

3M Advanced Materials Division

3M™ Nextel™ Ceramic Structural Fabrics 610 and 720

Introduction

3M™ Nextel™ Ceramic Structural Fabrics 610 and 720 are made from continuous oxide composite grade fibers designed for load bearing applications in metal, ceramic and polymer matrices.

Nextel fibers are offered in a variety of forms including chopped fibers, fabrics, rovings, and yarns. Because the filaments are continuous and strong, textiles can be produced without the aid of other fibers or wire inserts.

Features and Benefits

- High strength/modulus
- Low elongation at operating temperatures
- Low shrinkage at operating temperatures
- Good chemical resistance
- Low thermal conductivity
- Thermal shock resistance
- Low porosity
- Broad electromagnetic transparency
- Electrically insulating

Typical Applications

Application	3M™ Nextel™ Ceramic Structural Fabrics	
	610	720
Creep Limit Temperature*	1832°F (1000°C)	2102°F (1150°C)

Ceramic Matrix Composites

Ideal for applications requiring high oxidation resistant structural fibers with low creep

Metal Matrix Composites

Ideal for applications requiring high temperature resistant fibers that won't react with aluminum

Polymer Matrix Composites

Ideal for applications requiring non-conductive, electromagnetically transparent structural fibers

* Single filament $\leq 1\%$ strain under 69 Mpa after 1000 hours.

Important Processing Information

Heat Cleaning: Nextel ceramic structural fabrics 610 and 720 are coated during manufacture with sizings or finishes to serve as aids in textile processing. The sizings or finishes consist of organic polymers which, when first heated, may ignite and/or decompose to potentially hazardous byproducts or process contaminants. See Safety Data Sheet or contact 3M for more information.

Heat cleaning of Nextel ceramic structural fabrics is a service offered by 3M.

Additional Information

For additional information about 3M Nextel ceramic structural fabrics, please call **1-800-367-8905**, or contact your local 3M representative.

Typical Physical Properties (not for specification purposes.)

														3M™ Nextel™ Ceramic Structural Fabrics 610 and 720								
														Sized		Heat Cleaned						
Style	Target thread count per in. (cm)		Input fiber		Weave	Permeability* (Heat cleaned)	Width in. (cm)	Weight oz/yd ² (g/m ²)	Thickness in. (mm)	Weight oz/yd ² (g/m ²)	Thickness in. (mm)	Breaking strength lbs/in. (kg/cm)										
	Warp	Fill	Yarn type	Denier (Tex)								Warp	Fill									
Nextel 610																						
DF-6	18.5 (7)	18.5 (7)	Roving	1500 (167)	4 Harness Satin	Med	36 (91)	7.5 (250)	0.008 (0.20)	7.3 (250)	0.006 (0.15)	180 (32)	180 (32)									
DF-11	27.5 (11)	27.5 (11)	Roving	1500 (167)	8 Harness Satin	Med	36 (91)	11 (370)	0.012 (0.30)	11 (370)	0.010 (0.25)	260 (46)	260 (46)									
DF-19	23.5 (9)	23.5 (9)	Roving	3000 (333)	8 Harness Satin	Med	36 (91)	19 (640)	0.020 (0.51)	18 (610)	0.017 (0.43)	-	330 (59)									
Nextel 720																						
EF-11	27.5 (11)	27.5 (11)	Roving	1500 (167)	8 Harness Satin	Med	36 (91)	11 (370)	0.013 (0.33)	11 (370)	0.012 (0.30)	180 (32)	170 (30)									
EF-19	23.5 (9)	23.5 (9)	Roving	3000 (333)	8 Harness Satin	Med	36 (91)	19 (640)	0.023 (0.58)	18 (610)	0.021 (0.53)	240 (43)	230 (41)									
EF-20	16 (6)	5 (2)	Roving	10,000 warp x 1500 fill (1111 x 167)	Plain-Semi Unidirection	Low	25 (64)	22 (750)	0.030 (0.76)	22 (750)	0.026 (0.66)	260 (46)	90 (16)									

* Permeability (cfm/ft²): Low <20; Med 20-70; High >70. D-Nextel 610 E-Nextel 720

Warranty, Limited Remedy, and Disclaimer: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. User is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application. User is solely responsible for evaluating third party intellectual property rights and for ensuring that user's use of 3M product does not violate any third party intellectual property rights. Unless a different warranty is specifically stated in the applicable product literature or packaging insert, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OF NON-INFRINGEMENT OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damages arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Technical Information: Technical information, recommendations, and other statements contained in this document or provided by 3M personnel are based on tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed. Such information is intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Export Control: The 3M product(s) listed here may be controlled commodities under applicable U.S. export control laws and regulations, including, but not limited to, the U.S. International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR). These laws and regulations may, among other things, prohibit the export and/or reexport of controlled product(s) to any or all locations outside of the United States without prior U.S. Government export authorization, the sharing of export controlled technical data and services with those anywhere who are not U.S. citizens or U.S. permanent residents, dealings with U.S. Government, United Nations and other "Restricted Parties," and proliferation activities including those that further nuclear, chemical, or biological warfare, missile stockpiling/use, or the use of rockets or unmanned aerial vehicle systems. 3M and purchasers or prospective purchasers of the 3M product(s) shall comply with all applicable export control laws and regulations, which may require obtaining and maintaining applicable export control authorization or licenses, and understand that the ability of a party to obtain or maintain such authorization or license is not guaranteed. The exporter of record has the sole responsibility to determine whether the export or subsequent reexport of the 3M product(s) requires export authorization. An explicit condition to 3M selling or making available the 3M product(s) is the customer's agreement to comply with all applicable trade compliance laws and regulations.



3M Advanced Materials Division

3M Center
St. Paul, MN 55144 USA
Phone 1-800-367-8905
Web www.3M.com/ceramics

3M and Nextel are trademarks of
3M Company. Used under license by
3M subsidiaries and affiliates.

Please recycle. Printed in USA. © 3M 2016.
All rights reserved. Issued: 7/16 10806HB
98-0212-4192-6 Rev. B