

## NP500CR

# TECHNICAL DATA BULLETIN

**GRADE:** NP500CR

**NEMA GRADE:**

**U. L. LISTED:** N

**DESCRIPTION:** NP500CR consists of a glass fabric with a specially formulated epoxy resin system resulting in excellent electrical characteristics and superior physical properties at cryogenic temperatures (-270°C to 135°C operating temperature range). It has very low thermal conductivity and has been produced specifically for use in cryogenic applications<sup>1</sup>.

**THICKNESS TESTED:** 0.062", 0.125" & 0.500"

### TYPICAL PROPERTIES

GENERAL PHYSICAL PROPERTIES		UNITS	VALUE
Specific Gravity		-	1.80
Rockwell Hardness (0.062")		M Scale	100
Moisture Absorption (0.062") Condition Di-24/23		%	0.10
Flexural Strength (0.062") Condition A	LW / CW	psi	75,000 / 65,000
Flexural Modulus (0.062") Condition A	LW / CW	kpsi	2,700 / 2,400
Tensile Strength (0.125") Condition A	LW / CW	psi	45,000 / 38,000
Izod Impact Strength (0.500") Condition E-48/50	LW / CW	ft-lb/in notched	14.00 / 12.00
Compressive Strength (0.500") Condition A	Flatwise	psi	65,000
Bond Strength (0.500") Condition A		lb	2,200
Shear Strength (0.062")	Perpendicular	psi	22,000

<b>THERMAL &amp; ELECTRICAL PROPERTIES</b>	<b>UNITS</b>	<b>VALUE</b>
Temperature Index Electrical / Mechanical	°C	130 / 140 <sup>2</sup>
Coefficient of Thermal Expansion (0.125") x-axis / y-axis	" / °C x 10 <sup>-6</sup>	10.0 / 13.0
T <sub>g</sub>	°C	115
Thermal Conductivity	Range of temperatures upon request	
Thermal Endurance (0.125")	TI	135
Flammability Rating - U. L. 94 (0.062")	Class	HB
Dissipation Factor (0.062") Condition D <sub>1</sub> -24/23	-	0.025
Permittivity (0.062") Condition D <sub>1</sub> -24/23	-	4.80
Breakdown Voltage (0.062") Condition A	kV	60
Condition D-48/50		50
Electric Strength (0.062") Condition A	V/mil	670
Condition D-48/50		660
Arc Resistance D495 (0.125") Condition A	sec	100
Comparative Tracking Index D3638 (0.125")	V	150

<sup>1</sup> Many in the industry refer to this formulation as NIST G10CR Process Specification. However, NIST does not have a G10CR Process Specification; therefore, we are unable to claim compliance with a NIST Process Specification.

<sup>2</sup> 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.

<sup>3</sup> For typical thermal conductivity values please visit [www.cryogenics.nist.gov](http://www.cryogenics.nist.gov), Material Properties, Fiberglass Epoxy G-10.

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](http://www.norplex-micarta.com), to determine if information is most current.

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