**Product Data Sheet**  
**Type** YTZP  
**Updated 07/05/2020**

<table>
<thead>
<tr>
<th>Product name</th>
<th>Ceramic Beads, Zirconia Partially Stabilized with Yttria, Sintered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product type</td>
<td>YTZP</td>
</tr>
</tbody>
</table>

**Features**
- High purity: made of high-grade and nanometer yttria stabilized zirconia precursor, which is also proudly produced by CHEMCO's own facility in large and homogenous batches
- High density media ideal for high energy mills, maximizing throughput and productivity
- High fracture toughness and high wear resistance minimize the contamination of beads during high speed milling
- At least 15% superior to Ceria Stabilized Zirconia beads in wear rate, proved by many tests

**Main applications**
YTZP beads can be used in milling and dispersion of following materials, just name a few:
- Bio-tech (DNA, RNA & protein extraction and isolation)
- Chemicals including Agrochemicals e.g. fungicides, insecticides and herbicides
- Coating, paints, printing and inkjet inks
- Cosmetics (Lipsticks, Skin & sun protection creams)
- Electronic materials and components e.g. CMP slurry, ceramic capacitors, lithium iron phosphate battery
- Wheat seeds and Food
- Minerals e.g. TiO₂, Calcium Carbonate and Zircon
- Pharmaceuticals
- Pigments and dyes
Some other applications:
- Flow distribution in process technology
- Sintering bed with good thermal conductivity, can sustain high temperatures
- Vibro-grinding and polishing of jewelry, gemstones & aluminum wheels

**Technical data**

<table>
<thead>
<tr>
<th>Specific density</th>
<th>6.0 ± 0.05 g/cm³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk density</td>
<td>3.7 kg/l</td>
</tr>
<tr>
<td>Hardness</td>
<td>1250 HV</td>
</tr>
<tr>
<td>Mohs' Hardness</td>
<td>9</td>
</tr>
<tr>
<td>Breaking load</td>
<td>1500 N</td>
</tr>
<tr>
<td>Color</td>
<td>White (pearl sheen)</td>
</tr>
</tbody>
</table>

*typical values

**Standard sizes**

<table>
<thead>
<tr>
<th>Beads (⌀, mm)</th>
<th>0.03</th>
<th>0.05</th>
<th>0.08 – 0.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 – 0.2</td>
<td>0.2 – 0.3</td>
<td>0.2 – 0.4</td>
<td>0.8 – 1.0</td>
</tr>
<tr>
<td>0.3 – 0.4</td>
<td>0.4 – 0.6</td>
<td>0.6 – 0.8</td>
<td>1.4 – 1.7</td>
</tr>
<tr>
<td>0.8 – 1.0</td>
<td>1.0 – 1.2</td>
<td>1.2 – 1.4</td>
<td>2.6 – 3.3</td>
</tr>
<tr>
<td>1.4 – 1.7</td>
<td>1.5 – 2.0</td>
<td>2.0 – 2.5</td>
<td>2.6 – 3.3</td>
</tr>
<tr>
<td>2.6 – 3.3</td>
<td>3.5 – 4.5</td>
<td>4.5 – 5.5</td>
<td></td>
</tr>
<tr>
<td>Balls (⌀, mm)</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>3/8</td>
<td>1/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*other sizes can be customized

**Manufacturer/supplier**
Chemco Advance Material (Suzhou) Co., Ltd  
Guangfu Industrial Park, Fengshan Road, Suzhou 215159, CHINA  
Phone: +86 186 1680 9761 +86 139 1731 6806  
Email: info@chemcobeads.com  
Website: www.chemcobeads.com
<table>
<thead>
<tr>
<th>Composition</th>
<th>Weight*</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zirconium dioxide ZrO₂ + Hafnium dioxide HfO₂</td>
<td>94.6 %</td>
<td>1314-23-4</td>
</tr>
<tr>
<td>Yttrium oxide Y₂O₃</td>
<td>5.2 %</td>
<td>1314-36-9</td>
</tr>
<tr>
<td>Others</td>
<td>0.2 %</td>
<td></td>
</tr>
</tbody>
</table>

*Typical values

### Hazards identification
- Health rating: 0 – None
- Flammability rating: 0 – None
- Reactivity rating: 0 – None
- Contact rating: 0 – Slight
- Possible irritation through abrasive friction.
- Risk of slipping if the product (beads) is spread out on the floor.
- As such, the product should not cause an inhalation problem but its utilization can create dust.

### First aid measures
- Eyes: may be abrasive through friction, treat as particle in eye.

### Fire fighting measures
- This product is not combustible or explosive. It is compatible with all standard fire-fighting methods.

### Accidental release measures
- Isolate the area and sweep the floor in order to collect the beads to avoid the slipping by rolling.
- Wear eye protectors and dust mask.

### Handling and storage
- In case of operations, which generate dust, wear dust mask. Wear eye protectors.
- Heavy material, respect the security rules in case of stocking. Use safety shoes for handling.

### Physical / Chemical Properties
- Appearance and odor: odorless white beads
- Solubility in water: insoluble
- Volatiles by volume at 21°C: 0%
- Boiling point: NAIF
- Melting point: over 1600°C

### Disposal consideration
- Whatever cannot be saved for recovery or recycling should be managed in an appropriate waste disposal facility. Dispose of packaging and unused contents in accordance with governmental and local requirements.

### Transport information
- Not regulated

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