



Typical properties of dense ceramic materials.

| Type                         | GLASS CERAMICS | ALUMINA |           |           | ZIRCONIA    |           | BLACK CERAMICS |       | MULLITE   | STEATITE   |            |
|------------------------------|----------------|---------|-----------|-----------|-------------|-----------|----------------|-------|-----------|------------|------------|
|                              | units          | Macor   | C786      | C795      | C799        | TZP       | PSZ            | SiC   | Si3N4     | C610       | C220       |
| Composition                  |                |         | 92% Al2O3 | 95% Al2O3 | 99,7% Al2O3 | ZrO2+Y2O3 | ZrO2+MgO       | SSC   | SSN       | Al2O3+SiO3 | MgOSiO2    |
| Colour                       |                | white   | white     | white     | ivory       | Ivory     | yellow         | black | dark gray | light gray | light gray |
| Specific density             | g/cm3          | 2,5     | 3,6       | 3,7       | 3,9         | 6         | 5,6            | 3,1   | 3,3       | 2,7        | 2,6        |
| Water asorption              | %              | 0       | 0         | 0         | 0           | 0         | 0              | 0     | 0         | 0          | 0          |
| Hardness                     | HV             | 230     | 1175      | 1590      | 1600        | 1350      | 1120           | 2800  | 1500      | 8          |            |
| Modus of elasticity, Min.    | Gpa            | 67      | 240       | 275       | 330         | 205       | 205            | 450   | 290       | 100        | 110        |
| Compresive strength          | Mpa            | 345     | 2000      | 2100      | 2100        | 2000      | 1750           | 2000  | 2000      | 550        | 850        |
| Flexural strength            | Mpa            | 94      | 250       | 250       | 250         | 270       | 350            | 500   | 450       | 120        | 140        |
| Fracture Toughness           | K ic           | 1,5     | 3,5       | 3,5       | 4           | 8         | 6              | 5     | 7         |            |            |
| Thermal expansion(20-1000oC) | 10-6K-1        | 9       | 7         | 8         | 8           | 9         | 10             | 4     | 3         | 6          | 7          |
| Thermal conductivity         | W/MK           | 1,5     | 18        | 25        | 29          | 2         | 3              | 75    | 25        | 2          | 2,5        |
| Resistance to thermal schock | oC             |         | 150       | 180       | 200         | 250       | 375            | 380   | 600       | 150        | 125        |
| Max. working temperature     | oC             | 800     | 1500      | 1550      | 1700        | 1000      | 1000           | 1550  | 1100      | 1400       | 1000       |
| Dielectric strength          | KV/mm          | 40      | 15        | 17        | 25          | 9         | 9              |       |           | 10         | 10         |