Fishpaper Properties

UL File No.: E48013
ASTM Spec.: ASTM D-710, Electrical Insulation
Military Spec.: Mil-I-695, Type F
NEMA Grade: Electrical Insulation

Properties
A slate grey fish paper that combines the highest possible dielectric, tensile and bending strength with flexibility. Strong, smooth, excellent punching and forming qualities.

Thickness Range
0.004" to 0.093"

Color
Grey

Applications
Armature slot insulation, liners, washers, coil insulation, arc shields, formed specialties and gasket stock.

Form
Sheet, Roll and Coil

Property	Thickness (in)	Unit	ASTM Test Method	Typical Value
Density	1/16	gm/cc	D-619	1.20
Specific Volume	1/16	cu in/lb		23.0
Tensile Strength				
MD	1/16	psi	D-638	21,000
CD	1/16	psi	D-638	10,000
Modulus of Elasticity in Flexural x 10^5				
MD	1/16		D-790	10
CD	1/16		D-790	7
Modulus of Elasticity in Tension x 10^5				
MD	1/16		D-638	12
CD	1/16		D-638	8
Flexural Strength				
MD	1/16	psi	D-790	29,000
CD	1/16	psi	D-790	16,000
Compressive Strength	1/16	psi	D-695	35,000
Impact Strength				
MD	1/16	ft lbs/in	D-256	2.5
CD	1/16	ft lbs/in	D-256	2.0
Rockwell Hardness, R Scale	1/16	divisions	D-785	70
Bond Strength	1/16	psi	D-952	900
Bursting Strength, Mullen	1/64	psi	D-202	325
Tear Strength, Elmendorf				
MD	1/64	gm	D-689	550
CD	1/64	gm	D-689	700
Dielectric Strength	1/64	volts/mil	D-149	400
	1/16	volts/mil	D-149	215
	1/8	volts/mil	D-149	200
Arc Resistance	1/16	sec	D-495	125
Comparative Tracking Index*	0.120	volts		400-599
Thermal Conductivity, 149°F		btu/hr/ft 2/°F/ft	C-177	0.168
Specific Heat		btu/lb/°F	C-351	0.403
Thermal Expansion x 10^5				
MD		in/in/°F	D-696	1.1
CD		in/in/°F	D-696	1.7
Dimensional Change, Thickness		%		1.00
(Per Percent Change MD		%		0.10
in Moisture Content) CD		%		0.25
Water Absorption, 24hrs	1/16	%	D-570	63
Coefficient of Friction				
Fibre on Fibre				0.16
Fibre on Smooth Cast Iron				0.21
Flammability	1/16	in/min	D-635	0.5
Flammability, UL 94*	0.028,0.058,0.120			94HB
Heat Resistance, Continuous*				
Electrical	0.028,0.058,0.120	°C		115
Mechanical	0.028,0.058,0.120	°C		110
Hot-Wire Ignition*	0.028,0.058	sec		15-29
	0.120	sec		60-119
High-Ampere Arc Ignition*	0.028,0.058,0.120	sec		120+
*UL File No. E48013				