

Engineering Ceramics

Gammatec Engineering GmbH
Refractory Materials

Our supplier of engineering ceramics offers a great variety of materials with a wide range of properties for a diversity of applications. Among oxide ceramics, the most widely used material for high temperature applications is alumina, but we have also zirconia available in various grades. Further we supply silicon carbide, silicon nitride, aluminium nitride and other ceramics.

Alumina is characterised by high hardness and resistance against abrasion, excellent chemical and heat resistance. Due to its attractive cost performance it is the first choice for a lot of applications.

Zirconia exhibits high strength and toughness at ambient temperature. Since its heat expansion is similar to steel, it is often used as inserts in steel dies with a shrink fit.

Silicon carbide is extremely hard and wear resistant even at elevated temperatures.

Silicon nitride has excellent resistance under thermal shock and is inert against liquid aluminium. Its extremely low friction coefficient makes it ideally suited for high performance ball bearings.

Aluminium nitride is often used for heat sinks in electronics due to its high thermal conductivity.

Common Products and Shapes

- Plates up to 300 mm width and length, up to 10 mm thickness
- Discs up to 350 mm diameter and up to 10 mm thickness
- Tubes with one or more through holes up to 4 m length
- Tablets and boats
- Crucibles and bowls
- Paints for application by spray or brush

Deviating dimensions and other shapes upon request.

We guarantee expert advice, top quality, competitive prices, and timely delivery.

Alumina grades

Type	Rel. density	Thermal conductivity [W/mK]	T _{max} [°C]
Al ₂ O ₃ 99,7%	99,7%	29	1600
Al ₂ O ₃ 97,6%	97,6%	27	1350
Al ₂ O ₃ 60%	60,0%	3	1300

Zirkonia grades

Type	Hardness HV	Thermal conductivity [W/mK]	T _{max} [°C]
ZrO ₂ MgO stab.	1200	3	600
ZrO ₂ Y ₂ O ₃ stab.	1300	2	900
ZrO ₂ Y ₂ O ₃ stab. + HIP	1350	2	1700

SiC grades

Type	Hardness HV	Thermal conductivity [W/mK]	T _{max} [°C]
SiSiC	2200	110	1100
SSiC	2500	110	1300
HPSiC	2500	180	1300

Nitride grades

Type	Hardness HV	Thermal conductivity [W/mK]	T _{max} [°C]
Si ₃ N ₄ RBSN	300	10	1100
Si ₃ N ₄ SSN	1550	35	800
Si ₃ N ₄ HPSN	1600	35	800
AlN T180	1200	180	700