DATA SHEET

# Frequentite

## Magnesium Silicate



### Description

A steatite ceramic of typical composition 27.7% MgO and 64% SiO2. This silicate-based material offers economy and good high temperature electrical resistance for components that do not need the higher rated mechanical properties of alumina ceramics.

### Prime Features

- Good balance of electrical properties across a range of temperatures.
- Low dielectric loss.
- High electrical resistance.
- High dielectric strength.
- Ideal for production of small and complex- shaped components.

### Typical Applications

- Good balance of electrical properties across a range of temperatures.
- Low dielectric loss.
- High electrical resistance.
- High dielectric strength.
- Ideal for production of small and complex- shaped components.

### Specifications

- Quality Assurance to ISO 9002.

### MTC production capabilities

- Manufacture of large and small complex shapes.
- Net shape sintering and/or machining.
- Prototype, batch and volume production.

### Physical Properties*

| | |
|---|---|
| Colour | Light green |
| Fired density, g/cm$^3$ | 2.8 |
| Porosity (apparent),% nominal | 0 (fully dense) |
| Rockwell hardness (R30N) | 70.6 |
| Flexural strength (3-point), MPa @ 20C | 125 |
| Young's modulus, GPa @ 20C | 110 |

### Thermal Properties

| | |
|---|---|
| Thermal conductivity, W/m.K @ 20C | 2.9 |
| Thermal expansion coefficient (20-1000C),10/C | 8.6 |
| Thermal downshock, ▲C | 190 |
| Specific heat, J/kg.K | 900 |
| Maximum no-load temperature, C | 1000 |

### Electrical Properties

| | |
|---|---|
| Dielectric constant @ 1MHz | 6.1 |
| Dielectric loss @ 1MHz, tan $\delta$ 10.4 | 4.0 |
| Dielectric strength, kV/mm | 26 |
| Volume resistivity, ohm.cm @ | |
| 20C | $>10^{14}$ |
| 300C | $>10^{9}$ |
| 600C | $>10^{6}$ |

Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in anyway whatsoever and should only be treated as indicative and for guidance only.
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