



MULLITE SPECIFICATIONS

| | Property | ASTM Method | Units | Mullite |
|-----------------|---|----------------|------------------------------|------------------------|
| General | Crystal Size (Average) | Thin Section | Microns | 7 |
| | Color | -- | -- | Gray-Tan |
| | Water Absorption | C 20-97 | % | 0 |
| Mechanical | Density | C 20-97 | g/cc | 3.00 |
| | Hardness | Vickers 500 gm | GPa (kg/mm ²) | 10 (1000) |
| | Hardness | -- | R45N | 78 |
| | Fracture Toughness | Notched Beam | MPam ^{1/2} | 3 |
| | Flexural Strength (MOR) (3 point) @ RT | F417-87 | MPa (psi x 10 ³) | 206 (30) |
| | Tensile Strength @ RT | -- | MPa (psi x 10 ³) | 138 (20) |
| | Compressive Strength @ RT | -- | MPa (psi x 10 ³) | 1034 (150) |
| | Elastic Modulus | C848 | GPa (psi x 10 ⁶) | 179 (26) |
| Poisson's Ratio | C848 | -- | 0.24 | |
| Thermal | C.T.E. 25 - 100° C | C 372-96 | x 10 ⁻⁶ /C | 3.6 |
| | C.T.E. 25 - 300° C | C 372-96 | x 10 ⁻⁶ /C | 4.1 |
| | C.T.E. 25 - 600° C | C 372-96 | x 10 ⁻⁶ /C | 4.8 |
| | Thermal Conductivity @ RT | C 408 | W/m K | 4 |
| | Max Use Temp | -- | Fahrenheit (°F) | 3100 |
| | -- | Celcius (°C) | 1700 | |
| Electrical | Dielectric Strength (.125" Thick) | D 149-97A | V/mil | 250 |
| | Dielectric Constant @ 1 MHz | D 150-98 | -- | 6.7 |
| | Dielectric Constant @ Gigahertz | D 2520-95 | -- | 6.7 11.4 |
| | Dielectric Loss @ 1 MHz | D 150-98 | -- | 0.003 |
| | Dielectric Loss @ Gigahertz | D 2520-95 | -- | 0.003 11.4 |
| | Volume Resistivity, 25°C | D 257 | ohms-cm | > 1 x 10 ¹⁴ |
| | Volume Resistivity, 300° C | D 1829 | ohms-cm | 4 x 10 ¹⁰ |
| | Volume Resistivity, 500° C | D 1829 | ohms-cm | 1 x 10 ⁹ |

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