POS-812-2	2	5	10
Z-PS-POS-812-3	3	5	10
Z-PS-POS-812-4	4	5	10
Z-PS-POS-812-5	5	5	10
Z-PS-POS-812-6	6	5	10
Z-PS-POS-812-7	7	5	10
Z-PS-POS-812-8	8	5	10
Z-PS-POS-812-10	10	5	10
Z-PS-POS-812-12	12	5	10

1.5.3.44 Chitosan

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-813-1	1	2,5	10
Z-PS-POS-813-2	2	2,5	10
Z-PS-POS-813-3	3	2,5	10
Z-PS-POS-813-4	4	2,5	10
Z-PS-POS-813-5	5	2,5	10
Z-PS-POS-813-6	6	2,5	10
Z-PS-POS-813-7	7	2,5	10
Z-PS-POS-813-8	8	2,5	10
Z-PS-POS-813-10	10	2,5	10
Z-PS-POS-813-12	12	2,5	10

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1.5.3.45 Collagen

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-814-1	1	2,5	5
Z-PS-POS-814-2	2	2,5	5
Z-PS-POS-814-3	3	2,5	5
Z-PS-POS-814-4	4	2,5	5
Z-PS-POS-814-5	5	2,5	5
Z-PS-POS-814-6	6	2,5	5
Z-PS-POS-814-7	7	2,5	5
Z-PS-POS-814-8	8	2,5	5
Z-PS-POS-814-10	10	2,5	5
Z-PS-POS-814-12	12	2,5	5

1.5.3.46 NR^{3+}

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-815-1	1	5	10
Z-PS-POS-815-2	2	5	10
Z-PS-POS-815-3	3	5	10
Z-PS-POS-815-4	4	5	10
Z-PS-POS-815-5	5	5	10
Z-PS-POS-815-6	6	5	10
Z-PS-POS-815-7	7	5	10
Z-PS-POS-815-8	8	5	10
Z-PS-POS-815-10	10	5	10
Z-PS-POS-815-12	12	5	10

1.5.3.47 PEG 300

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-816-1	1	5	10
Z-PS-POS-816-2	2	5	10
Z-PS-POS-816-3	3	5	10
Z-PS-POS-816-4	4	5	10
Z-PS-POS-816-5	5	5	10
Z-PS-POS-816-6	6	5	10
Z-PS-POS-816-7	7	5	10
Z-PS-POS-816-8	8	5	10
Z-PS-POS-816-10	10	5	10
Z-PS-POS-816-12	12	5	10

1.5.3.48 Protein A

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-817-1	1	2,5	1
Z-PS-POS-817-2	2	2,5	1
Z-PS-POS-817-3	3	2,5	1
Z-PS-POS-817-4	4	2,5	1
Z-PS-POS-817-5	5	2,5	1
Z-PS-POS-817-6	6	2,5	1
Z-PS-POS-817-7	7	2,5	1
Z-PS-POS-817-8	8	2,5	1
Z-PS-POS-817-10	10	2,5	1
Z-PS-POS-817-12	12	2,5	1

1.5.3.49 Streptavidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-818-1	1	2,5	1
Z-PS-POS-818-2	2	2,5	1
Z-PS-POS-818-3	3	2,5	1
Z-PS-POS-818-4	4	2,5	1
Z-PS-POS-818-5	5	2,5	1
Z-PS-POS-818-6	6	2,5	1
Z-PS-POS-818-7	7	2,5	1
Z-PS-POS-818-8	8	2,5	1
Z-PS-POS-818-10	10	2,5	1
Z-PS-POS-818-12	12	2,5	1

1.5.3.50 Epoxy

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-819-1	1	5	10
Z-PS-POS-819-2	2	5	10
Z-PS-POS-819-3	3	5	10
Z-PS-POS-819-4	4	5	10
Z-PS-POS-819-5	5	5	10
Z-PS-POS-819-6	6	5	10
Z-PS-POS-819-7	7	5	10
Z-PS-POS-819-8	8	5	10
Z-PS-POS-819-10	10	5	10
Z-PS-POS-819-12	12	5	10

1.5.3.51 Lys

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-820-1	1	5	10
Z-PS-POS-820-2	2	5	10
Z-PS-POS-820-3	3	5	10
Z-PS-POS-820-4	4	5	10
Z-PS-POS-820-5	5	5	10
Z-PS-POS-820-6	6	5	10
Z-PS-POS-820-7	7	5	10
Z-PS-POS-820-8	8	5	10
Z-PS-POS-820-10	10	5	10
Z-PS-POS-820-12	12	5	10

1.5.3.52 Ni-NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-821-1	1	5	10
Z-PS-POS-821-2	2	5	10
Z-PS-POS-821-3	3	5	10
Z-PS-POS-821-4	4	5	10
Z-PS-POS-821-5	5	5	10
Z-PS-POS-821-6	6	5	10
Z-PS-POS-821-7	7	5	10
Z-PS-POS-821-8	8	5	10
Z-PS-POS-821-10	10	5	10
Z-PS-POS-821-12	12	5	10

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1.5.3.53 NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-822-1	1	5	10
Z-PS-POS-822-2	2	5	10
Z-PS-POS-822-3	3	5	10
Z-PS-POS-822-4	4	5	10
Z-PS-POS-822-5	5	5	10
Z-PS-POS-822-6	6	5	10
Z-PS-POS-822-7	7	5	10
Z-PS-POS-822-8	8	5	10
Z-PS-POS-822-10	10	5	10
Z-PS-POS-822-12	12	5	10

1.5.3.54 Pd

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-823-1	1	2,5	10
Z-PS-POS-823-2	2	2,5	10
Z-PS-POS-823-3	3	2,5	10
Z-PS-POS-823-4	4	2,5	10
Z-PS-POS-823-5	5	2,5	10
Z-PS-POS-823-6	6	2,5	10
Z-PS-POS-823-7	7	2,5	10
Z-PS-POS-823-8	8	2,5	10
Z-PS-POS-823-10	10	2,5	10
Z-PS-POS-823-12	12	2,5	10

1.5.3.55 SiO_2

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-824-1	1	5	10
Z-PS-POS-824-2	2	5	10
Z-PS-POS-824-3	3	5	10
Z-PS-POS-824-4	4	5	10
Z-PS-POS-824-5	5	5	10
Z-PS-POS-824-6	6	5	10
Z-PS-POS-824-7	7	5	10
Z-PS-POS-824-8	8	5	10
Z-PS-POS-824-10	10	5	10
Z-PS-POS-824-12	12	5	10

1.5.3.56 SO_3H

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-825-0,1	0,1	2,5	10
Z-PS-POS-825-0,2	0,2	5	10
Z-PS-POS-825-0,5	0,5	5	10
Z-PS-POS-825-0,8	0,8	5	10
Z-PS-POS-825-1	1	5	10
Z-PS-POS-825-2	2	5	10
Z-PS-POS-825-3	3	5	10
Z-PS-POS-825-4	4	5	10
Z-PS-POS-825-5	5	5	10
Z-PS-POS-825-6	6	5	10
Z-PS-POS-825-7	7	5	10
Z-PS-POS-825-8	8	5	10
Z-PS-POS-825-10	10	5	10
Z-PS-POS-825-12	12	5	10

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1.5.4 Without surface functionality

1.5.4.1 Polystyrene Particle Standards (NIST-, BCR-Traceable)

These white standard particles are calibrated with NIST or BCR. The size determination is done by transmission electron microscopy, scanning electron microscopy, photon correlation spectroscopy (PCS), optical microscopy or with COULTER COUNTER® with the HDF. Every particle size will be delivered with a certificate of examination. They are packaged as aqueous suspensions in dropper-tipped bottles. The concentrations are optimized for ease of dispersion and colloidal stability. The Standards are ideal for the calibration of electron and atomic force microscopes. They are also used in laser light-scattering studies and colloidal systems research. The 20 to 1000 nm range of diameters is convenient for checking the sizes of bacteria, viruses, ribosomes and sub-cellular components. Polymer particles from 1 to 160 µm are packaged as aqueous suspensions in dropper-tipped bottles, at an optimum concentration for dispersion, handling and dilution. Diameters of 200 µm and larger are packaged as dry particles, and are composed of polystyrene or other polymers.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-POS-000-0,02	0,021			1	15
Z-PS-POS-000-0,03	0,034			1	15
Z-PS-POS-000-0,04	0,041			1	15
Z-PS-POS-000-0,05	0,050	0,0067	13,4	1	15
Z-PS-POS-000-0,06	0,060	0,0074	12,3	1	15
Z-PS-POS-000-0,07	0,073	0,0057	7,8	1	15
Z-PS-POS-000-0,08	0,081	0,0058	7,2	1	15
Z-PS-POS-000-0,09	0,096	0,0070	7	1	15
Z-PS-POS-000-0,1	0,102	0,0076	7,5	1	15
Z-PS-POS-000-0,125	0,125	0,0044	3,5	1	15
Z-PS-POS-000-0,15	0,152	0,0031	2,1	1	15
Z-PS-POS-000-0,2	0,199	0,0034	1,7	1	15
Z-PS-POS-000-0,22	0,220	0,0035	1,6	1	15
Z-PS-POS-000-0,24	0,240	0,0033	1,4	1	15
Z-PS-POS-000-0,27	0,269	0,0049	1,8	1	15
Z-PS-POS-000-0,3	0,300	0,0043	1,4	1	15
Z-PS-POS-000-0,35	0,343	0,0035	1,0	1	15
Z-PS-POS-000-0,4	0,404	0,0059	1,5	1	15
Z-PS-POS-000-0,45	0,453	0,0063	1,4	1	15
Z-PS-POS-000-0,5	0,491	0,0063	1,3	1	15
Z-PS-POS-000-0,6	0,596	0,0077	1,3	1	15
Z-PS-POS-000-0,7	0,701	0,0090	1,3	1	15
Z-PS-POS-000-0,8	0,802	0,0096	1,2	1	15
Z-PS-POS-000-0,9	0,895	0,0091	1,0	1	15
Z-PS-POS-000-1	0,993	0,010	1,0	1	15
Z-PS-POS-000-1,3	1,361	0,027	1,5	1	15
Z-PS-POS-000-1,6	1,588	0,016	1,0	1	15
Z-PS-POS-000-1,7	1,745	0,019	1,1	1	15
Z-PS-POS-000-2	2,013	0,022	1,1	0,5	15
Z-PS-POS-000-2,5	2,504	0,025	1,0	0,5	15
Z-PS-POS-000-3	3,063	0,03	1,0	0,5	15
Z-PS-POS-000-4	4,000	0,04	1,0	0,4	15
Z-PS-POS-000-5	5,030	0,05	1,0	0,3	15
Z-PS-POS-000-6	5,990	0,07	1,2	0,3	15
Z-PS-POS-000-7	6,992	0,07	1,0	0,3	15
Z-PS-POS-000-8	7,979	0,09	1,1	0,3	15
Z-PS-POS-000-9	8,956	0,09	1,0	0,3	15
Z-PS-POS-000-10	9,975	0,09	0,9	0,2	15
Z-PS-POS-000-12	12,01	0,12	1,0	0,3	15
Z-PS-POS-000-15	15,02	0,15	1,0	0,3	15
Z-PS-POS-000-20	20,00	0,2	1,0	0,3	15

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volume (mL)
Z-PS-POS-000-25	25,09	0,38	1,5	0,5	15
Z-PS-POS-000-30	30,10	0,45	1,5	0,6	15
Z-PS-POS-000-40	40,25	0,6	1,5	0,7	15
Z-PS-POS-000-50	49,1	0,7	1,4	1,4	15
Z-PS-POS-000-60	59,8	2,0	3,3	1,2	15
Z-PS-POS-000-70	68,0	3,2	4,7	1,7	15
Z-PS-POS-000-80	79,6	0,8	1,0	1,8	15
Z-PS-POS-000-100	100	1,6	1,6	2,2	15
Z-PS-POS-000-115	114	1,6	1,4	2,6	15
Z-PS-POS-000-140	138	2,2	1,6	4	15
Z-PS-POS-000-160	160	2,4	1,5	5	15

Article	Ø µm	Std. Dev.	CV (%)		Amount
Z-PS-POS-000-200	200	5,2	2,6		1 g
Z-PS-POS-000-240	241	9,2	3,8		1 g
Z-PS-POS-000-280	279	13,0	4,8		1 g
Z-PS-POS-000-300	302	12,4	4,1		1 g
Z-PS-POS-000-400	400	15,2	3,8		1 g
Z-PS-POS-000-500	497	24,0	4,8		1 g
Z-PS-POS-000-550	548	27,0	4,9		1 g
Z-PS-POS-000-650	646	24,8	3,8		1 g
Z-PS-POS-000-750	773	33,3	4,3		1 g
Z-PS-POS-000-1000	1004	40,4	4,0		1 g

1.5.4.2 Polystyrene Particle Standards with 5 % Solids

Monodisperse polystyrene copolymer composite. Stable in aqueous buffers, methanol, ethanol, DMSO; Not stable in halogenated hydrocarbons, toluene, strong acidic solutions. Inorganic, biomolecule, protein and polysaccharide coating possible (see 1.6.3.42 ff). Packaged in a bottle with a quantity of 10 mL.

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-POS-800-0,1	0,1	2,5	10
Z-PS-POS-800-0,2	0,2	5	10
Z-PS-POS-800-0,5	0,5	5	10
Z-PS-POS-800-0,8	0,8	5	10
Z-PS-POS-800-1	1	5	10
Z-PS-POS-800-2	2	5	10
Z-PS-POS-800-3	3	5	10
Z-PS-POS-800-4	4	5	10
Z-PS-POS-800-5	5	5	10
Z-PS-POS-800-6	6	5	10
Z-PS-POS-800-7	7	5	10
Z-PS-POS-800-8	8	5	10
Z-PS-POS-800-10	10	5	10
Z-PS-POS-800-12	12	5	10

1.5.4.3 Polystyrene Particle Standards with 10 % Solids

To trace the particle size, the size distribution and to characterize the electrical and chemical surface properties of these polymer particles the following methods are used.

Transmission electron microscopy, scanning electron microscopy, light microscopy, coulter counter, conductometry/potentiometry, zeta-potential measurement, FTIR, ESCA, BET and contact angle measurement.

Article	Ø µm	Std. Dev.	CV (%)	Solids (%)	Volumen (mL)
Z-PS-POS-500-0,10	0,1	0,03		10	15
Z-PS-POS-500-0,15	1,15	0,02		10	15
Z-PS-POS-500-0,17	0,165	0,03		10	15
Z-PS-POS-500-0,20	0,195	0,02		10	15
Z-PS-POS-500-0,21	0,21	0,01		10	15
Z-PS-POS-500-0,24	0,235	0,01		10	15
Z-PS-POS-500-0,27	0,27	0,01		10	15
Z-PS-POS-500-0,35	0,35	0,035		10	15
Z-PS-POS-500-0,37	0,365	0,03		10	15
Z-PS-POS-500-0,38	0,38	0,04		10	15
Z-PS-POS-500-0,42	0,42	0,04		10	15
Z-PS-POS-500-0,54	0,54	0,03		10	15
Z-PS-POS-500-0,55	0,55	0,02		10	15
Z-PS-POS-500-0,72	0,725	0,08		10	15
Z-PS-POS-500-0,75	0,75	0,03		10	15
Z-PS-POS-500-0,80	0,793	0,02		10	15
Z-PS-POS-500-1,0	1,04	0,04	3,4	10	15
Z-PS-POS-500-1,3	1,3	0,04	3,1	10	15
Z-PS-POS-500-1,5	1,51	0,03	2	10	15
Z-PS-POS-500-1,7	1,71	0,03	1,8	10	15
Z-PS-POS-500-2,0	1,99	0,04	1,7	10	15
Z-PS-POS-500-2,3	2,35	0,05	2	10	15
Z-PS-POS-500-3,0	3,04	0,06	2,1	10	15
Z-PS-POS-500-4,0	4,06	0,07	1,6	10	15
Z-PS-POS-500-5,3	5,33	0,08	1,5	10	15
Z-PS-POS-500-5,4	5,44	0,09	1,6	10	15
Z-PS-POS-500-5,8	5,85	0,1	1,7	10	15
Z-PS-POS-500-6,2	6,17	0,08	1,3	10	15
Z-PS-POS-500-6,3	6,3	0,09	1,4	10	15
Z-PS-POS-500-6,8	6,84	0,09	1,4	10	15
Z-PS-POS-500-7,8	7,79	0,11	1,4	10	15
Z-PS-POS-500-7,9	7,88	0,1	1,2	10	15
Z-PS-POS-500-8,5	8,49	0,07	0,9	10	15
Z-PS-POS-500-8,6	8,57	0,1	1,1	10	15
Z-PS-POS-500-9,3	9,32	0,08	0,9	10	15
Z-PS-POS-500-10,2	10,18	0,08	0,8	10	15

1.5.5 Polyelectrolyte Capsules

Please request for further information.

1.5.6 Templates

Monodisperse acid-soluble melamine resin particles with a size range from 1 to 10 µm. Please request for further information.

2 INORGANIC PARTICLES

2.1 BOROSILICATE GLASS

Small borosilicate glass microspheres have fewer spherical imperfections and inclusions than other glass microspheres. They also have a better tolerance to chemicals and solvents in addition to higher mechanical and thermal stability. This series has been calibrated with NIST traceable methods of optical microscopy. They are packaged as 1 g of dry spheres. The borosilicate spheres have a density of 2.50-2.55 g/cm^3 and an index of refractive of 1.56 @ 589 nm (23°C).

Article	Ø µm	Certified Mean Ø (µm)	Std. Dev.	cv (%)	Amount
Z-PS-BSL-000-2	2	2,5 ± 0,5	1,0	40	1 g
Z-PS-BSL-000-5	5	5,0 ± 0,5	0,7	14	1 g
Z-PS-BSL-000-8	8	8,0 ± 0,8	0,9	11	1 g
Z-PS-BSL-000-10	10	10,0 ± 1,0	1,4	14	1 g
Z-PS-BSL-000-15	15	14,5 ± 1,0	1,7	12	1 g
Z-PS-BSL-000-20	20	20,3 ± 1,4	1,9	9,4	1 g

2.2 CARBIDE PARTICLES

Article	Ø µm	Description	Specific Gravity (g/mL)
Z-PS-SCP-000-0,7	0,7-7,0	Silicone Carbide Particles	3,2

2.3 CARBONATE PARTICLES

Article	Ø µm	Description	Specific Gravity (g/mL)
Z-PS-CCP-000-0,1	0,1-8,0	Calcium Carbonate Particles	2,7

2.4 GLASS PARTICLES

2.4.1 Without surface functionality

2.4.1.1 Monodisperse NIST Traceable

Article	Size (µm)	Weight (g)
Z-PS-GLA-000-22	22,81	0,1
Z-PS-GLA-000-25	25,6	0,1
Z-PS-GLA-000-28	28,41	0,2
Z-PS-GLA-000-31	31,33	0,2
Z-PS-GLA-000-35	35,65	0,2
Z-PS-GLA-000-37	37,36	0,2
Z-PS-GLA-000-38	38,38	0,2
Z-PS-GLA-000-40	40,15	0,2
Z-PS-GLA-000-42	42,68	0,2
Z-PS-GLA-000-49	49,21	0,2
Z-PS-GLA-000-52	52,47	0,2
Z-PS-GLA-000-56	56,28	0,2
Z-PS-GLA-000-59	59,63	0,2
Z-PS-GLA-000-63	63,84	0,2
Z-PS-GLA-000-65	65,02	0,2
Z-PS-GLA-000-66	66,3	0,2
Z-PS-GLA-000-70	70,89	0,2
Z-PS-GLA-000-73	73,83	0,2
Z-PS-GLA-000-76	76,39	0,2
Z-PS-GLA-000-83	83,42	0,2
Z-PS-GLA-000-89	89,8	0,2
Z-PS-GLA-000-91	91,21	0,2
Z-PS-GLA-000-98	98,1	0,2
Z-PS-GLA-000-103	103,3	0,3

Article	Size (µm)	Weight (g)
Z-PS-GLA-000-106	106,2	0,3
Z-PS-GLA-000-114	114,4	0,3
Z-PS-GLA-000-127	127,5	0,3
Z-PS-GLA-000-155	155,8	0,3
Z-PS-GLA-000-177	177,0	0,3
Z-PS-GLA-000-180	180,0	0,3
Z-PS-GLA-000-192	192,6	0,4
Z-PS-GLA-000-197	197,3	0,4
Z-PS-GLA-000-200	200,9	0,4
Z-PS-GLA-000-210	210,0	0,4
Z-PS-GLA-000-224	224,8	0,4
Z-PS-GLA-000-236	236,2	0,5
Z-PS-GLA-000-258	258,6	0,6
Z-PS-GLA-000-268	268,5	0,6
Z-PS-GLA-000-292	292,5	0,8
Z-PS-GLA-000-297	297,9	0,8
Z-PS-GLA-000-304	304,6	0,8
Z-PS-GLA-000-315	315,3	1,0
Z-PS-GLA-000-361	361,6	1,0
Z-PS-GLA-000-405	405,9	1,5
Z-PS-GLA-000-451	451,0	2,0
Z-PS-GLA-000-555	555,0	2,5
Z-PS-GLA-000-589	589,0	3,0

2.4.1.2 Polydisperse NIST traceable

Article	Size (µm)	Amount (g)
Z-PS-GLA-001-1-10	1-10	0,025
Z-PS-GLA-001-1-10	1-10	0,05
Z-PS-GLA-001-1-10	1-10	0,1
Z-PS-GLA-001-1-10	1-10	0,25
Z-PS-GLA-001-1-10	1-10	0,5
Z-PS-GLA-001-3-30	3-30	0,025
Z-PS-GLA-001-3-30	3-30	0,05
Z-PS-GLA-001-3-30	3-30	0,1
Z-PS-GLA-001-3-30	3-30	25
Z-PS-GLA-001-3-30	3-30	0,5
Z-PS-GLA-001-3-30	3-30	1
Z-PS-GLA-001-10-100	10-100	0,05
Z-PS-GLA-001-10-100	10-100	0,1
Z-PS-GLA-001-10-100	10-100	0,25
Z-PS-GLA-001-10-100	10-100	0,5
Z-PS-GLA-001-10-100	10-100	1
Z-PS-GLA-001-50-350	50-350	0,1
Z-PS-GLA-001-50-350	50-350	0,25
Z-PS-GLA-001-50-350	50-350	0,5
Z-PS-GLA-001-50-350	50-350	1
Z-PS-GLA-001-50-350	50-350	2,5
Z-PS-GLA-001-50-350	50-350	5
Z-PS-GLA-001-150-650	150-650	0,25
Z-PS-GLA-001-150-650	150-650	0,5
Z-PS-GLA-001-150-650	150-650	1
Z-PS-GLA-001-150-650	150-650	2,5
Z-PS-GLA-001-150-650	150-650	5
Z-PS-GLA-001-150-650	150-650	10

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2.5 SILICA PARTICLES

2.5.1 Dyed

2.5.1.1 Blue (Nile Blue A; Reactive Blue)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-000-0,3B	0,3	5	10
Z-PS-SIL-000-0,5B	0,5	5	10
Z-PS-SIL-000-0,8B	0,8	5	10
Z-PS-SIL-000-1B	1	5	10
Z-PS-SIL-000-1,5B	1,5	5	10
Z-PS-SIL-000-3B	3	5	10
Z-PS-SIL-000-4B	4,0	5	10
Z-PS-SIL-000-5B	5	5	10
Z-PS-SIL-000-10B	10	5	10
Z-PS-SIL-000-12B	12	5	10
Z-PS-SIL-000-15B	15	5	10
Z-PS-SIL-000-20B	20	5	10

2.5.1.2 Red (Reactive Red)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-000-0,3R	0,3	5	10
Z-PS-SIL-000-0,5R	0,5	5	10
Z-PS-SIL-000-0,8R	0,8	5	10
Z-PS-SIL-000-1R	1	5	10
Z-PS-SIL-000-1,5R	1,5	5	10
Z-PS-SIL-000-3R	3	5	10
Z-PS-SIL-000-4R	4,0	5	10
Z-PS-SIL-000-5R	5	5	10
Z-PS-SIL-000-10R	10	5	10
Z-PS-SIL-000-12R	12	5	10
Z-PS-SIL-000-15R	15	5	10
Z-PS-SIL-000-20R	20	5	10

2.5.2 Fluorescent

2.5.2.1 Red (Rhodamin B) / Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-RFP-0,07	0,07	2,5	10
Z-PS-SIL-RFP-0,1	0,1	5	10
Z-PS-SIL-RFP-0,2	0,2	5	10
Z-PS-SIL-RFP-0,3	0,3	5	10
Z-PS-SIL-RFP-0,5	0,5	5	10
Z-PS-SIL-RFP-0,8	0,8	5	10
Z-PS-SIL-RFP-1	1	5	10
Z-PS-SIL-RFP-1,5	1,5	5	10

2.5.2.2 Blue (DAPI) / Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-BFP-0,07	0,07	2,5	10
Z-PS-SIL-BFP-0,2	0,2	5	10
Z-PS-SIL-BFP-0,3	0,3	5	10
Z-PS-SIL-BFP-0,5	0,5	5	10
Z-PS-SIL-BFP-0,8	0,8	5	10
Z-PS-SIL-BFP-1	1	5	10

2.5.2.3 Green (Fluorescein) / Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-GFP-0,07	0,07	2,5	10
Z-PS-SIL-GFP-0,1	0,1	5	10
Z-PS-SIL-GFP-0,2	0,2	5	10
Z-PS-SIL-GFP-0,3	0,3	5	10
Z-PS-SIL-GFP-0,5	0,5	5	10
Z-PS-SIL-GFP-0,8	0,8	5	10
Z-PS-SIL-GFP-1	1	5	10
Z-PS-SIL-GFP-1,5	1,5	5	10

2.5.2.4 Red (Rhodamin B) / Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-RFC-0,07	0,07	2,5	10
Z-PS-SIL-RFC-0,2	0,2	2,5	10
Z-PS-SIL-RFC-0,3	0,3	5	10
Z-PS-SIL-RFC-0,5	0,5	5	10
Z-PS-SIL-RFC-0,8	0,8	5	10
Z-PS-SIL-RFC-1	1	5	10
Z-PS-SIL-RFC-1,5	1,5	5	10
Z-PS-SIL-RFC-3	3	5	10
Z-PS-SIL-RFC-4	4	5	10
Z-PS-SIL-RFC-5	5	5	10
Z-PS-SIL-RFC-10	10	5	10
Z-PS-SIL-RFC-12	12	5	10
Z-PS-SIL-RFC-15	15	5	10
Z-PS-SIL-RFC-20	20	5	10

2.5.2.5 Blue (DAPI) / Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-BFC-0,2	0,2	2,5	10
Z-PS-SIL-BFC-0,3	0,3	5	10
Z-PS-SIL-BFC-0,5	0,5	5	10
Z-PS-SIL-BFC-0,8	0,8	5	10
Z-PS-SIL-BFC-1	1	5	10
Z-PS-SIL-BFC-1,5	1,5	5	10
Z-PS-SIL-BFC-3	3	5	10
Z-PS-SIL-BFC-4	4	5	10
Z-PS-SIL-BFC-5	5	5	10
Z-PS-SIL-BFC-10	10	5	10
Z-PS-SIL-BFC-12	12	5	10
Z-PS-SIL-BFC-15	15	5	10
Z-PS-SIL-BFC-20	20	5	10

2.5.2.6 Green (Fluorescein) / Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-GFC-0,2	0,2	2,5	10
Z-PS-SIL-GFC-0,3	0,3	5	10
Z-PS-SIL-GFC-0,5	0,5	5	10
Z-PS-SIL-GFC-0,8	0,8	5	10
Z-PS-SIL-GFC-1	1	5	10
Z-PS-SIL-GFC-1,5	1,5	5	10
Z-PS-SIL-GFC-3	3	5	10
Z-PS-SIL-GFC-4	4	5	10
Z-PS-SIL-GFC-5	5	5	10
Z-PS-SIL-GFC-10	10	5	10
Z-PS-SIL-GFC-12	12	5	10
Z-PS-SIL-GFC-15	15	5	10
Z-PS-SIL-GFC-20	20	5	10

2.5.2.7 Red (Rhodamin B) / Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-RFA-0,07	0,07	2,5	10
Z-PS-SIL-RFA-0,2	0,2	5	10
Z-PS-SIL-RFA-0,3	0,3	5	10
Z-PS-SIL-RFA-0,5	0,5	5	10
Z-PS-SIL-RFA-0,8	0,8	5	10
Z-PS-SIL-RFA-1	1	5	10
Z-PS-SIL-RFA-1,5	1,5	5	10
Z-PS-SIL-RFA-3	3	5	10
Z-PS-SIL-RFA-4	4	5	10
Z-PS-SIL-RFA-5	5	5	10
Z-PS-SIL-RFA-10	10	5	10
Z-PS-SIL-RFA-12	12	5	10
Z-PS-SIL-RFA-15	15	5	10
Z-PS-SIL-RFA-20	20	5	10

2.5.2.8 Blue (DAPI) / Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-BFA-0,2	0,2	2,5	10
Z-PS-SIL-BFA-0,3	0,3	5	10
Z-PS-SIL-BFA-0,5	0,5	5	10
Z-PS-SIL-BFA-0,8	0,8	5	10
Z-PS-SIL-BFA-1	1	5	10
Z-PS-SIL-BFA-1,5	1,5	5	10
Z-PS-SIL-BFA-4	4	5	10
Z-PS-SIL-BFA-5	5	5	10
Z-PS-SIL-BFA-10	10	5	10
Z-PS-SIL-BFA-12	12	5	10
Z-PS-SIL-BFA-15	15	5	10
Z-PS-SIL-BFA-20	20	5	10

2.5.2.9 Green (Fluorescein) / Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-GFA-0,2	0,2	2,5	10
Z-PS-SIL-GFA-0,3	0,3	5	10
Z-PS-SIL-GFA-0,5	0,5	5	10
Z-PS-SIL-GFA-0,8	0,8	5	10
Z-PS-SIL-GFA-1	1	5	10
Z-PS-SIL-GFA-1,5	1,5	5	10
Z-PS-SIL-GFA-3	3	5	10
Z-PS-SIL-GFA-4	4	5	10
Z-PS-SIL-GFA-5	5	5	10
Z-PS-SIL-GFA-10	10	5	10
Z-PS-SIL-GFA-12	12	5	10
Z-PS-SIL-GFA-15	15	5	10
Z-PS-SIL-GFA-20	20	5	10

2.5.3 Functional Groups

2.5.3.1 Albumin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-001-0,3	0,3	2,5	10
Z-PS-SIL-001-0,5	0,5	2,5	10
Z-PS-SIL-001-0,8	0,8	2,5	10
Z-PS-SIL-001-1	1	2,5	10
Z-PS-SIL-001-1,5	1,5	2,5	10
Z-PS-SIL-001-3	3	2,5	10
Z-PS-SIL-001-4	4	2,5	10
Z-PS-SIL-001-5	5	2,5	10
Z-PS-SIL-001-10	10	2,5	10

Z-PS-SIL-001-12	12	2,5	10
Z-PS-SIL-001-15	15	2,5	10
Z-PS-SIL-001-20	20	2,5	10

2.5.3.2 Aldehyde

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-002-0,3	0,3	5	10
Z-PS-SIL-002-0,5	0,5	5	10
Z-PS-SIL-002-0,8	0,8	5	10
Z-PS-SIL-002-1	1	5	10
Z-PS-SIL-002-1,5	1,5	5	10
Z-PS-SIL-002-3	3	5	10
Z-PS-SIL-002-4	4	5	10
Z-PS-SIL-002-5	5	5	10
Z-PS-SIL-002-10	10	5	10
Z-PS-SIL-002-12	12	5	10
Z-PS-SIL-002-15	15	5	10
Z-PS-SIL-002-20	20	5	10

2.5.3.3 Aluminiumoxide

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-003-0,3	0,3	2,5	10
Z-PS-SIL-003-0,4	0,4	2,5	10
Z-PS-SIL-003-0,5	0,5	2,5	10
Z-PS-SIL-003-0,8	0,8	2,5	10

2.5.3.4 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-004-0,07	0,07	2,5	10
Z-PS-SIL-004-0,1	0,1	2,5	10
Z-PS-SIL-004-0,2	0,2	5	10
Z-PS-SIL-004-0,3	0,3	5	10
Z-PS-SIL-004-0,5	0,5	5	10
Z-PS-SIL-004-0,8	0,8	5	10
Z-PS-SIL-004-1	1	5	10
Z-PS-SIL-004-1,5	1,5	5	10
Z-PS-SIL-004-3	3	5	10
Z-PS-SIL-004-4	4	5	10
Z-PS-SIL-004-5	5	5	10
Z-PS-SIL-004-10	10	5	10
Z-PS-SIL-004-12	12	5	10
Z-PS-SIL-004-15	15	5	10
Z-PS-SIL-004-20	20	5	10

2.5.3.5 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-005-0,07	0,07	2,5	10
Z-PS-SIL-005-0,2	0,2	5	10
Z-PS-SIL-005-0,3	0,35	5	10
Z-PS-SIL-005-0,5	0,5	5	10
Z-PS-SIL-005-0,8	0,8	5	10
Z-PS-SIL-005-1	1	5	10
Z-PS-SIL-005-1,5	1,5	5	10
Z-PS-SIL-005-3	3	5	10
Z-PS-SIL-005-4	4	5	10
Z-PS-SIL-005-5	5	5	10
Z-PS-SIL-005-10	10	5	10
Z-PS-SIL-005-12	12	5	10
Z-PS-SIL-005-15	15	5	10
Z-PS-SIL-005-20	20	5	10

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2.5.3.6 DTPA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-006-0,3	0,3	5	10
Z-PS-SIL-006-0,5	0,5	5	10
Z-PS-SIL-006-0,8	0,8	5	10
Z-PS-SIL-006-1	1	5	10
Z-PS-SIL-006-1,5	1,5	5	10
Z-PS-SIL-006-3	3	5	10
Z-PS-SIL-006-4	4	5	10
Z-PS-SIL-006-5	5	5	10
Z-PS-SIL-006-10	10	5	10
Z-PS-SIL-006-12	12	5	10
Z-PS-SIL-006-15	15	5	10
Z-PS-SIL-006-20	20	5	10

2.5.3.7 EDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-007-0,3	0,3	5	10
Z-PS-SIL-007-0,5	0,5	5	10
Z-PS-SIL-007-0,8	0,8	5	10
Z-PS-SIL-007-1	1	5	10
Z-PS-SIL-007-1,5	1,5	5	10
Z-PS-SIL-007-3	3	5	10
Z-PS-SIL-007-4	4	5	10
Z-PS-SIL-007-5	5	5	10
Z-PS-SIL-007-10	10	5	10
Z-PS-SIL-007-12	12	5	10
Z-PS-SIL-007-15	15	5	10
Z-PS-SIL-007-20	20	5	10

2.5.3.8 Epoxy

Article	Ø µm	Solids (%)	Amount (g))
Z-PS-SIL-008-0,3	0,3	5	0,1
Z-PS-SIL-008-0,5	0,5	5	0,1
Z-PS-SIL-008-0,8	0,8	5	0,1
Z-PS-SIL-008-1	1	5	0,1
Z-PS-SIL-008-1,5	1,5	5	0,1
Z-PS-SIL-008-3	3	5	0,1
Z-PS-SIL-008-4	4	5	0,1
Z-PS-SIL-008-5	5	5	0,1
Z-PS-SIL-008-10	10	5	0,1
Z-PS-SIL-008-12	12	5	0,1
Z-PS-SIL-008-15	15	5	0,1
Z-PS-SIL-008-20	20	5	0,1

2.5.3.9 HDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-009-0,3	0,3	5	10
Z-PS-SIL-009-0,5	0,5	5	10
Z-PS-SIL-009-0,8	0,8	5	10
Z-PS-SIL-009-1	1	5	10
Z-PS-SIL-009-1,5	1,5	5	10
Z-PS-SIL-009-3	3	5	10
Z-PS-SIL-009-4	4	5	10
Z-PS-SIL-009-5	5	5	10
Z-PS-SIL-009-10	10	5	10
Z-PS-SIL-009-12	12	5	10
Z-PS-SIL-009-15	15	5	10
Z-PS-SIL-009-20	20	5	10

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2.5.3.10 Histidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-010-0,3	0,3	5	10
Z-PS-SIL-010-0,5	0,5	5	10
Z-PS-SIL-010-0,8	0,8	5	10
Z-PS-SIL-010-1	1	5	10
Z-PS-SIL-010-1,5	1,5	5	10
Z-PS-SIL-010-3	3	5	10
Z-PS-SIL-010-4	4	5	10
Z-PS-SIL-010-5	5	5	10
Z-PS-SIL-010-10	10	5	10
Z-PS-SIL-010-12	12	5	10
Z-PS-SIL-010-15	15	5	10
Z-PS-SIL-010-20	20	5	10

2.5.3.11 NHS

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-011-0,3	0,3	5	10
Z-PS-SIL-011-0,5	0,5	5	10
Z-PS-SIL-011-0,8	0,8	5	10
Z-PS-SIL-011-1	1	5	10
Z-PS-SIL-011-1,5	1,5	5	10
Z-PS-SIL-011-3	3	5	10
Z-PS-SIL-011-4	4	5	10
Z-PS-SIL-011-5	5	5	10
Z-PS-SIL-011-10	10	5	10
Z-PS-SIL-011-12	12	5	10
Z-PS-SIL-011-15	15	5	10
Z-PS-SIL-011-20	20	5	10

2.5.3.12 NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-012-0,3	0,3	5	10
Z-PS-SIL-012-0,5	0,5	5	10
Z-PS-SIL-012-0,8	0,8	5	10
Z-PS-SIL-012-1	1	5	10
Z-PS-SIL-012-1,5	1,5	5	10
Z-PS-SIL-012-3	3	5	10
Z-PS-SIL-012-4	4	5	10
Z-PS-SIL-012-5	5	5	10
Z-PS-SIL-012-10	10	5	10
Z-PS-SIL-012-12	12	5	10
Z-PS-SIL-012-15	15	5	10
Z-PS-SIL-012-20	20	5	10

2.5.3.13 Polymyxin B

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-013-0,3	0,3	5	10
Z-PS-SIL-013-0,5	0,5	5	10
Z-PS-SIL-013-0,8	0,8	5	10
Z-PS-SIL-013-1	1	5	10
Z-PS-SIL-013-1,5	1,5	5	10
Z-PS-SIL-013-3	3	5	10
Z-PS-SIL-013-4	4	5	10
Z-PS-SIL-013-5	5	5	10
Z-PS-SIL-013-10	10	5	10
Z-PS-SIL-013-12	12	5	10
Z-PS-SIL-013-15	15	5	10
Z-PS-SIL-013-20	20	5	10

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2.5.3.14 Protein A

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-014-0,3	0,3	2,5	10
Z-PS-SIL-014-0,5	0,5	2,5	10
Z-PS-SIL-014-0,8	0,8	2,5	10
Z-PS-SIL-014-1	1	2,5	10
Z-PS-SIL-014-1,5	1,5	2,5	10
Z-PS-SIL-014-3	3	2,5	10
Z-PS-SIL-014-4	4	2,5	10
Z-PS-SIL-014-5	5	2,5	10
Z-PS-SIL-014-10	10	2,5	10
Z-PS-SIL-014-12	12	2,5	10
Z-PS-SIL-014-15	15	2,5	10
Z-PS-SIL-014-20	20	2,5	10

2.5.3.15 Streptavidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-015-0,3	0,3	2,5	10
Z-PS-SIL-015-0,5	0,5	2,5	10
Z-PS-SIL-015-0,8	0,8	2,5	10
Z-PS-SIL-015-1	1	2,5	10
Z-PS-SIL-015-1,5	1,5	2,5	10
Z-PS-SIL-015-3	3	2,5	10
Z-PS-SIL-015-4	4	2,5	10
Z-PS-SIL-015-5	5	2,5	10
Z-PS-SIL-015-10	10	2,5	10
Z-PS-SIL-015-12	12	2,5	10
Z-PS-SIL-015-15	15	2,5	10
Z-PS-SIL-015-20	20	2,5	10

2.5.3.16 Titandioxide

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-016-0,3	0,3	2,5	10
Z-PS-SIL-016-0,5	0,5	2,5	10
Z-PS-SIL-016-0,8	0,8	2,5	10
Z-PS-SIL-016-1	1	2,5	10
Z-PS-SIL-016-1,5	1,5	2,5	10
Z-PS-SIL-016-3	3	2,5	10
Z-PS-SIL-016-4	4	2,5	10
Z-PS-SIL-016-5	5	2,5	10
Z-PS-SIL-016-10	10	2,5	10
Z-PS-SIL-016-12	12	2,5	10
Z-PS-SIL-016-15	15	2,5	10
Z-PS-SIL-016-20	20	2,5	10

2.5.3.17 TMS

Article	Ø µm	Amount (g)
Z-PS-SIL-017-0,3	0,3	0,5
Z-PS-SIL-017-0,5	0,5	0,5
Z-PS-SIL-017-0,8	0,8	0,5
Z-PS-SIL-017-1	1	0,5
Z-PS-SIL-017-1,5	1,5	0,5
Z-PS-SIL-017-3	3	0,5
Z-PS-SIL-017-4	4	0,5
Z-PS-SIL-017-5	5	0,5
Z-PS-SIL-017-10	10	0,5
Z-PS-SIL-017-12	12	0,5
Z-PS-SIL-017-15	15	0,5
Z-PS-SIL-017-20	20	0,5

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2.5.3.18 V_2O_5

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-018-0,3	0,3	2,5	10
Z-PS-SIL-018-0,5	0,5	2,5	10
Z-PS-SIL-018-0,8	0,8	2,5	10
Z-PS-SIL-018-1	1	2,5	10

2.5.3.19 C18

Article	Ø µm	Amount (g)
Z-PS-SIL-019-0,3	0,3	0,5
Z-PS-SIL-019-0,5	0,5	0,5
Z-PS-SIL-019-0,8	0,8	0,5
Z-PS-SIL-019-1	1	0,5
Z-PS-SIL-019-1,5	1,5	0,5
Z-PS-SIL-019-3	3	0,5
Z-PS-SIL-019-4	4	0,5
Z-PS-SIL-019-5	5	0,5
Z-PS-SIL-019-10	10	0,5
Z-PS-SIL-019-12	12	0,5
Z-PS-SIL-019-15	15	0,5
Z-PS-SIL-019-20	20	0,5

2.5.3.20 Ni-NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-020-0,3	0,3	5	10
Z-PS-SIL-020-0,5	0,5	5	10
Z-PS-SIL-020-0,8	0,8	5	10
Z-PS-SIL-020-1	1	5	10
Z-PS-SIL-020-1,5	1,5	5	10
Z-PS-SIL-020-3	3	5	10
Z-PS-SIL-020-4	4	5	10
Z-PS-SIL-020-5	5	5	10
Z-PS-SIL-020-10	10	5	10
Z-PS-SIL-020-12	12	5	10
Z-PS-SIL-020-15	15	5	10
Z-PS-SIL-020-20	20	5	10

2.5.3.21 Avidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-021-0,3	0,3	2,5	5
Z-PS-SIL-021-0,5	0,5	2,5	5
Z-PS-SIL-021-0,8	0,8	2,5	5
Z-PS-SIL-021-1	1	2,5	5
Z-PS-SIL-021-1,5	1,5	2,5	5
Z-PS-SIL-021-3	3	2,5	5
Z-PS-SIL-021-4	4	2,5	5
Z-PS-SIL-021-5	5	2,5	5
Z-PS-SIL-021-10	10	2,5	5
Z-PS-SIL-021-12	12	2,5	5
Z-PS-SIL-021-15	15	2,5	5
Z-PS-SIL-021-20	20	2,5	5

2.5.3.22 SO_3H

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-022-0,3	0,3	5	10
Z-PS-SIL-022-0,5	0,5	5	10
Z-PS-SIL-022-0,8	0,8	5	10
Z-PS-SIL-022-1	1	5	10
Z-PS-SIL-022-1,5	1,5	5	10
Z-PS-SIL-022-3	3	5	10
Z-PS-SIL-022-4	4	5	10
Z-PS-SIL-022-5	5	5	10
Z-PS-SIL-022-10	10	5	10
Z-PS-SIL-022-12	12	5	10
Z-PS-SIL-022-15	15	5	10
Z-PS-SIL-022-20	20	5	10

2.5.3.23 Au

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-023-3	3	2,5	10
Z-PS-SIL-023-4	4	2,5	10
Z-PS-SIL-023-5	5	2,5	10
Z-PS-SIL-023-10	10	2,5	10
Z-PS-SIL-023-12	12	2,5	10
Z-PS-SIL-023-15	15	2,5	10
Z-PS-SIL-023-20	20	2,5	10

2.5.4 Magnetic

2.5.4.1 Albumin (BSA)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-001M-1,5	1,5	1	5

2.5.4.2 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-004M-1,5	1,5	5	10

2.5.4.3 C18

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-019M-1,5	1,5	2,5	10

2.5.4.4 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-005M-1,5	1,5	5	10

2.5.4.5 Epoxy

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-008M-1,5	1,5	5	10

2.5.4.6 NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-012M-1,5	1,5	5	10

2.5.4.7 Protein A

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-014M-1,5	1,5	1	2

2.5.4.8 Streptavidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-015M-1,5	1,5	1	2

2.5.4.9 Ni-NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-020M-1,5	1,5	2,5	10

2.5.4.10 Avidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-021M-1,5	1,5	1	5

2.5.4.11 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-000M-1,5	1,5	5	10

2.5.5 Without surface functionality (NIST-Traceable)

This series is designed for applications requiring monodisperse *inorganic* particles. Like glass, silica has a much higher density than polystyrene and the opaque particles provide more contrast than polymer particles in optical and electron beams. They are calibrated and certified by NIST traceable procedures and are suitable for a wide variety of particle measurement applications. They are packaged as aqueous suspensions in 15 mL dropper-tipped bottles at a concentration of 2 % solids. The silica particles have a density of 1.8-2.2 g/cm^3 and an index of refraction of 1.40-1.46 @ 589 nm (23°C). For more information about our other silica particles please request.

Article	Ø µm	Certified Mean Ø (µm)	Std. Dev.	cv (%)	Solids (%)	Volume (mL)
Z-PS-SIL-900-0,5	0,5	0,47	0,02	4,3	2,0	15
Z-PS-SIL-900-0,7	0,7	0,71	0,03	4,2	2,0	15
Z-PS-SIL-900-1,0	1,0	0,99	0,02	2,0	2,0	15
Z-PS-SIL-900-1,6	1,6	1,58	0,04	2,5	2,0	15

2.5.6 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-000-0,07	0,07	5	10
Z-PS-SIL-000-0,1	0,1	5	10
Z-PS-SIL-000-0,2	0,2	5	10
Z-PS-SIL-000-0,3	0,3	5	10
Z-PS-SIL-000-0,4	0,4	5	10
Z-PS-SIL-000-0,5	0,5	5	10
Z-PS-SIL-000-0,6	0,6	5	10
Z-PS-SIL-000-0,8	0,8	5	10
Z-PS-SIL-000-1	1,0	5	10
Z-PS-SIL-000-1,5	1,5	5	10
Z-PS-SIL-000-3	3	5	10
Z-PS-SIL-000-4	4	5	10
Z-PS-SIL-000-5	5	5	10
Z-PS-SIL-000-10	10	5	10
Z-PS-SIL-000-12	12	5	10
Z-PS-SIL-000-15	15	5	10
Z-PS-SIL-000-20	20	5	10

2.5.7 Silica Fortified Magnetic Dextran Particles

2.5.7.1 Alkyl-OH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-020MD-0,25	0,25	1	1

2.5.7.2 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-004MD-0,25	0,25	1	1

2.5.7.3 Biotin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-022MD-0,25	0,25	1	2

2.5.7.4 C18

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-019MD-0,25	0,25	1	10

2.5.7.5 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-005MD-0,25	0,25	1	10

2.5.7.6 DTPA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-006MD-0,25	0,25	1	10

2.5.7.7 EDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-007MD-0,25	0,25	1	10

2.5.7.8 HDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-009MD-0,25	0,25	1	10

2.5.7.9 NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-012MD-0,25	0,25	1	10

2.5.7.10 PEG 300

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-024MD-0,25	0,25	1	10

2.5.7.11 PEG-COOH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-027MD-0,25	0,25	1	10

2.5.7.12 PEG-NH_2

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-028MD-0,25	0,25	1	10

2.5.7.13 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-000MD-0,25	0,25	1	10

2.5.7.14 Protein A

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-014MD-0,25	0,25	1	1

2.5.7.15 Streptavidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-SIL-015MD-0,25	0,25	1	1

2.6 SODA LIME GLASS

This series is widely used as NIST traceable calibrants or controls for instruments requiring a higher density and more contrast to incident radiation than that provided by the polymer microspheres. The microspheres are made of soda-lime glass which has trace amounts of metallic elements. This makes them easily detectable by X-ray methods and improves their contrast and reflectivity in optical, ultrasonic and electron beam detection methods.

The spheres have been processed to remove non-spherical and broken particles, assuring a high percentage of perfect spheres. They are packaged as one gram of dry spheres. The soda lime microspheres have a density of 2.4-2.5 g/cm^3 and an index of refraction of 1.51 @ 589 nm, the softening temperature is 720°C, and the dielectric constant is 7.3 @ 1 kHz and 20°C.

Article	Ø µm	Std. Dev.	cv (%)	cts/g	Amount (g)
Z-PS-SLG-000-30	30,1	2,0	6,6	2,8 x 10E7	1
Z-PS-SLG-000-40	40	2,4	6	1,2 x 10E7	1
Z-PS-SLG-000-50	49,1	2,4	4,9	6,0 x 10E6	1
Z-PS-SLG-000-60	60,2	1,9	3,2	3,6 x 10E6	1
Z-PS-SLG-000-70	72,6	2,7	3,7	2,0 x 10E6	1
Z-PS-SLG-000-80	79,7	2,5	3,1	1,5 x 10E6	1
Z-PS-SLG-000-90	90	3,2	3,6	1,1 x 10E6	1
Z-PS-SLG-000-100	99,6	3,2	3,2	7,9 x 10E5	1
Z-PS-SLG-000-110	111	4,2	3,8	5,7 x 10E5	1
Z-PS-SLG-000-120	120	5,2	4,3	4,2 x 10E5	1
Z-PS-SLG-000-140	139	5	3,6	2,9 x 10E5	1
Z-PS-SLG-000-170	170	6,1	3,6	1,7 x 10E5	1
Z-PS-SLG-000-200	198	6,9	3,5	9,7 x 10E4	1
Z-PS-SLG-000-230	231	8,7	3,8	6,3 x 10E4	1
Z-PS-SLG-000-280	278	11,1	4	3,6 x 10E4	1
Z-PS-SLG-000-330	331	14,8	4,5	2,1 x 10E4	1
Z-PS-SLG-000-400	400	22	5,5	1,2 x 10E4	1
Z-PS-SLG-000-480	480	17,8	3,7	7050	1
Z-PS-SLG-000-550	540	24,2	4,5	5000	1
Z-PS-SLG-000-650	655	29	4,4	2800	1
Z-PS-SLG-000-750	739	28,8	3,9	1800	1
Z-PS-SLG-000-950	940	39,7	4,2	950	1
Z-PS-SLG-000-1000	1008	37,1	3,7	760	1
Z-PS-SLG-000-2000	2007	50,9	2,5	95	1

2.7 OXIDE PARTICLES

2.7.1 Al Oxide Particles / Without surface functionality

Article	Ø µm	Specific Gravity (g/mL)	Amount (g)
Z-PS-000-ACP-0,3	0,3-20	3,9	5
Z-PS-000-ACP-0,5	0,5-20	3,9	5
Z-PS-000-ACP-0,6	0,6-6	3,9	5

2.7.2 Iron Oxide Particles / Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-IOX-000-0,2	0,2	2,5	10

2.8 DUST

Article	Ø µm	Description	Specific Gravity (g/mL)	Amount (g)
Z-PS-000-DAC-1a	1-80	AC Fine Test Dust	2,6	50
Z-PS-000-DAC-1b	1-200	AC Coarse Test Dust	2,6	50

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3 METALLIC PARTICLES

3.1 METALLIC PARTICLES

This particles meets the need for an assortment of materials for chemical, Metallurgical and engineering studies. The stainless steel and nickel spheres are paramagnetic.

Article	Ø µm	Description	Specific Gravity (g/ml)	Amount (g)
Z-PS-000-MEP-4	4-24	Nickel Spheres	8,9	20
Z-PS-000-MEP-40	40-80	Nickel Particles	8,9	5
Z-PS-000-MEP-60a	60-90	Nickel Particles	8,9	10
Z-PS-000-MEP-10	10-65	Stainless Steel Spheres	8	25
Z-PS-000-MEP-60b	60-125	Stainless Steel Spheres	8	100
Z-PS-000-MEP-64	64-76	Stainless Steel Spheres	8	2

3.2 METAL-COATED PARTICLES

You can coat melamine resin or polystyrene particles with the self-organization of colloidal nanoparticles (e.g. Ag, Au) on the surface of the polymer particles, adsorption of metallic ions (Pd^{2+}, Pt^{2+},Au^{3+}) on special modified polymer particles and the following reduction to the nano-structured metal or with selective current free deposition of metallic ions on a activated particle surface under formating a thin metal layer made of copper, nickel, cobalt, silver or gold.

Through variation of the pH value, the colloid concentration in the solution, the size of the nanoparticles as well as the surface functionalities of the polymer particles you can fabricate monodisperse particles with different charge density of nanoparticles (isolated nanoparticles, submonolayer, monolayer or multilayer. The adsorption of the nanoparticles is very strong. They are not removable from the particle surface through water, acids, bases or ultra sonic. Because of the coating with noble metal colloids the optical characteristics will change drastically. Colorless melamine resin or polystyrene particles will be formated after coating with gold, silver or platin into red-violet, yellow or gray monodisperse particles.

Fields of application are catalysis, substrates for surface enhanced raman scattering (SERS), anisotropic glue, substrates for self-assembled monolayers (SAMs) or tracer particles for particle imaging velocimetry (PIV).

Metal-coated melamine resin or polystyrene particles can be fabricated in the size range from 200 nm to 20 µm as customers request.

4 BIOLOGICAL PARTICLES

4.1 CHITOSAN PARTICLES

4.1.1 Magnetic / Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-CHI-000M-0,5	0,5	2,5	10

4.1.2 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-CHI-000-0,5	0,5	2,5	10

4.2 DEXTRAN PARTICLES

4.2.1 Magnetic

4.2.1.1 Albumin (BSA)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-001M-0,1	0,1	1	10
Z-PS-DEX-001M-0,25	0,25	1	10

4.2.1.2 Alkyl-OH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-020M-0,1	0,1	1	10
Z-PS-DEX-0,20M-0,25	0,25	1	10

4.2.1.3 Amino

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-004M-0,1	0,1	1	10
Z-PS-DEX-004M-0,25	0,25	1	10

4.2.1.4 Avidin

Article	Ø µm	Solids (%)	Volume (mL9
Z-PS-DEX-021M-0,1	0,1	1	10
Z-PS-DEX-021M-0,25	0,25	1	10

4.2.1.5 Biotin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-022M-0,05	0,05	1	2
Z-PS-DEX-022M-0,1	0,1	1	2
Z-PS-DEX-022M-0,25	0,25	1	2

4.2.1.6 Carboxyl

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-005M-0,05	0,05	1	2
Z-PS-DEX-005M-0,1	0,1	1	2
Z-PS-DEX-005M-0,25	0,25	1	2

4.2.1.7 DTPA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-006M-0,1	0,1	1	10
Z-PS-DEX-006M-0,25	0,25	1	10

4.2.1.8 EDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-007M-0,1	0,1	1	10
Z-PS-DEX-007M-0,25	0,25	1	10

4.2.1.9 Glutathione

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-034M-0,1	0,1	1	10
Z-PS-DEX-034M-0,25	0,25	1	10

4.2.1.10 HDTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-009M-0,1	0,1	1	10
Z-PS-DEX-009M-0,25	0,25	1	10

4.2.1.11 NTA

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-012M-0,1	0,1	1	10
Z-PS-DEX-012M-0,25	0,25	1	10

4.2.1.12 PEG 300

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-024M-0,1	0,1	1	10
Z-PS-DEX-024M-0,25	0,25	1	10

4.2.1.13 PEG 6000

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-026M-0,1	0,1	1	10
Z-PS-DEX-026M-0,25	0,25	1	10

4.2.1.14 PEG-COOH

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-027M-0,1	0,1	1	10
Z-PS-DEX-0,27M-0,25	0,25	1	10

4.2.1.15 PEG-NH_2

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-028M-0,1	0,1	1	10
Z-PS-DEX-028M-0,25	0,25	1	10

4.2.1.16 PEI

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-029M-0,1	0,1	1	10
Z-PS-DEX-029M-0,25	0,25	1	10

4.2.1.17 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-000M-0,05	0,05	1	2
Z-PS-DEX-000M-0,1	0,1	1	2
Z-PS-DEX-000M-0,25	0,25	1	2

4.2.1.18 Protein A

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-014M-0,1	0,1	1	10
Z-PS-DEX-014M-0,25	0,25	1	10

4.2.1.19 SiO_2

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-036M-0,1	0,1	1	10
Z-PS-DEX-036M-0,25	0,25	1	10

4.2.1.20 SO_3H

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-037M-0,1	0,1	1	10
Z-PS-DEX-037M-0,25	0,25	1	10

4.2.1.21 Streptavidin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-015M-0,1	0,1	1	10
Z-PS-DEX-015M-0,25	0,25	1	10

4.2.1.22 Trypsin

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-DEX-038M-0,25	0,25	1	10

4.3 PROTEIN PARTICLES

4.3.1 Fluorescent

4.3.1.1 Green (Fluorescein)

Article	Øµm	Solids (%)	Volume (mL)
Z-PS-PRO-000GF-2	2	1	10

4.3.2 Magnetic

4.3.2.1 Green (Fluorescein)

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PRO-000GM-2	2	1	10

4.3.2.2 Without surface functionality

Article	Ø µm	Solids (%)	Volume (mL)
Z-PS-PRO-000M-2	2 µm	1	10

4.3.3 Without surface functionality

Article	Øµm	Solids (%)	Volume (mL)
Z-PS-PRO-000-2	2	1	10

4.4 SPHERICAL POLLENS AND SPORES

This selection provides model specimens for analyzing and controlling a common industrial contaminant. Pollens can also be used as controls for test systems, or as models of biological cells when stained with cytochemical dyes. They are packaged as dry powders; the pollens will swell to a spherical shape after immersion in aqueous solutions for a few minutes. The size data pertains to the hydrated spherical condition.

Article	Ø µm	Description	Amount
Z-PS-SPS-000-5,4	5,4-8,4	Bermuda Grass Smut Spores	5 g
Z-PS-SPS-000-5,8	5,8-9,0	Johnson Grass Smut Spores	5 g
Z-PS-SPS-000-10,4	10,4-14,4	Paper Mulberry Pollen	5 g
Z-PS-SPS-000-18,0	18,0-23,6	Ragweed Pollen	5 g
Z-PS-SPS-000-24,8	24,8-34,6	Bermuda Grass Pollen	5 g
Z-PS-SPS-000-25	25-35	Lycopodium Spores	50 mL
Z-PS-SPS-000-28,6	28,6-40,6	Black Walnut Pollen	5 g
Z-PS-SPS-000-41,7	41,7-54,9	Pecan Pollen	5 g
Z-PS-SPS-000-69	69-87	Corn Pollen	5 g
Z-PS-SPS-000-3	3-30	Walnut Shell Particles	10 g

5 SPECIAL PRODUCTS

5.1 ELLIPSOIDAL PARTICLE STANDARDS

Highly uniform ellipsoidal particle standards made of polystyrene. Please request for further information.

5.2 OTHERS

- Highly cross-linked fluorescent-marked melamine resin particles in grain size fractionations of 1-20 µm, 20-40 µm, 50-100 µm, 100-200 µm, 200-400 µm,400-600 µm and 600-800 µm.
- Cross-linked polystyrene particles with grain size fractionations of 1-20 µm, 20-40 µm, 50-100 µm, 100-200 µm, 200-400 µm,400-600 µm and 600-800 µm.
- Highly cross-linked polydivinylbenzole particles (PDVB) in grain size fractionations of 1-20 µm, 20-40 µm, 50-100 µm, 100-200 µm, 200-400 µm,400-600 µm and 600-800 µm.
- Cross-linked polymethylmethacrylate particles (PMMA) in grain size fractionations of 1-20 µm, 20-40 µm, 50-100 µm, 100-200 µm, 200-400 µm,400-600 µm and 600-800 µm.

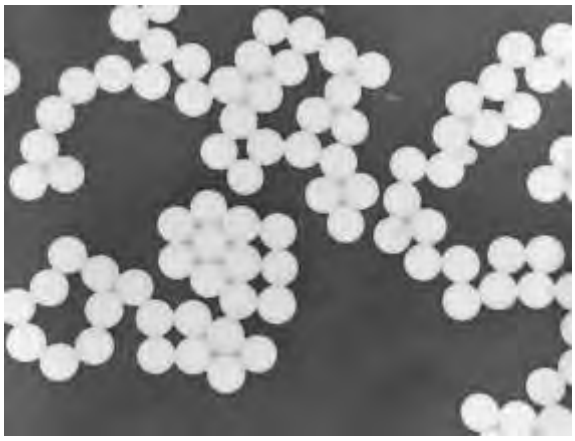


Fig. 1: Highly monodisperse polystyrene particle standards

6 PARTICLE STANDARDS SPECIALITY PACKS

6.1 PN1 PARTICLE COUNTER SIZE STANDARDS PACK

This new series of NIST traceable size standards provides an accurate and convenient method for calibrating or checking performance of laser particle counters used in cleanrooms and other contamination monitoring applications. The products are suspensions of monodisperse polystyrene spheres (PSL) for use in airborne or liquid particle dispersions systems. They are available in a range of sizes from 0,1 to 100 µm in diameter.

The particles are prepared as low residue aqueous suspensions for minimal background interference, packaged in 15 mL dropper-tipped vials. Each package includes a certificate of calibration and traceability to the National Institute of Standards and Technology (NIST).

Sizes may change slightly as depleted batches are replaced with current ones.

Article	Nominal Ø µm	NIST Ø µm
Z-PS-PN1-1	0,1	0,102
Z-PS-PN1-2	0,15	0,152
Z-PS-PN1-3	0,2	0,199
Z-PS-PN1-4	0,22	0,22
Z-PS-PN1-5	0,27	0,269
Z-PS-PN1-6	0,3	0,3
Z-PS-PN1-7	0,34	0,343
Z-PS-PN1-8	0,4	0,404
Z-PS-PN1-9	0,5	0,503
Z-PS-PN1-10	0,6	0,6
Z-PS-PN1-11	0,7	0,701
Z-PS-PN1-12	0,8	0,802
Z-PS-PN1-13	0,9	0,903
Z-PS-PN1-14	1	0,993
Z-PS-PN1-15	1	1,02
Z-PS-PN1-16	1,6	1,59
Z-PS-PN1-17	2	2,01
Z-PS-PN1-18	3	3,06
Z-PS-PN1-19	4	4
Z-PS-PN1-20	5	5
Z-PS-PN1-21	6	5,99
Z-PS-PN1-22	7	6,99
Z-PS-PN1-23	10	10,15
Z-PS-PN1-24	15	15
Z-PS-PN1-25	20	20
Z-PS-PN1-26	25	25,1
Z-PS-PN1-27	30	30,1
Z-PS-PN1-28	40	40,2
Z-PS-PN1-29	50	49,8
Z-PS-PN1-30	60	59,8
Z-PS-PN1-31	70	68,6
Z-PS-PN1-32	80	79,6
Z-PS-PN1-33	100	99,4

6.2 PN2 PARTICLE SIZE STANDARDS / DRY

postnova analytics now offers a line of dry particle size standards suitable for calibrating particle counting and sizing instruments which request dry microsphere standards. These particle standards are available in a range of sizes from 5 to 100 µm. They are conveniently packaged in dropper-tipped vials in 1 g quantities, enabling the user to dispense the particle standards directly into the sampling chamber, thus eliminating unnecessary handling of the particles. They are not suitable for dispersing in liquid media. The mean diameter are traceable to the National Institute of Standards and Technology (NIST).

Each bottle is accompanied by a Certificate of Calibration and traceability plus a Material Safety Data Sheet.

Article	Description	Nominal Diameter (µm)	Certified Mean Ø µm	Std. Dev (µm)
Z-PS-PN2-1	Dry Polymer Size Standards	5	5,3	0,6
Z-PS-PN2-2	Dry Polymer Size Standards	6	6	0,9
Z-PS-PN2-3	Dry Polymer Size Standards	7	6,6	0,6
Z-PS-PN2-4	Dry Polymer Size Standards	8	7,5	0,8
Z-PS-PN2-5	Dry Polymer Size Standards	10	10	0,8
Z-PS-PN2-6	Dry Polymer Size Standards	15	14,9	1,2
Z-PS-PN2-7	Dry Polymer Size Standards	20	20,6	1,7
Z-PS-PN2-8	Dry Polymer Size Standards	25	25,2	2,5
Z-PS-PN2-9	Dry Polymer Size Standards	50	50,3	3,1
Z-PS-PN2-10	Dry Polymer Size Standards	70	68,2	3,7
Z-PS-PN2-11	Dry Polymer Size Standards	100	108	9,8

6.3 PN3 PARTICLE SIZE STANDARDS / SUSPENSION

This new product line offers a series of ready-to-use standards for validating optical particle counters with no diluting and handling. The products are suspensions of monodisperse polymer microspheres in water with a concentration of 2000 particles per mL. A magnetic stir bar is included in each bottle for clean, convenient and direct sampling by instruments.

This series of monodisperse size standards is provided for setting or checking the calibration of channel thresholds or for checking the count precision of liquidborne particle counters. Their certified diameters are traceable to NIST. They are packaged as 100 mL screw-cap bottles, sufficient for four or five calibration procedures on most counters.

The particles standards are composed of polystyrene, which has an index of refraction of 1.59 @ 589 nm and a density of 1.05 g/m^3. The aqueous suspension medium contains a combination of dispersing agents, which help keep the particles from clumping or sticking to flow surfaces in the particle counter.

Article	Certified Mean Ø µm
Z-PS-PN3-1	2
Z-PS-PN3-2	5
Z-PS-PN3-3	10
Z-PS-PN3-4	15
Z-PS-PN3-5	20
Z-PS-PN3-6	25
Z-PS-PN3-7	30
Z-PS-PN3-8	50
Z-PS-PN3-9	70

6.4 PN4 USP CONTROLS

PN4 USP Count Control is a product containing National Institute of Standards and Technology (NIST) traceable size standards with a measured particle count. The product was developed to provide process control data for particle counting consistency and verification of size calibration. The ready-to-use precision standard is designed for regular use in liquid particle counters. This documents the reproducibility of the particle counter by permitting a continuous record of its performance using a microsphere suspension with a know concentration. The data provides documentation for internal or customer qualities audits.

The product is ideal for parenteral drug manufacturers seeking interim verification of USP 23 (788) “Particulate Matter in Injections”.

This product is a 15 µm polystyrene microsphere suspension packaged at 3800 particles per mL in 25 mL single-use quantities. It is supplied in convenient 6 or 20 bottle set.

Article	Description
Z-PS-PN4-1	6 bottles
Z-PS-PN4-2	20 bottles

6.5 PN5 FLOW CYTOMETRY MICROSPHERES

Fluorescent Intensity Calibrator Kit

This calibration kit is designed to simultaneously monitor flow cytometer stability, give relative fluorescence estimations of labeled cells and provide a check on instrument sensitivity and performance with weakly fluorescent samples. The calibrators are prepared from highly uniform 3 µm polymer microspheres dyed with five levels of fluorescent dyes and mixed together to calibrate the entire range of intensities. Because of the high uniformity of the microspheres, singlet gating is not requestd. Low-end discrimination of dim labeled cells from background is measured using the two tow intensity calibrators, which are dyed to approximate dim labeled cells and autofluorescent cells. The kit consists of 3 components for calibration of the FL1, FL2 and FL3 channels of the flow cytometer. Each intensity level is assigned approximate MESF (mean equivalent soluble fluorochrome) values for estimation of relative fluorescent intensities of labeled cells.

The PN5 Fluorescent Intensity Calibrators contain microspheres with dyes that excite and emit at the spectral ranges commonly used in flow cytometry: Green (488/530 nm), Orange (488/575 nm) and Red (488/700 nm).

The PN5 Fluorescent Intensity Calibrator Kits are supplied in 3 mL vials, each containing 2,5 x 10^7 particles/mL (5 x 10^6 particles/mL of each intensity level). The microspheres are suspended in 3 mL of 0,05 % Tween-20 with 2 mM sodium azide preservative.

Alignment Standard

These Alignment Standards provide a superior method for focusing and aligning the optics and flow properties of flow cytometers. These 3 µm microspheres are of the highest quality in size and fluorescent uniformity to permit the best possible optimization of each parameter being measured. The PN5 488 Alignment Standard is excited by the 488 spectral line of the argon laser and has broad emission, allowing it to be used to align the FL1, FL2 and FL3 channels simultaneously. The PN5 633 Alignment Standard is optimally excited with the 633 nm He-Ne-laser and has maximum emission at 700 nm. PN5 Alignment Standards are dyed internally with chemically stable dyes and therefore have excellent signal stability.

PN5 Alignment Standards are provided in quantities of 3 mL at 5 x 10^6 particles/mL in aqueous suspension containing 0,05 % Tween-20 and 2 mM sodium azide.

Low Intensity Standard

In many flow cytometry applications, it is critical to be able to separate dim labeled cells from unlabeled (autofluorescent) cells. PN5 Low Intensity Standard enables simultaneous monitoring of FL1, FL2, and FL3 channels for adequate fluorescence sensitivity and discrimination. The standard contains an equal mixture of 6 µm undyed microspheres and dyed microspheres with broad-range fluorescence designed to imitate a mixture of unlabeled and dim labeled cells.

PN5 Low Intensity Standard is provided in quantities of 3 mL at 4 x 10^6 particles/mL in aqueous suspension containing 0,05 % Tween-20 and 2 mM sodium azide.

Each product is supplied with a package insert sheet showing expected flow cytometer data outout.

A Material Safety Data Sheet is included.

Article	Description	Quantity
Z-PS-PN5-1	PN5 Fluorescence Intensity Calibrator Kit	3 x 3 mL
Z-PS-PN5-2	PN5 488 Alignment Standard	3 mL
Z-PS-PN5-3	PN5 633 Alignment Standard	3 mL
Z-PS-PN5-4	PN5 Low Intensity Standard	3 mL

6.6 PN6 Flow Cytometry Microspheres – Carboxylated Microspheres for Solution Array Analysis

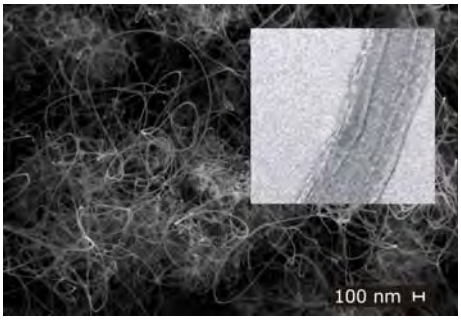
Solution array analysis is a powerful new technique enabling the simultaneous detection and quantitation of multiple analytes in a sample. Using color coded microspheres, these tests can now be carried out using commonly available flow cytometers. PN6 microspheres provide up to ten levels of red fluorescent intensities for analysis of ten different analytes. The PN6 microsphere kits consist of uniform particles with fluorescence intensities, which are completely separated from each other. The 4 µm microspheres are all the same size and have high-density carboxylated surfaces, providing very low non-specific binding and a consistent, uniform surface for coupling a wide variety of antibodies, nucleic acids and other biomolecules. PN6 microspheres have a maximum emission at 700 nm, and can be excited with either 488 nm (Argon) or 633 nm (He-Ne) lasers. Emission can be collected in either the FL3 or FL4 channels. Since there is little or no emission in FL1 and FL2, probes utilizing either of these channels can be effectively used as reporters. PN6 microspheres are provided in quantities of 2 mL at 0,5 % particle solids in a surfactant-free aqueous suspension. They can be purchased individually or in kits of 5 or 10 bottles with different fluorescent levels. Each product is supplied with a package insert describing measured size, spectral wavelength and carboxyl surface density. A Material Safety Data Sheet is included.

Article	Mean Diameter (µm)	Surface Group	Fluorescent Color
Z-PS-PN6-1	4	Carboxyl	Red, Level 1 (low)
Z-PS-PN6-2	4	Carboxyl	Red, Level 2
Z-PS-PN6-3	4	Carboxyl	Red, Level 3
Z-PS-PN6-4	4	Carboxyl	Red, Level 4
Z-PS-PN6-5	4	Carboxyl	Red, Level 5
Z-PS-PN6-6	4	Carboxyl	Red, Level 6
Z-PS-PN6-7	4	Carboxyl	Red, Level 7
Z-PS-PN6-8	4	Carboxyl	Red, Level 8
Z-PS-PN6-9	4	Carboxyl	Red, Level 9
Z-PS-PN6-10	4	Carboxyl	Red, Level 10 (high)
Z-PS-PN6-11	4	Carboxyl	Red, Levels 2, 4, 6, 7, 10
Z-PS-PN6-12	4	Carboxyl	Red, all 10 Levels

7 CARBON NANOPRODUCTS

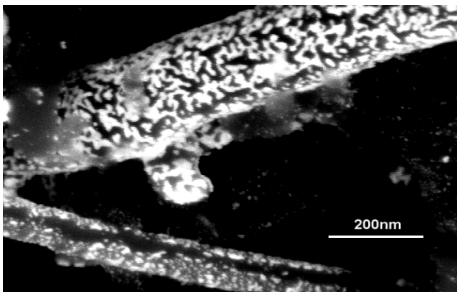
7.1 CARBONNANOTUBES (CNTS)

7.1.1 CNT - MW (Multi-Wall-Nanotubes)



Diameter:	15 nm
BET-surface:	~ 200 m^2
Purity:	> 98 %
Applications:	Composite materials based on polymers, resins, glass and ceramics to enhance the mechanical, electrical and thermal properties and for better rheologic and tribologic properties. Catalyst support.

7.1.2 CNT - Metallised



Available Coatings:	Fe, Cu, Ni (development), Co, Pd, Pt, Pt/Ru
Applications:	Catalysis Augmentation of electrical and thermal conductivity in highly conductible composite materials.

7.1.3 CNT - Specials

Available Options:
- Ultra purified > 99 %
- Tempered 1.200 °C
- Oxidized Thermal
- Oxidized Wet-chemical
- Graphitized

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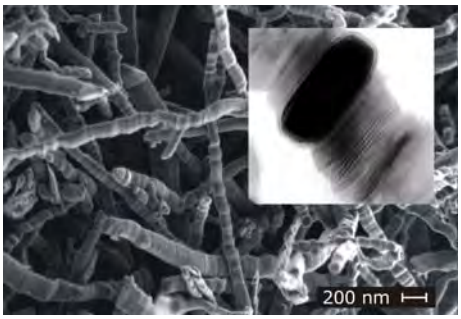
7.2 CarbonNanoFibers (CNFs)

7.2.1 CNF - PL (Platelet-structure)



Diameter: 150 nm

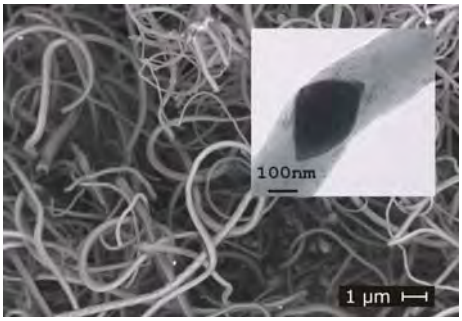
BET-surface: ~ 120 m^2

Purity: > 95 %, alternatively also > 99 % available

Applications: Composite Material: better electrical conductivity, wettability, enhanced rheologic and tribologic properties.

Catalysis: Catalyst support material

7.2.2 CNF - HB (Herringbone-structure)



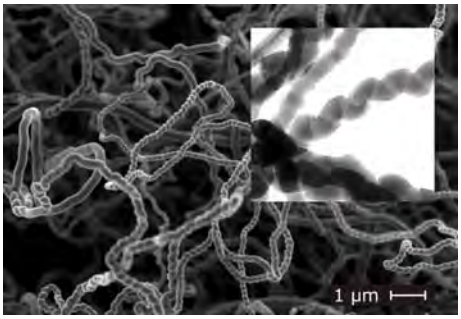
Diameter: 300 nm

BET-surface: ~ 60 m^2

Purity: > 98 %, alternatively also > 99 % available

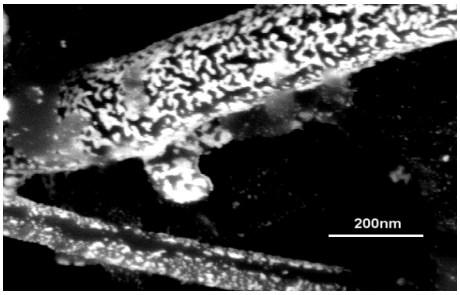
Applications: In elastic foams, composite materials, dielectric materials, batteries, fleeces and papers for better mechanical strength, enhanced rheological and tribologic properties.

7.2.3 CNF - SC (Screw-structure)



Diameter:	150 nm
BET-surface:	~ 200 m^2
Purity:	> 95 %, alternatively also > 99 % available
Applications:	Enhancement of mechanical stability and ductility in foams, porous networks and composite materials.

7.2.4 CNF - Metallised



Available Coatings:	Fe, Cu, Ni (development), Co, Pd, Pt, Pt/Ru
Applications:	Catalysis Augmentation of electrical and thermal conductivity in highly conductible composite materials.