Technical Ceramics

Porous Ceramics

Porous Ceramics are used in environmental technology, process engineering for material separation, material mixing and as a catalyst support.

The characteristics that give porous ceramics an advantage are high temperature resistance, good corrosion resistance especially to acids and very high abrasion resistance.

Due to these properties new applications for porous ceramics are continually being found.
Material

For special applications and requirements different porous ceramics have been developed, based on alumina and cordierite.

Production

To enable the production of the required products the ceramic material is mixed with organic additives. These organic additives are burned out during the sintering process whereby a defined pore structure is created. The desired bodies are produced by pressing (P), extruding (E) or casting (C).

Applications

Porous Ceramics can be used for oxygenating aquariums, irrigating plants, as ignition barriers in stationary batteries, thermal shock resistant supports for heating wires, filtration of liquids, heat exchangers and streaming rectifiers.

The porous materials C520 and C530 have an excellent thermal shock resistance and are impervious to gas and water. Multiple tubes made of Rapor P3 are used as a porous support for the ultra-, micro- and nanofiltration.

Physical Properties

<table>
<thead>
<tr>
<th>Material</th>
<th>P 20</th>
<th>P 15</th>
<th>P 3</th>
<th>P 1</th>
<th>C 520</th>
<th>C 530</th>
<th>P 0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>20-24</td>
<td>5-20</td>
<td>3</td>
<td>1</td>
<td>1-10</td>
<td>0,8-1,2</td>
<td>0,25-0,35</td>
</tr>
<tr>
<td>Open porosity</td>
<td>38-45</td>
<td>50</td>
<td>-</td>
<td>50-52</td>
<td>20-30</td>
<td>20-30</td>
<td>27-32</td>
</tr>
<tr>
<td>Bulk density g/cm³</td>
<td>1,9-2,2</td>
<td>1,5</td>
<td>2,8</td>
<td>1</td>
<td>2,1</td>
<td>2,4</td>
<td>1,8-2,0</td>
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<tr>
<td>Hardness (Mohs)</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>5-6</td>
<td>6</td>
<td>6-8</td>
<td>5</td>
</tr>
<tr>
<td>Thermal resistance °C</td>
<td>1,000</td>
<td>1,100</td>
<td>1,600</td>
<td>600</td>
<td>1,240</td>
<td>1,300</td>
<td>600</td>
</tr>
<tr>
<td>Chemical resistance against acids</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gas and water permeability</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Thermal shock resistance</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
<td>+++</td>
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<td>++</td>
</tr>
<tr>
<td>Press</td>
<td>P</td>
<td>E</td>
<td>P, E</td>
<td>E</td>
<td>P</td>
<td>E</td>
<td>P, E</td>
</tr>
<tr>
<td>Extrude</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>P</td>
<td>E</td>
<td>P, E</td>
</tr>
</tbody>
</table>

Inquiries

Please send your inquiry giving details on the quantity, the function range and the required tolerances.

For very small tolerances the parts have to be grinded.

Your contact person

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