

**Product Data Sheet**

First created on: 2012-07-19  
 Next inspection on: 2014-12-31

Updated on: 2013-09-17  
 Printed on: 2013-09-17

<b>Product</b>	<b>SiLibeads Ceramic beads Type ZY Premium</b>
<b>Material</b>	Ceramic beads made of Zirconium Oxide / Yttrium stabilised
<b>Application</b>	These SiLibeads Type ZY Premium stand 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.
<u>Colour and Paint Industry:</u>	<ul style="list-style-type: none"> <li>- grinding and dispersion of coating and paint systems, e.g. car paint, corrosion protection, dip paints, industrial and structural paints, wood varnishes, coil coatings</li> <li>- organic/inorganic pigments, e.g. titanium dioxide, ultra marine, iron oxide, etc.</li> <li>- grinding and dispersion of pigments to dye textiles, plastics and food</li> </ul>
<u>Ceramic Industry:</u>	<ul style="list-style-type: none"> <li>- grinding and processing of electric ceramics, e.g. barium titanate, piezo-electric ceramics, sensors, condensers</li> <li>- processing of enamel</li> <li>- medical technology, e.g. dentures and hip prosthesis</li> <li>- magnetic ceramic, ferrite</li> <li>- technical ceramic components, e.g. exhaust cultivator in engine technology</li> </ul>
<u>Plant Protection:</u>	- dispersion of fungicides, herbicides, insecticides
<u>Cosmetics:</u>	- grinding of pigments and solids for lipsticks, skin and sun protection creams
<u>Pharmaceutics:</u>	- nano grinding for the production of active substances and supplies substances
<b>Advantages</b>	<ul style="list-style-type: none"> <li>- high density – 6.06 kg/l</li> <li>- 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.</li> <li>- 6000 hrs operating time are achievable.</li> <li>- low contamination of the grinding product, therefore useable for high-grade grinding of pigments, dyes, pharmaceutical and cosmetic products.</li> <li>- useable for all modern types of mills and high energy mills (vertical and horizontal)</li> <li>- excellent crystal structure avoids bead breakage and reduces the abrasion of mill parts.</li> <li>- 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.</li> <li>- conformity to 1935/2004/EC (Food legislation).</li> </ul>
<b>Technical Data</b>	
Specific Weight	6.06 kg/l
Bulk density	see table Standard Sizes
Youngs-Module	215 GPa
Microhardness	1200 HV
Roundness (Standard)	≥ 0.98 (ratio width/length ( $x_{min}/x_{max}$ ))
Color	white

all datas are reference values

**Assessment according to Food Legislation**

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



The heavy metal content of Ceramic Beads Type ZY Premium remain within the permitted limits of European Directive 2002/95/EC - RoHS (Restriction of the use of certain hazardous substances in electrical and electronic equipment).

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## Standard Sizes (special diameters by request)

Article	Diameter	Bulk density
97015	0.10 – 0.20 mm	3.71 kg/l
97025	0.20 – 0.30 mm	3.71 kg/l
9703	0.20 – 0.40 mm	3.72 kg/l
97035	0.30 – 0.40 mm	3.73 kg/l
97045	0.40 – 0.50 mm	3.73 kg/l
9705	0.40 – 0.60 mm	3.73 kg/l
9707	0.60 – 0.80 mm	3.74 kg/l
9709	0.80 – 1.00 mm	3.75 kg/l
9711	1.00 – 1.20 mm	3.76 kg/l
9713	1.20 – 1.40 mm	3.77 kg/l
9715	1.40 – 1.60 mm	3.78 kg/l
9717	1.60 – 1.80 mm	3.79 kg/l
9719	1.80 – 2.00 mm	3.80 kg/l
9723	2.00 – 2.50 mm	3.81 kg/l
9730	2.60 – 3.30 mm	3.82 kg/l

## Chemical Analysis; Yttrium stabilised Zirconium Oxide beads

Name	Method	Weight reference value in Weight-%	CAS-No.	EINECS
Zirconium dioxide ZrO <sub>2</sub> + Hafnium dioxide HfO <sub>2</sub>	DIN 51001	94.70 %	1314-23-4 12055-23-1	215-227-2 235-013-2
Yttrium oxide Y <sub>2</sub> O <sub>3</sub>	DIN 51001	5.10 %	1314-36-9	215-233-5
others		0.20 %		

## Additional Information

Storage indication	Store in a dry manner in closed (original) container by room temperature. We recommend storage life of maximum 3 years.
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	Sample card Ceramic beads, Safety Data Sheet SiLibeads Type ZY Premium; Test Reports
Manufacturer/Supplier	Sigmund Lindner GmbH; Oberwarmensteinacher Straße 38; 95485 Warmensteinach / GERMANY Phone: +49-9277-9940 Fax: +49-9277-99499 Web: <a href="http://www.sili.eu">www.sili.eu</a> E-Mail: <a href="mailto:sili@sigmund-lindner.com">sili@sigmund-lindner.com</a>