

COI Ceramics Nextel™ A-N720 Oxide Ceramic Matrix Composite, Alumina

Category : Ceramic , Ceramic Matrix Composite , Oxide , Aluminum Oxide

Material Notes:

Description: Oxide ceramic matrix composites products are based upon sol-gel derived matrices and 3M Corporation's Nextel™ fiber products. These materials can be used up to 1200°C (2200°F) in air environments and are primarily used in both Aerospace and Gas Turbine applications. Ceramic Matrix System: Water Based Sol-Gel Processing, Versatile Matrix Chemistry Typical Applications for Oxide CMCs: Rotocraft Exhaust Systems, Advanced Thermal, Advanced Combustor Highest Temperature & Creep Performance Information from COI Ceramics, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_COI-Ceramics-Nextel-A-N720-Oxide-Ceramic-Matrix-Composite-Alumina.php

Physical Properties	Metric	English	Comments
Density	2.73 g/cc	0.0986 lb/in ³	
Porosity	25 %	25 %	

Mechanical Properties	Metric	English	Comments
Tensile Strength	169 MPa	24500 psi	
	141 MPa	20500 psi	
	@Treatment Temp. 1200 °C	@Treatment Temp. 2190 °F	
	148 MPa	21500 psi	
Tensile Stress	@Treatment Temp. 1090 °C	@Treatment Temp. 1990 °F	
	159 MPa	23100 psi	
	@Treatment Temp. 982 °C	@Treatment Temp. 1800 °F	
	60.0 MPa	8700 psi	
	@Strain 0.100 %, Temperature 1200 °C	@Strain 0.100 %, Temperature 2190 °F	
Tensile Stress	70.3 MPa	10200 psi	
	@Strain 0.100 %, Temperature 25.0 °C	@Strain 0.100 %, Temperature 77.0 °F	
	120 MPa	17400 psi	
Tensile Stress	@Strain 0.200 %, Temperature 1200 °C	@Strain 0.200 %, Temperature 2190 °F	
	125 MPa	18100 psi	

Mechanical Properties	Metric @Strain 0.200 %, Temperature 25.0 °C	English @Strain 0.200 %, Temperature 77.0 °F	Comments
	160 MPa	23200 psi	
	@Strain 0.300 %, Temperature 25.0 °C	@Strain 0.300 %, Temperature 77.0 °F	
	160 MPa	23200 psi	
	@Strain 0.300 %, Temperature 1200 °C	@Strain 0.300 %, Temperature 2190 °F	
Creep Strength	100 MPa	14500 psi	
	@Temperature 1200 °C, Time >=360000 sec	@Temperature 2190 °F, Time >=100 hour	
	110 MPa	16000 psi	
	@Temperature 1200 °C, Time 177000 sec	@Temperature 2190 °F, Time 49.17 hour	
	110 MPa	16000 psi	
	@Temperature 1200 °C, Time 89890 sec	@Temperature 2190 °F, Time 24.97 hour	
	125 MPa	18100 psi	
	@Temperature 1200 °C, Time 27700 sec	@Temperature 2190 °F, Time 7.69 hour	
	125 MPa	18100 psi	
	@Temperature 1200 °C, Time 27100 sec	@Temperature 2190 °F, Time 7.53 hour	
	150 MPa	21800 psi	
	@Temperature 1200 °C, Time 1010 sec	@Temperature 2190 °F, Time 0.280 hour	
	165 MPa	23900 psi	
	@Temperature 1200 °C, Time 324 sec	@Temperature 2190 °F, Time 0.0900 hour	
Tensile Modulus	70.0 GPa	10200 ksi	
Fatigue Strength	150 MPa	21800 psi	
	@# of Cycles >=100000 ' Temperature 1200 °C	@# of Cycles >=100000 ' Temperature 2190 °F	
	165 MPa	23900 psi	
	@# of Cycles >=100000 ' Temperature 1200 °C	@# of Cycles >=100000 ' Temperature 2190 °F	
	170 MPa	24700 psi	

Mechanical Properties	Metric	English	Comments
	@# of Cycles >=100000 ' Temperature 1200 °C	@# of Cycles >=100000 ' Temperature 2190 °F	
	175 MPa @# of Cycles 97798 , Temperature 1200 °C	25400 psi @# of Cycles 97798 , Temperature 2190 °F	
	175 MPa @# of Cycles 27742 , Temperature 1200 °C	25400 psi @# of Cycles 27742 , Temperature 2190 °F	
Shear Strength	12.5 MPa	1810 psi	Short Beam

Thermal Properties	Metric	English	Comments
CTE, linear	6.00 µm/m-°C	3.33 µin/in-°F	
Maximum Service Temperature, Air	1200 °C	2190 °F	

Descriptive Properties	Value	Comments
Nominal Fiber Volume (%)	45	

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