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Price List 2012 A

3/15/2012

Miscellaneous

The company BS-Partikel is manufacturing certified particle standards by sophisticated syntheses, cleaning and characterization processes since 1999 and is offering them for most diverse applications world wide since 2001.

These particle products can be obtained directly from us and in several countries directly from our authorized local dealers as well. At present we are supplying more than 500 customers all over the world. Because of intensive contacts and communications with many customers we know that they are not only satisfied with our particle products they also appreciate our free of charge custom-related and scientifically driven guidance before and after purchasing. This reflects the very low number of four complaints only since we are active on the particle market.

Product Range

Particle Products

1. LS Serie: Size Calibration Standards for Particle Counting Instruments p. 2
2. HS Serie: Size Calibration Standards for Particle Sizing Instruments p. 3
3. Pu Serie: Particle Powder Standards p. 4
4. Te Serie: Test Particles = Universal Particles for Experiments p. 5
5. PC Serie: Particle Count Standard Kits and Sets p. 6
6. Ph Serie: Particle Count Standard Kits and Sets for Pharma Divisions p. 7
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Working on Commissions

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Prices and Distribution

We guarantee price stability of our products until **Februar 17th, 2013**

All Prices are listed in Euro. EU customers please note that the valid VAT has to be added (19%) if you do not tell us your VAT ID number. The term of payment is that the total value of the invoice has to be transferred within 30 days after date of invoice onto our bank account. We do not accept cheques and we reserve the right to demand payment in advance for future sales if we receive payment after these 30 days. All bank fees have to be paid by the orderer completely.

We maintain a comprehensive inventory for you to make shure that all listed products can be delivered in general immediately: after receiving a purchase order by letter, fax or email we return an order confirmation by fax or email in any case. Typically we ship (EXW) the ordered items 48h after the order confirmation.

If the ordered items exceeds a certain value the shipping is at no charge, below those limits there are global shipping charges:

	Germany	EU	Europe	World
Shipping Charges	8.00 €	25 €	35 €	please ask
Free Shipping	> 200 €	> 500 €	> 700 €	> 1500 €

1. Size Calibration Standards for Particle COUNTERS (LS Series)

All the particle size standards are NIST traceable and designed for size calibration of particle counters and for validation of these instruments with respect to size accuracy, size resolution, precision, reproducibility, etc.

Nominal Size	Certified Particle Diameter (Mode)		Rel. Standard Deviation (C.V.)	Quantity	Catalog Number	Price [Euro]
1,0µm	1.00µm	±0.03µm	2.4%	5mL	LS0100-05	75.00
				20mL	LS0100-20	170.00
1.5µm	1.57µm	±0.07µm	4,1%	5mL	LS0150-05	75.00
				20mL	LS0150-20	170.00
1.7µm	1.77µm	±0.09µm	2.0%	5mL	LS0170-05	75.00
				20mL	LS0170-20	170.00
2.0µm	1.97µm	±0.06µm	3.6%	5mL	LS0200-05	75.00
				20mL	LS0200-20	170.00
4.0µm	3.71µm	±0.09µm	4.1%	5mL	LS0400-05	75.00
				20mL	LS0400-20	170.00
4.5µm	4.62µm	±0.11µm	2.7%	5mL	LS0450-05	75.00
				20mL	LS0450-20	170.00
5µm	4.92µm	±0.06µm	2.7%	5mL	LS0500-05	85.00
				20mL	LS0500-20	190.00
7µm	6.80µm	±0.10µm	2.8%	5mL	LS0700-05	85.00
				20mL	LS0700-20	190.00
8µm	8.08µm	±0.08µm	3.8%	5mL	LS0800-05	85.00
				20mL	LS0800-20	190.00
9µm	9.21µm	±0.10µm	2.8%	5mL	LS0900-05	85.00
				20mL	LS0900-20	190.00
10µm	10.37µm	±0.14µm	3.5%	5mL	LS1000-05	105.00
				20mL	LS1000-20	240.00
14µm	13.60µm	±0.12µm	3.2%	5mL	LS1400-05	105.00
				20mL	LS1400-20	240.00
20µm	19.66µm	±0.20µm	3.0%	5mL	LS2000-05	105.00
				20mL	LS2000-20	240.00
25µm	24.7 µm	±0.3 µm	2.3%	5mL	LS2500-05	105.00
				20mL	LS2500-20	240.00
30µm	29.2 µm	±0.3 µm	2.2%	5mL	LS3000-05	105.00
				20mL	LS3000-20	240.00
40µm	40.7 µm	±0.4 µm	2.4%	5mL	LS4000-05	105.00
				20mL	LS4000-20	240.00
50µm	50.7 µm	±0.5 µm	2.8%	5mL	LS5000-05	105.00
				20mL	LS5000-20	240.00
75µm	76.8 µm	±0.5 µm	2.9%	5mL	LS7500-05	105.00
				20mL	LS7500-20	240.00

The particle concentrations of these size standards are adjusted in that way that a few drops only (specified in each certificate) dropped into 20 to 40mL of pure water immediately results in a particle concentration of approx. 3000 to 5000 part./mL which is appropriate for most of the particle counting instruments to avoid coincidence errors. To support this each bottle does have a dropper-tip. The advantage is: no need for diluting the calibrant several times and no waste of "expensive particles".

This means that laboratory time and money will be saved!

Each of these standards will be supplied either in a 5mL or a 20mL dropper-tipped-bottle together with a certificate (English language) which contains the particle size distributions as graphs as well.

If an appropriate storage takes place our size calibration standards have a shelf life of three years calculated from date of delivery.

Our Particle Size Standards Sets are useful compilations of the most important calibrants at a reduced price which enables you to generate a complete calibration curve with a minimum of calibration measurements. Each set will be supplied in a stable box with seven 5mL or five 20mL calibrants and all certificates.

Particle Size Standards - Sets (LS Series)												
No.	Cat. Number	Quantity	Price €	Nominal Particle Diameters								
				1.0µm	2.0µm	5.0µm	10µm	20µm	25µm	40µm	50µm	75µm
1.	LS0100a05	7 x 5ml	530.00	1.0µm	2.0µm	5.0µm	10µm	20µm	25µm	40µm	-----	-----
2.	LS0100c05	7 x 5ml	530.00	1.0µm	2.0µm	5.0µm	10µm	20µm	25µm	-----	50µm	-----
3.	LS0200a05	7 x 5ml	550.00	-----	2.0µm	5.0µm	10µm	20µm	25µm	40µm	50µm	-----
4.	LS0200c05	7 x 5ml	550.00	-----	2.0µm	5.0µm	10µm	20µm	25µm	-----	50µm	75µm
5.	LS0450a05	7 x 5ml	580.00	-----	-----	5.0µm	10µm	20µm	25µm	40µm	50µm	75µm
6.	LS0100b20	5 x 20ml	810.00	1.0µm	2.0µm	5.0µm	10µm	20µm	-----	-----	-----	-----
7.	LS0200b20	5 x 20ml	880.00	-----	2.0µm	5.0µm	10µm	20µm	25µm	-----	-----	-----
8.	LS0450b20	5 x 20ml	950.00	-----	-----	5.0µm	10µm	20µm	-----	40µm	-----	75µm

The data of the corresponding single calibration standards are listed in the previous table



2. Size Calibration Standards for Particle **SIZING** Instruments (HS Series)

Whereas the particle size standards of the LS series (see page 2) have particularly been designed for particle counters the calibrants of the **HS** series are more suitable for particle sizing instruments; even for those which definitely need higher solids contents of particles (**HS = High Solids content**).

These long-term-stabilized suspensions do possess a high solids content of particles (2% / 3%) which is significantly higher than most of the commercially available size calibrants on the market. Therefore these size standards of 20mL volume are very universally usable.

Like the calibrants of the LS series the size standards of this HS series are also traceable to NIST (*National Institut of Standards and Technology*) and will be supplied with a certificate (English language). It shows the typical particle data and the measured particle size distribution as a graph as well.

If an appropriate storage takes place the size calibration standards have a shelf life of three years calculated from date of delivery.

Nominal Size	Certified Particle Diameter (Mode) x_v		Rel. Standard Deviation (C.V.)	Solids Contents	Catalog Number	Price [Euro]
140nm	143nm	±6nm	3.5%	2%	HS0014-20	220.00
180nm	182nm	±5nm	2.8%	2%	HS0018-20	220.00
250nm	246nm	±6nm	1.9%	2%	HS0025-20	220.00
300nm	305nm	±8nm	1.8%	2%	HS0030-20	220.00
400nm	399nm	±8nm	2.0%	2%	HS0040-20	220.00
500nm	522nm	±8nm	2.0%	2%	HS0050-20	220.00
700nm	726nm	±16nm	3.1%	2%	HS0070-20	220.00
1.0µm	1.028µm	±0.022µm	1.9%	3%	HS0100-20	270.00
1.5µm	1.52µm	±0.05µm	3.0%	3%	HS0150-20	270.00
2.0µm	2.01µm	±0.04µm	4.8%	3%	HS0200-20	270.00
5µm	5.04µm	±0.07µm	3.2%	3%	HS0500-20	270.00
7µm	7.20µm	±0.09µm	2.9%	3%	HS0700-20	270.00
10µm	9.80µm	±0.10µm	2.7%	3%	HS1000-20	320.00
15µm	15.47µm	±0.10µm	3.6%	3%	HS1500-20	320.00
20µm	19.99µm	±0.10µm	3.0%	3%	HS2000-20	320.00
40µm	38.6µm	±0.3µm	3.6%	3%	HS4000-20	320.00
50µm	51.9µm	±0.4µm	3.5%	3%	HS5000-20	320.00
75µm	74.5µm	±0.4µm	3.0%	3%	HS7500-20	320.00
100µm	102.2µm	±0.9µm	3.0%	3%	HS10000-20	320.00

3. Particle Powder Standards (Pu Series)

Particle **Powder** Standards are designed for calibration and validation of those particle sizing instruments which are not capable to detect particles suspended in water (e.g. air born particle counters). These dry particle powders can also be suspended in organic alcohols or acetone without any significant change in size.

Particle Powder Standards are traceable to NIST (*National Institut of Standards and Technology*) and will be supplied as 1.0g or 5.0g quantities with a certificate (English language). The particle data had been determined by re-suspension of multiple powder assays in 0.05% aqueous sodiumdodecylsulfate solution.

If an appropriate storage takes place these standards have a shelf life of five years calculated from date of delivery.

Nominal Size	Certified Particle Diameter (Mode)		Rel. Standard Deviation (C.V.)	Quantity	Catalog Number	Price [Euro]
4.5µm	4.63µm	±0.12µm	3.1%	1.0g	Pu0450-01	205.00
				5.0g	Pu0450-05	700.00
6µm	6.30µm	±0.08µm	4.1%	1.0g	Pu0600-01	205.00
				5.0g	Pu0600-05	700.00
9µm	8.69µm	±0.12µm	3.5%	1.0g	Pu0900-01	205.00
				5.0g	Pu0900-05	700.00
12µm	12.20µm	±0.20µm	4.4%	1.0g	Pu1200-01	205.00
				5.0g	Pu1200-05	700.00
20µm	20.2 µm	±0.4 µm	3.8%	1.0g	Pu2000-01	205.00
				5.0g	Pu2000-05	700.00
40µm	38.0 µm	±0.4 µm	4.1%	1.0g	Pu4000-01	205.00
				5.0g	Pu4000-05	700.00



4. Test Particles (Te Series)

Test Particles are suspensions of particles for conducting universal particle experiments or measurements which do need very high solids content but which do not need such a narrow particle size distribution like the calibrants of the series LS, HS or Pu.

These are their benefits: They are aqueous, long-term-stabilized suspensions with 5% solids content of particles and they possess more product volume (25mL instead of 20mL) and are significantly cheaper than the calibrants of the LS, HS or Pu series additionally.

Nevertheless the particle size distribution is relatively narrow. The relative standard deviations (CV values) of the mean particle diameters are smaller than 10%!

Even though no certificate will be shipped all important physical particle data of each lot can be downloaded from our website <http://www.http://www.BS-Partikel.de/DEUT/teli.htm> as a PDF file at any time. These information also include the measured differential and cumulative particle size distributions as graphs.

If an appropriate storage takes place the calibration standards have a shelf life of three years calculated from date of delivery.

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Nominal Size	Most Frequent Particle Diameter x_N	Relative Std.Dev. (C.V.)	Characterized Measurement Range	Solids Contents	Quantity	Catalog Number	Price [Euro]
4 μ m	4.1 μ m \pm 0.1 μ m	7.2%	1.1 μ m - 30.1 μ m	5%	25mL	Te0400-25	135.00
7 μ m	6.5 μ m \pm 0.2 μ m	4.9%	4.0 μ m - 80.2 μ m	5%	25mL	Te0700-25	135.00
10 μ m	9.8 μ m \pm 0.2 μ m	4.9%	4.0 μ m - 80.2 μ m	5%	25mL	Te1000-25	165.00
15 μ m	15.3 μ m \pm 0.3 μ m	5.0%	1.0 μ m - 98.5 μ m	5%	25mL	Te1500-25	165.00

Please note that Test Particles are **not** designed for size calibration.
We recommend our NIST traceable calibration standards (Series LS or HS) instead.



5. Particle Count Standard Kits and Sets (PC Series)

Particle **Count** Standard Kits are designed to quickly check particle counters with respect to their counting accuracy with a minimum of efforts.

Being able to do so each kit consists of a bottle with 25mL aqueous suspension of particles of a accurately defined size and particle concentration (nom. 3000 particles/mL), a magnetic stir bar and a second Blank bottle (25mL) and a certificate which contains all important particle data.

The procedure to conduct the test is simple because the kit will be applied without any sample preparation ("*ready-to-use suspension*"):

Using the Blank sample first the particle counter will be checked whether it is really particle free. Then the main particle countings will be performed with the particle suspension. Four consecutive measurements of 5mL each will be done whereas the first counting result will be discarded (*sensor equilibration*) and the next three counting results will be averaged and compared with the value of the certificate.

The new improved generation of Particle Count Standard Kits with nom. 3000 part./mL achieve with four counting measurements only a higher reproducibility as before. The included magnetic stir bar also supports a more homogenous suspension during measurement.

The accompanying certificate has been improved and gives a detailed application description. It also possesses the "Result Record Form" into which the counting results can be recorded manually to document and to file the counting accuracy of the particle counter.

To eliminate contamination and to increase count accuracy and reproducibility one kit is necessary to check one particle counter (*single-use product*). The well-priced set contains 3 kits of the same particle size and concentration in a stable box.

If an appropriate storage takes place the Particle Count Standards Kits and Sets have a shelf life of two years calculated from date of delivery.

Nominal Particle Size	Nominal Particle Concentration	Most Frequent Particle Diameter x_N	Certified Particle Concentration [Part./ml]	Measurement Range	Quantity	Kit or Set (Set = 3 Kits)	Catalog Number	Price [Euro]
10µm	3000 Part./mL	9.6µm ±0.2µm	3010 ±50 (1,7%)	7.0µm - 12.0µm	25mL	Kit	PC1003-25	75.00
						Set	PC1003a25	180.00
25µm	3000 Part./mL	26.9µm ±0.5µm	3010 ±50 (1.7%)	20.0µm - 30.0µm	25mL	Kit	PC2503-25	75.00
						Set	PC2503a25	180.00
40µm	3000 Part./mL	40.0µm ±0.5µm	2960 ±60 (2.0%)	30.0µm - 50.0µm	25mL	Kit	PC4003-25	75.00
						Set	PC4003a25	180.00
70µm	3000 Part./mL	64.8µm ±1.0µm	3010 ±50 (1.7%)	50.0µm - 80.0µm	25mL	Kit	PC7003-25	75.00
						Set	PC7003a25	180.00

Particle **Count** Standard Kits or Sets are not designed for size calibration! We recommend our Particle **Size** Standards (**LS Series**) instead!



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6. **PharmaCount1510 Standard - Kit and Set (Ph Series)**

The **PharmaCount1510** Standard-Kit is ideal to perform a quick and accurate **interim** verification of a particle counting instrument with respect to USP chapter <788>/<1788> (*Light Obscuration Particle Count Test*).

Just as the Particle Count Standard Kit the PharmaCount1510 Standard - Kit will be applied without any sample preparation (*ready-to-use*) directly. The kit also contains a 25mL Blank sample, a 25mL particle suspension of a well defined size and concentration with a magnetic stir bar and a certificate.

The counting accuracy test will follow the rules of the USP regulations (see above):

Using the Blank sample first the particle counter will be checked whether it is really particle free by four consecutive count measurements. Then the main particle countings will be performed with the particle suspension. Four consecutive measurements of 5mL each will be done whereas the first counting result has to be discarded (*sensor equilibration*) and the next three counting results will be averaged and compared with the specification range of the certificate.

All measured particle countings can be recorded in the "Result Record Form" of the certificate to document and file the count accuracy result of your particle counter.

To eliminate contamination and to increase count accuracy and reproducibility one kit is necessary to check one particle counter (*single-use product*).

Alternatively there is a cost effective Set which consists of 3 Kits packaged in a stable box.

If an appropriate storage takes place the calibration standards have a shelf life of two years calculated from date of delivery.

Nominal Particle Concentration	Certified Particle Concentration PharmaCount1510 [Part./ml]	Certified Ratio of Particle Concentrations	Blank [Part./ml]	Catalog Number		Price per Kit [Euro]	Price per Set [Euro]
				Kit	Set (= 3 Kits)		
$N_{10\mu} \geq 10\mu$	$N_{10\mu} \geq 10\mu$	$N_{10\mu} / N_{15\mu}$	$N_{10\mu} \geq 10\mu$	Kit	Set (= 3 Kits)		
3800 Part./ml	3450 - 4240	1.63 - 2.50	<10	Ph1510-25	Ph1510a25	90.00	195.00



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7. ISO-MTD2.8-Test Oil (Oi Series)

Applying ISO-MTD2.8-Test Oil the counting accuracy of oil particle counters can be validated following the regulations of ISO 4406.

The ISO-MTD2.8-Test Oil contains the official ISO MTD particles (*ISO Medium Test Dust*) dispersed in an ultraclean hydraulic oil.

The number of particles will be counted cumulatively into 3 channels ($\geq 4\mu\text{m}$, $\geq 6\mu\text{m}$, $\geq 14\mu\text{m}$) and compared with the nominal values.

Included in delivery is a bottle with 200mL of ISO-MTD2.8-Test Oil and an application description with the nominal values.

Particle Concentration [Part./mL]						Cat. Number (200mL Bottle)	Price [Euro]
$N_{4\mu} \geq 4\mu\text{m}$		$N_{6\mu} \geq 6\mu\text{m}$		$N_{14\mu} \geq 14\mu\text{m}$			
Nom.	Specif.	Nom.	Specif.	Nom.	Specif.		
6095	4876-7314	2395	1916-2874	170	---	Oi0028-200	280.00

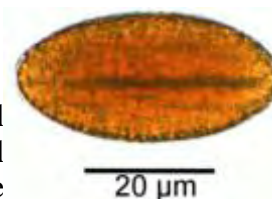
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8. Shape Reference Particles

Shape Reference Particles are microparticles with uniform but **non-spherical** shape in opposite to the typical size calibration standards. They are designated to be applied for calibrating and testing of particle analysing instruments especially for determination of shape specific particle size and morphology. Typical application is the quality control of image analyzing particle sizers and validation of shape-sensitive particle sizing methods and procedures.

The currently available sporopollenin microparticles do have prolate spherical shapes (*like American Footballs*) which can be described by geometrical macroshape descriptors according to ISO 9276-6:2008. These data are documented in the accompanying certificate of analysis: area equivalent particle diameter, volume, area, perimeter, the minimal and maximal Feret diameters xF_{\min} und xF_{\max} , aspect ratio, compactness, extent and form factor.



The sporopollenin microparticles exhibit a native fluorescence (green: FITC-filter set, red: TRITC-filter set) and can be detected with fluorescence capable instruments. The fluorescence signals can provide adequate shape information, because fluorescence is emitted from the outer shell of the particles. For application in fluorescence instruments e.g. confocal laser scanning microscopes or fluorescence particle sensors no additional labelling is required.



Shape Reference Particles will be supplied as 100mg of powder or as 3.0mL of an aqueous/ethanolic suspension with a certificate. These products are exclusively determined for laboratory use only and not for diagnostic or therapeutical applications.

If an appropriate storage takes place Shape Reference Particles have a shelf life of twelve months calculated from date of delivery.

Feret Diameter		Standard Deviation		Quantity	Catalog Number	Price [Euro]
xF_{\min}	xF_{\max}	xF_{\min}	xF_{\max}			
24.3µm	42.9µm	±3.3µm	±3.3µm	3.0mL Suspension	251-0121	204.00
19.7µm	37.2µm	±3.2µm	±5.0µm	100mg Powder	251-0113	240.00



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Working on Commissions

9. USP Calibrations for SYRINGE - Particle Counter

On request BS-Partikel calibrates SYRINGE particle counters of Markus Klotz GmbH, Bad Liebenzell, Germany according to der regulations of USP <788>/<1788>.

To fulfill these requirements for each particle sizing instrument a 9-point-size calibration will be accomplished, its noise limit, its precision and linearity of volume determination, its precision of flow rate, the sensor resolution and the counting accuracy using the original USP Particle Count Reference Standard Set will be determined, documented and certified.

We carry out this service for several big pharmaceutical companies in Germany's Rhein-Main area. To receive more information about this service please contact us by email support@BS-Partikel.de or by phone ++49 / 611 / 7-888-999.

10. Contract Syntheses of Monodisperse Polystyrene Particles

BS-Partikel also conducts contract manufacturing of particle syntheses for you. For at least 30g solids content we produce monodisperse suspensions or powders of polystyrene particles of well defined particle diameters.

Apr. 8 weeks after your order you will receive the product with an accompanying certificate of the lot. Please contact us for an offer.

11. Contract Analyses of Particle Size Distributions / Particle Countings

BS-Partikel also conducts measurements of particle size distributions or particle countings of aqueous suspensions according to your wishes.

Additional information and some interesting examples of particle analyses can be seen on our website <http://www.BS-Partikel.de/DEUT/analyt.htm> immediately.

Please contact us by phone ++49 / 611 / 7-888-999 to discuss the results you expect by the analyses. We then give you an obligatory offer.