

## Near Net Shapes With Prepregs?

EnableX™ is a breakthrough from Norplex-Micarta that allows continuous fiber prepreg to be co-cured in a multi-material molding system to produce near net shapes. Building upon the predictability of continuous fiber reinforced prepreg, EnableX™ materials are:

- Specifically designed for compression molding
- Tested to ensure compatibility
- Supported by our team of application engineers

Additionally, like all Norplex-Micarta materials, our in-house laboratory and development capabilities allow for new concepts to be prototyped, or specific datasets to be developed to support specific design criteria.

## Enabling The Benefits Of Composites

Norplex-Micarta is dedicated to producing high performance thermoset composite materials. EnableX™ is the latest generation of products specifically designed to bring affordability and mass production scale to markets seeking the many advantages of composite materials, such as:

- Superior specific strength and stiffness
- Inherent chemical resistance
- Excellent dielectric properties
- Self-lubricating and low wear
- Low FST generation

## Collaborative Design Approach

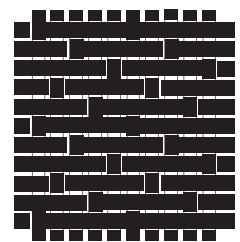
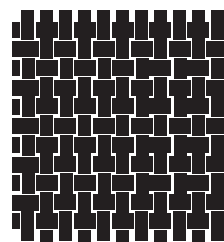
Norplex-Micarta welcomes the opportunity to work with composite design veterans and those new to working with composites. We follow your lead and adapt our development approach to match your timeline and budget.

Generally, the first step is to determine the appropriate resin matrix. EnableX™ has been verified on several different epoxy, phenolic and vinyl ester resin systems, and more are always in development. Many of these materials have been tested and can serve as a baseline for virtual modeling. Moreover, these materials are readily available to accelerate the design timeline through physical prototyping.

Reinforcement options for EnableX™ are essentially limitless. From carbon, to glass, to natural fibers such as cotton or paper, and then to fibers that significantly alter the behavior of the material such as PTFE or thermoplastics, are available in the EnableX™ system. Beyond the fibers themselves, different architectures and hybridizations of reinforcements further open the design window.

### A visual representation of major fabric options.

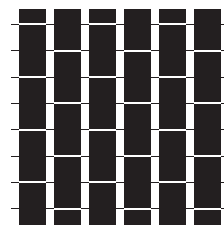
#### Woven Fabric



High Stability

High Drape

#### Non-Crimped Fabrics



Single Axis

Multiaxial

# Vinyl Ester



Property Tested Physical Property	Test Method	Units	10 oz WR - 30% Resin		
Specific Gravity	ASTM D792	–	2.09		
Moisture Absorption	ASTM D570 Condition A	%	0.07		
Rockwell Hardness	ASTM D785 .250" Build-up	M Scale	101		
Tensile Strength LW/CW	ASTM D3039 Condition A	psi	58,700	/	40,900
Hot Tensile Strength LW/CW	ASTM D3039 @155 °C	psi	35,900	/	24,500
Tensile Modulus LW/CW	ASTM D3039 Condition A	kpsi	4,150	/	3,520
Hot Tensile Modulus LW/CW	ASTM D3039 @155 °C	kpsi	4,940	/	3,750
Flex Strength LW/CW	ASTM D790 Condition A	psi	50,500	/	39,300
Hot Flex Strength LW/CW	ASTM D790 @120 °C	psi	35,500	/	29,700
	ASTM D790 @135 °C	psi	27,800	/	25,200
	ASTM D790 @155 °C	psi	26,300	/	21,600
	ASTM D790 @175 °C	psi	20,100	/	15,500
Flex Modulus LW/CW	ASTM D790 Condition A	kpsi	4,080	/	3,910
Hot Flex Modulus LW/CW	ASTM D790 @120 °C	kpsi	3,840	/	3,670
	ASTM D790 @135 °C	kpsi	3,760	/	3,480
	ASTM D790 @155 °C	kpsi	3,120	/	3,010
	ASTM D790 @175 °C	kpsi	3,000	/	2,880
Compressive Strength	ASTM D695 Condition A	psi	96,700		
Hot Compressive Strength	ASTM D695 @155 °C	psi	68,600		
Compressive Modulus	ASTM D695 Condition A	kpsi	940		
Hot Compressive Modulus	ASTM D695 @155 °C	kpsi	670		
Impact Strength LW/CW	ASTM D256 Condition A	ft-lb/in	41.5	/	37.5
Short Beam Shear LW/CW	ASTM D2344 Condition A	psi	3,300	/	3,300
Thermal Property	Test Method	Units	10 oz WR - 30% Resin		
Tg by DMA	ASTM D7028 Condition A	°C	130		
Flammability	UL Bulletin 94 Condition A	Class	V-1		

Data above are values for the pre-preg only. Incorporation of other materials, geometry, and process variables may affect the apparent properties in any specific part. Norplex-Micarta applications engineers are available to support your analysis and design processes.

#### Disclaimer

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 the information is the most current available.

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

## Full Application Engineering Support

For help determining the best EnableX™ solution for your needs, please contact a member of our application engineering support team at [technology@norplex-micarta.com](mailto:technology@norplex-micarta.com).