



PUMPS, VALVES AND SEALS

Ceramic Solutions for
Fluid Management

Advanced Ceramics for Household & Sanitary Applications

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Unique applications require unique partnerships

With extensive material expertise, unique technology capabilities and comprehensive application know-how we design, develop and implement highly-customized innovative ceramic solutions to help our customers achieve significant competitive advantages.

*Exciting
ceramics!*



Why ceramics in your application?

Multiple modern domestic applications are subject to tribological effects which can significantly impact service life of machines and systems. Depending on the extent of undesirable consequences of friction and wear such as changes in geometry, wear particles, heat, vibration or noise can lead to progressive deterioration of system properties, even to complete system failure.

The desire for ecological and economic optimization of tribological systems has been a major driver for the development of special tribological materials, which require an application oriented approach based on solid

knowledge about mechanisms, tribological materials, influences of surface structures and contact conditions and interactions in tribological systems.

Due to their specific properties such as hardness, toughness, chemical or temperature resistance, depending on the area of use, ceramic solutions can significantly contribute to reducing tribological effects. Thus, compared to other materials such as metal or plastic, ceramics opens up enormous performance potentials and can help achieving application specific competitive advantages.



Customized ceramic solutions for demanding applications

With over 100 years of production and development experience, CeramTec is one of the leading providers of advanced ceramic solutions worldwide. Based on our extensive material expertise and application know-how, we offer our customers unique globally networked engineering and solution competence.

From automotive, chemicals and mechanical engineering to plant engineering and medical technology – leading global customers rely on our unique competence and capabilities to develop highly customized solutions for demanding industry application needs.



FDA, Food and Drinking water certification for many material grades available. For those and other certificates please ask us for details.

Material and design know-how for multiple household applications

With a broad spectrum of materials to create advanced ceramic solutions for your applications CeramTec sets standards for process reliability and performance. For many application-specific requirements, such as electrical insulation, thermal conductivity, strength, coefficient of expansion or a combination of these, we recommend the optimum material selection.

Whether the final individual ceramic solution is based on aluminum oxide, silicon carbide or zirconium oxide, what all of these ceramic materials have in common their unsurpassed wear and chemical resistance to aggressive media that flow through components at

high temperatures and under high pressure. This means that components made from these materials satisfy even the most compelling requirements when it comes to functionality, long service life and cost effectiveness in equipment and mechanical engineering.

No matter what your individual application requires – from sealing, regulating and controlling in domestic and electrical appliances - together with you we develop individual solutions based on comprehensive material know-how and material setup as well as customized component design.

Material Properties	Aluminium oxide (Al ₂ O ₃)	Zircon oxide (ZrO ₂)	Silicon carbide (SiC)
	different grades with Alumina content 94 - 99,7 available	available with MgO or Y stabilisation	available as SiSiC, dense or in defined porosity
Density	3,7 - 3,92 g/cm ³	5,74 - 6,05 g/cm ³	3,13 - 3,16 g/cm ³
Bending Strength	300 - 400 MPa	500 - 1000 MPa	330 - 460 MPa
Hardness (HV1)	1100 - 1500	1080 - 1270	up to 2500
Young's Modulus	310 - 380 GPa	210 GPa	310 - 430 GPa
Thermal Conductivity	24 - 30 W/mK	3 W/mK	120 - 130 W/mK
Thermal Extension Coefficient 30 - 400 °C	7,1 - 7,5 10 ⁻⁶ /K	10 - 10,5 10 ⁻⁶ /K	4,5 - 4,9 10 ⁻⁶ /K

Indicative values only. For detailed parameters an material information please contact CeramTec Team

Ready for your ceramic solution? Get in touch with us. We are looking forward to discuss your individual application requirements.