



An ISO 9001:2015  
Certified Supplier

## PRODUCT TECHNICAL DATA SHEET

# 439 Epoxy Matrix

### Medium Temperature System

PowerSleeve® is a high strength, field-applied composite system that is used for structural reinforcement of damaged piping. It is a wet layup, or field-pregged, fiber-reinforced polymer (FRP) system that consists of custom blended epoxy and unique fiber reinforcements tailored for piping repair. A broad line of unique epoxy matrix systems and fabrics are available to handle a wide variety of high heat applications, harsh chemical environments, and cool installation temperatures.

#### FEATURES

- ◆ Complete Installation Kits
- ◆ High Strength Carbon Fiber Available
- ◆ Very Versatile
- ◆ Excellent Toughness-Resists Cracking
- ◆ Excellent Chemical Resistance
- ◆ Works Over Obstructions
- ◆ Factory Pre-Measured and Sealed Components
- ◆ Room Temperature Installation

A two-component, medium temperature matrix used in our PowerSleeve® composite reinforcement products. This ambient temperature cure matrix wets out easily and can be applied to our PowerSleeve® W-11, G-03 tape and our unique highly conformable Bear™ G-22 fabrics. It is relatively fast setting, approximately 60 minutes @77° F and is used where a maximum service temperature of 325° F is desired. The color will change from a mild yellow to dark amber when temperatures rise above 140° F. The product must be post cured in order to achieve the best chemical resistance properties. This product ships DOT hazardous (corrosive).

EPOXY PROPERTIES			
<b>Working (pot) Life:</b>	30-40 min. at 25°C (77°F)	<b>Mix Ratio:</b>	Factory Ratioed
<b>Application Temps:</b>	19-57°C (65-135°F)	<b>Service Temps:</b>	-46-163°C (-50 – 325°F)
<b>Cure Time (dry to touch):</b>	90 min. 25°C (77°F)	<b>Full Cure:</b>	2 days at 25°C (77°F)
<b>Kit Packaging:</b>	Fabric cut and resin premeasured	<b>Shelf Life:</b>	1 year in sealed jar
<b>Color:</b>	Amber – Darkens with heat exposure	<b>Hardness:</b>	90-95 Shore D - ASTM D-2240
COMPOSITE LAMINATE PROPERTIES			
TEST	W-11 FABRIC	G-03 FABRIC	
<b>Ultimate Tensile Strength:</b>	51,874 psi (warp direction) per ASTM D-3039	58781 psi (warp direction) per ASTM D-3039	
<b>Ultimate Tensile Strength:</b>	12,792 psi (fill direction) per ASTM D-3039	47621 (fill direction) per ASTM D-3039	
<b>Tensile Modulus:</b>	2.78 x 10 <sup>6</sup> psi (warp direction)	3.1 x 10 <sup>6</sup> psi (warp direction)	
<b>Per Ply Wrap Thickness:</b>	.034” nominal	.015” nominal	
<b>Load Per Ply:</b>	1,800 lbs.	880 lbs.	
<b>HDT:</b>	425°F	425°F	
<b>CTE, in x 10<sup>-6</sup>/in/°F:</b>	7.6	8.18	



### **Tensile data was taken on panels typical of field lay-ups.**

ATTENTION: All of the proceeding data are based on laboratory conditions, at room temperature. Field conditions can change the characteristics of this product. Higher temperatures will shorten the working life of the product. Allow adequate time for application. Field testing is strongly recommended prior to application.

### **Storage & Handling**

Store at 60-90° F in a dry place. Do not freeze. Keep any leftover material in a tightly sealed container. Always use clean, dry tools when mixing and applying the matrix. Mixtures left in containers can obtain dangerous temperatures during cure and can cause damage to the container and surrounding items

### **Shelf Life**

12 months from date of sale, in an unopened container, stored in cool warehouse conditions.

### **Caution**

Read MSDS prior to use. Some persons may be irritated by these products. Use caution and PPE. This product is for industrial use by professionally trained personnel only. Please read and understand all application instructions prior to using.

### **Design and Application Instructions**

Design guidelines, application notes and wrap calculations for various applications are available from the factory.

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## **Warranty**

The manufacturer warrants that the goods delivered hereunder shall be free from defects in material and workmanship. The WARRANTY shall extend for a period of one (1) year after date of delivery of such goods to customer. This warranty is void in the event that the protective pouch has been damaged. THE MANUFACTURER MAKES NO WARRANTY EXPRESS, IMPLIED, (INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR INTENDED PURPOSE), OR STATUTORY, OTHER THAN THE FOREGOING EXPRESS WARRANTY. Failure of customer to submit any claim hereunder within the Warranty Period after receipt of such goods shall be an admission by customer and conclusive proof that such articles are in every respect as warranted and shall release the manufacturer from any and all claims for damage or loss sustained by customer. In the event customer submits a claim for defective material within the required Warranty Period, the parties agree that customer's sole and exclusive remedy shall be the replacement of such defective goods or a refund of the price of the defective goods. To the greatest extent practical defective goods shall be returned to the manufacturer for analysis. IN NO EVENT SHALL THE MANUFACTURER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR SPECIAL, INDIRECT OR INCIDENTAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, LOSS OF USE OF GOODS OR ANY PART THEREOF, EVEN THOUGH THE MANUFACTURER HAS BEEN NEGLIGENT OR HAS BEEN INFORMED OF CIRCUMSTANCES WHICH MIGHT GIVE RISE TO SUCH DAMAGES.

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