

Zircar Zirconia ZYZ-3 Zirconia Boards and Discs Insulation

Category : Ceramic , Machinable Ceramic , Oxide , Zirconium Oxide

Material Notes:

Type ZYZ Boards and Discs are rigid, refractory structures composed of yttria-stabilized zirconia fibers that are bonded with silica. This unique composition provides Type ZYZ insulation with the low thermal conductivity of zirconia fibers combined with the strength and machinability of a silica bonded material. ZYZ is evenly bonded, allowing it to be machined to tight tolerances and intricate shapes. ZYZ has a lower coefficient of thermal expansion than our Type ZYFB materials. Type ZYZ is ideally suited for thermal insulation and protection applications under conditions of ultra-high temperatures and in a variety of severe environments. ZYZ is fired at a high temperature to impart good dimensional stability up to 1650°C. ZYZ has good hot strength up to 1400°C and can be used as a self supporting setter for loads equal to twice its own weight up to this temperature. ZYZ produces no smoke or odor and undergoes no physically disruptive phase transitions when heated. ZYZ is available in two forms. ZYZ-3 has a bulk density of 30 pcf and possesses extremely low thermal conductivity. ZYZ-6 has a bulk density of 60 pcf and is stronger than ZYZ-3. Zirconia loses a small amount of oxygen at very high temperatures in vacuum and inert or reducing atmospheres. Although this reaction results in a color change from white to gray, other properties remain essentially unchanged and insulation effectiveness is not impaired.

Features: Rigid and Machinable
Silica Bond for Thermal Shock Resistance
Available in Two Densities; 30 & 60 pcf
Extreme High Temperature Stability
Fibers Stabilized with ~10 wt% Yttria
Low Thermal Conductivity
Can be Cemented with Zircar Zirconia Cement Type ZR-CE
Can be Surface Hardened with Zircar Zirconia Rigidizer Type ZR-RIG
Pre-fired and Organic Free
Information provided by Zircar Zirconia.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Zircar-Zirconia-ZYZ-3-Zirconia-Boards-and-Discs-Insulation.php

Physical Properties	Metric	English	Comments
Bulk Density	0.480 g/cc	0.0173 lb/in ³	
Porosity	91 %	91 %	
Outgassing - Total Mass Loss	0.00 %	0.00 %	In vacuum

Mechanical Properties	Metric	English	Comments
Flexural Strength	0.280 MPa	40.6 psi	Parallel to thickness
Compressive Yield Strength	0.390 MPa	56.6 psi	Parallel to thickness @ 10% compression

Thermal Properties	Metric	English	Comments
CTE, linear	9.00 µm/m-°C	5.00 µin/in-°F	
	@Temperature 20.0 - 1250 °C	@Temperature 68.0 - 2280 °F	
Thermal Conductivity	0.0800 W/m-K	0.555 BTU-in/hr-ft ² -°F	
	@Temperature 400 °C	@Temperature 752 °F	
	0.110 W/m-K	0.763 BTU-in/hr-ft ² -°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 800 °C	@ Temperature 1470 °F	
	0.140 W/m-K	0.972 BTU-in/hr-ft²-°F	
	@Temperature 1100 °C	@Temperature 2010 °F	
	0.190 W/m-K	1.32 BTU-in/hr-ft²-°F	
	@Temperature 1400 °C	@Temperature 2550 °F	
	0.230 W/m-K	1.60 BTU-in/hr-ft²-°F	
	@Temperature 1650 °C	@Temperature 3000 °F	
Melting Point	2200 °C	3990 °F	
Maximum Service Temperature, Air	1650 °C	3000 °F	Continuous
	1700 °C	3090 °F	Intermittent
Softening Point	1250 °C	2280 °F	Dilatometric @ 10psi
Shrinkage	1.70 %	1.70 %	perpendicular to thickness
	@Temperature 1650 °C, Time 3600 sec	@Temperature 3000 °F, Time 1.00 hour	
	2.30 %	2.30 %	perpendicular to thickness
	@Temperature 1650 °C, Time 86400 sec	@Temperature 3000 °F, Time 24.0 hour	

Component Elements Properties	Metric	English	Comments
HfO2	1.0 - 2.0 %	1.0 - 2.0 %	
Y2O3	10 %	10 %	
ZrO2	83 - 84 %	83 - 84 %	

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