



Global Thermoset Composite Solutions

MC511FR

TECHNICAL DATA BULLETIN

GRADE: MC511FR

NEMA GRADE:FR-5

U. L. LISTED: N

DESCRIPTION: MC511FR is a high strength, medium weave glass epoxy laminate that retains a minimum of 50 percent of its room temperature flexural strength when tested at 150°C. Typical applications include structural applications when used in elevated temperatures. MC511FR complies with ANSI/NEMA IM 60000-2021 Grade FR-5 and ANSI/NEMA IM 60000-2021 G-13, MIL-I-24768/28, Type GEB-F and ASTM D709 Type IV Grade FR-5. Available 0.250" and above.

THICKNESS TESTED: 0.500"

TYPICAL PROPERTIES

GENERAL PHYSICAL PROPERTIES		UNITS	VALUE
Specific Gravity (0.500")		-	1.95
Rockwell Hardness (0.500")		M Scale	115
Moisture Absorption (0.500") Condition Di-24/23		%	0.05
Flexural Strength (0.500") Condition A	LW / CW	psi	61,000 / 52,000
Hot Flex Strength (0.500") Condition E-1/150, T-150	LW / CW	psi	51,000 / 46,000
Flexural Modulus (0.500") Condition A	LW / CW	kpsi	3,300 / 3,100
Tensile Strength (0.500") Condition A	LW / CW	psi	41,000 / 32,000
Izod Impact Strength (0.500") Condition A	LW / CW	ft-lb/in notched	14.8 / 11.2
Compressive Strength (0.500") Condition A	Flatwise	psi	70,000

GENERAL PHYSICAL PROPERTIES (cont.)	UNITS	VALUE
Bond Strength (0.500") Condition A	lb	1,600
Condition D-48/50		1,500
Shear Strength (0.500") Perpendicular	psi	39,000
THERMAL & ELECTRICAL PROPERTIES	UNITS	VALUE
Temperature Index Electrical / Mechanical	°C	170 / 180 ¹
T _g	°C	190
Flammability Rating - U. L. 94 (0.500")	Class	V-1
Dissipation Factor (0.500") Condition D ₁ -24/23	-	0.018
Permittivity (0.500") Condition D ₁ -24/23	-	5.02
Breakdown Voltage (0.500") Condition A	kV	70
Condition D-48/50		60
Electric Strength (0.500") Condition A	V/mil	200

¹ NEMA LI-6: This temperature is a recommendation only, and based upon experience in various applications. The maximum operating temperature is dependent upon the application and should be investigated prior to use.

This data, while believed to be accurate and based on reliable analytical methods, is for informational purposes only. The terms and conditions of the agreement under which it is sold will govern any sales of this product. Data supplied above are "typical values"; not to be considered "specification values".

To assure the material's performance is adequate for a specific application; customers should verify, independent of Norplex-Micarta, performance characteristics of interest.

It is the responsibility of the users of this information to make sure that they have the latest version of this TDB, and are urged to check with Customer Service or, preferably our web site, www.norplex-micarta.com, to determine if the information is the most current available.

Specification writers: Contact Norplex-Micarta for specification values before submission.