

### **Epoxy Resin Glass Composites**

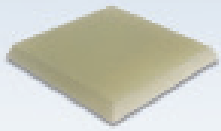
Norplex-Micarta epoxy glass thermoset composites provide superior physical properties and outstanding performance over a wide temperature range. In some cases, special epoxy resins or glass substrates enhance performance properties and optimize the material for specific requirements:

- NP500A and MC511AF woven glass fabrics are combined with a halogen-free epoxy resin for superior structural, electrical, and insulation properties.
- NP510A woven glass fabric is treated with a brominated epoxy resin for high-humidity, structural applications in the electronics market.
- NP500CR woven glass fabric are combined with a halogen-free epoxy resin suitable for pipe shoes and vacuum applications.

Norplex-Micarta offers several grades of thermoset composite material combining epoxy resin systems with a variety of glass fabric substrates. These combinations yield thermoset composites with superior physical properties and outstanding performance in both low-temperature and high-temperature environments for electronics, military, oil & gas, aerospace and power generation applications.

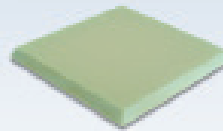
Low-temperature epoxy glass materials offer excellent chemical resistance and electrical properties in either dry or humid conditions. Depending upon the final application, some grades are flame retardant, meeting UL Flammability Class V-0 criteria. They feature exceptional flexural, impact and bond strength at temperatures up to 130°C. Low-temperature epoxy glass composites are used in a variety of structural, electronic, electrical and cryogenic applications.

High-temperature epoxy glass materials provide superior mechanical strength and insulation properties over a wide temperature range. These products maintain excellent mechanical strength when subjected to continuous operating temperatures up to 180°C. By customizing the resin system, several grades are made suitable for much higher temperatures for short periods of time. At elevated temperatures, these products retain a minimum of 50% of their room temperature flexural strength. Several grades meet NEMA G-11 requirements. The materials can also be produced using alternate glass styles for applications that do not require NEMA G-11 compliance, but do require special attributes. Applications include solder pallets, corona discharge, rotor and stator slot insulation and structural applications in high-temperature environments.



### NP500A

A glass fabric combined with a halogen-free epoxy resin, this product offers a combination of excellent electrical characteristics and superior physical properties. It meets NEMA G-10 requirements and is used for applications requiring structural support and insulation properties, such as pipe shoes for gas pipelines.



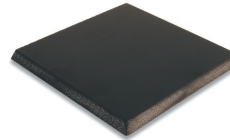
### MC511AF

A halogen-free, high performance epoxy glass composite, the MC511AF can withstand temperatures of 155°C for decades. This product is specially-formulated to meet the exacting standards of military and power generation applications, and provides excellent physical, mechanical and electrical properties at both room and elevated temperatures.



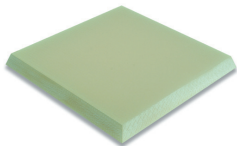
### NP510A

A woven-glass fabric and brominated epoxy resin composite, this material provides consistent quality and electrical properties in dry or humid conditions. It also offers high flexural, impact and bond strengths at room temperatures. NP510A is suitable for a variety of applications, such as terminal boards, lapping carriers and all kinds of machined parts.



### MC511SN — StatNot™

This material combines a woven-glass fabric with a static-dissipative epoxy resin system. It is used when surface-to-surface static dissipation of the composite is required in the X, Y and Z directions, and is ideal for structural applications in the military electronics market.



### MC511FR

This product is a woven glass fabric combined with an epoxy resin and provides excellent physical, mechanical and electrical characteristics in both room temperature and elevated temperatures. MC511FR is similar to MC511AF but also has a UL 94 flammability rating of V-1. The product retains at least 50 percent of its room-temperature flexural strength at 150°C.



### NP500CR

Composed of a woven glass fabric combined with a halogen-free epoxy resin system, this product offers superior physical properties and excellent electrical characteristics that are maintained in high-humidity conditions. Designed to withstand absolute zero temperatures, the product is manufactured for use in deep space, cryogenic applications and is widely used in the liquid natural gas industry for pipe and storage applications.

## Industry Standards

Norplex-Micarta Grade	ANSI/ASTM NEMA LI-1-1998	Military MIL-I-24768/...[Type]	IEC 60893 Part - 3 - "Sheet"- "Type"
NP500A	G-10	/2-GEE	- 2 - EP GC 201
MC511AF	G-11	/3-GEB	- 2 - EP GC 203
NP510A	FR-4	/27-GEE-F	- 2 - EP GC 202
MC511FR	FR-5	/28-GEB-F	- 2 - EP GC 202
MC511SN	---	---	---
NP500CR	---	---	---

Refer to our web site [www.norplex-micarta.com](http://www.norplex-micarta.com) for a complete list of our products. MC511FR is produced in a sheet thickness of .250" and greater.



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