

# Product Data Sheet



The German spirit of quality since 1854



## SiLibeads Ceramic beads Type ZY-P Pharma

First created on: 2019-04-03  
Next inspection on: 2021-12-31

Updated on: 2021-07-20  
Printed on: 2021-07-20

Version: V5/2021

**Product:** SiLibeads Ceramic Beads Type ZY-P Pharma

**Material:** Ceramic Beads made of Zirconium Oxide / Yttrium stabilised

**Application:** SiLibeads Type ZY-P Pharma stands out for an extremely low wear and tear caused by using fine crystalline and pure raw materials in the production process. The exact roundness as well as the smooth and polished surface of the beads contributes to this low wear rate.

Pharmaceutics: - nano grinding for the production of active substances and supplies substances.  
- mixing / dispersing of active substances in high-speed mixers.

**Advantages:**

- high density -  $\geq 6.0 \text{ kg/dm}^3$
- very high wear and tear resistance, depending on the milling process - approximately 40 times better than zirconium silicate beads and about 70 times better than soda lime glass beads.
- highest operating time is achievable.
- low contamination of the grinding product, therefore useable for high-grade grinding of pigments, dyes, pharmaceutical and cosmetic products.
- useable for all modern types of mills and high energy mills (vertical and horizontal).
- excellent crystal structure avoids bead breakage and reduces the abrasion of mill parts.
- no radioactivity in comparison to ceramic beads made of zirconium silicate and therefore no contamination of the grinding product and no costly disposal of the beads.
- conformity to 1935/2004/EC (Food legislation).

### Technical Data:

Specific Weight:  $\geq 6.0 \text{ kg/dm}^3$   
Bulk density: see table Standard Sizes  
Youngs-Module:  $\geq 210 \text{ GPa}$   
Microhardness:  $\geq 1300 \text{ HV}_{10}$   
Roundness (Standard):  $\geq 0.96$  (ratio width/length ( $x_{\min}/x_{\max}$ ))  
Colour: white

### Assessment according to Food Legislation:

Ceramic Beads Type ZY-P Pharma are a consumer good in the sense of §2 clause 6 no. 1 of the German Food and Feed Code (LFGB), commodities and feeding products. Therefore they comply with the legal requirements.

Ceramic Beads Type ZY-P Pharma comply with the requirements § 31 of the German Food and Feed Code (LFGB) and of the European Food Regulation 1935/2004/EC, Article 3.

### Chemical Analysis; Yttrium stabilised Zirconium Oxide beads:

Name	Method	Weight (reference values)	CAS-No.	EINECS
Zirconiumoxide Yttrium stabilised <sup>(1)</sup>		99.70 %	64417-98-7	264-885-7
Others	DIN 51001	0.30 %		

<sup>(1)</sup> Solid solution phase, consisting of: Zirconium dioxide  $\text{ZrO}_2$  + Hafnium dioxide  $\text{HfO}_2$ <sup>(2)</sup>: 94.35 %; Yttrium oxide  $\text{Y}_2\text{O}_3$ : 5.35 %  
Analysis according to DIN 51001.

<sup>(2)</sup> natural origin (residue from processing of raw material Zircon sand)

The heavy metal content keeps the permitted limits of EU directive 2011/65/EC (RoHS).			
Lead < 1000 ppm	Cadmium < 100 ppm	Chrome VI < 1000 ppm	Mercury < 1000 ppm

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### Standard Sizes:

Article	Diameter	Bulk density
990095-Ph	0.08 – 0.13 mm	3.62 kg/dm <sup>3</sup>
99015-Ph	0.10 – 0.20 mm	3.62 kg/dm <sup>3</sup>
9902-Ph	0.15 – 0.25 mm	3.62 kg/dm <sup>3</sup>
99025-Ph	0.20 – 0.30 mm	3.62 kg/dm <sup>3</sup>
9903-Ph	0.20 – 0.40 mm	3.63 kg/dm <sup>3</sup>
99035-Ph	0.30 – 0.40 mm	3.63 kg/dm <sup>3</sup>
99045-Ph	0.40 – 0.50 mm	3.64 kg/dm <sup>3</sup>
9905-Ph	0.40 – 0.60 mm	3.64 kg/dm <sup>3</sup>
9907-Ph	0.60 – 0.80 mm	3.66 kg/dm <sup>3</sup>
9909-Ph	0.80 – 1.00 mm	3.66 kg/dm <sup>3</sup>
9911-Ph	1.00 – 1.20 mm	3.67 kg/dm <sup>3</sup>
9913-Ph	1.20 – 1.40 mm	3.68 kg/dm <sup>3</sup>
9915-Ph	1.40 – 1.60 mm	3.69 kg/dm <sup>3</sup>

### Special diameters (by request):

Article	Diameter	Bulk density
99xx-Ph	max. 1.60 mm	---

All Sizes of beads are available on request as a washed version with high-purity water-for-injection (WFI).  
For all Sizes of beads an individual packaging is possible by request.

### Additional Information:

Storage indication: Store in a dry manner in closed (original) container by room temperature.  
Disposal: Please consult national laws and local regulations in force for disposal or landfill.  
Safety advice: High risk of slipping due to spillage of product.  
Product information: Safety Data Sheet SiLibeads Type ZY-P Pharma

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All data are reference values – subject to change without prior notice