Properties & Performance

Ceramic Fiber Heaters

Composition of Insulation
Al₂O₃ (Alumina) .............. 38%
SiO₂ (Silica) .................. 62%
Organics ..................... 0%
Bond .......................... Silica
Bulk Density
gm/cm³, (lb/cu. ft.) 0.28 (18)

Thermal Conductivity
W/m°K (Btu/hr°F ft²/in.)
400°C (752°F) ................. 0.10 (0.8)
1100°C (2012°F) .............. 0.22 (1.5)

Flexural Strength MPa (Psi)
As received .................. 0.17 (25)
After 24 hrs. at 1000°C .... 0.354 (51.34)

Compressive Strength MPa (Psi)
10% Deflection .............. 0.054 (7.83)

Stability—Linear Shrinkage
24 hrs. at temperature
800°C (1472°F) ............... 0.3%
1000°C (1832°F) ............. 1.8%
1200°C (2192°F) ............. 2.5%

Performance Characteristics

Performance of a Typical Rectangular Furnace
Test chamber left and right walls fabricated from Standard Fiber Insulated Heaters (24” × 36” × 5”) and insulation boards. This size chamber, approximately 10 cubic feet, was chosen to best reflect performance characteristics of flat panel heaters as used in a broad section of industrial applications. Chamber walls, roof and floor are 5” thick insulation. Cool down rate was plotted with data generated after element power was turned off. Chamber door remained closed. Chamber contained no load.

Performance of a Typical Full Round High Temperature Ceramic Fiber Heater
This assembly, which can be representative of many industrial and laboratory heating applications, was cycled with no load. Cool down rates were determined by turning the power off. Assembly was left intact. The “outside wall” temperature was measured on the external surface of the sidewall.

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