



## NPR-1571 CIPP Large Diameter High Heat Epoxy System

NPR-1571 is a slow curing epoxy system designed for medium and large diameter cured-in-place pipes (CIPP), where continuous heat resistance, structural strength, and improved chemical resistance are required. Low viscosity makes for rapid wet-out of traditional PET felt liner materials. Initial cure is accomplished at ambient temperatures and followed with post cure at 158°F (70°C) or higher.

### Typical Physical Properties

<b>Mix Ratio (Resin/Hardener)</b>	<b>1 to 1 by Weight</b>
<b>Initial Cure Time, 100 Grams @ 77°F (25°C)</b>	<b>8 Hours</b>
<b>Max. Service Temp. (212°F/100°C Post Cure)</b>	<b>300°F (150°C)</b>
Specific Gravity, Resin	1.17 G/ml
Weight Per Gallon Resin	9.7 Lbs
Specific Gravity, Hardener	1.50 G/ml
Weight Per Gallon, Hardener	12.5 Lbs
Flexural Modulus Clear Cast (ASTM D-790)	450,000 psi
Flexural Strength Clear Cast (ASTM D-790)	16,000 psi
Flexural Modulus Laminate (ASTM D-790)	470,000 psi
Flexural Strength Laminate (ASTM D-790)	11,000 psi
Shore D Hardness (ASTM D-2240)	>85
Shrinkage	<0.1 of 1%
Adhesion: Concrete (ASTM D-4541-95el)	Concrete Fails
Adhesion: Steel (ASTM D-4541-95el)	2,500 psi
Abrasion Resistance (D4060-95, CS17)	50mg/1000 cycle @ 1000 g load
Viscosity, Resin @ 20 RPM	12,000 cPs
Viscosity, Hardener @ 20 RPM	13,000 cPs
Coefficient of Linear Thermal Expansion	3.738 x 10 <sup>-5</sup> cm/cm/°C

\*Physical properties for PET felt samples post cured for 4 hours @ 176°F (80°C).



**NPR-1571**  
**Corrosion Test ASTM F1216 for Laminate**

<u>Chemical Solution</u>	<u>Flexural Strength</u> <u>Before Exposure,</u> <u>psi</u>	<u>Flexural Modulus</u> <u>Before Exposure,</u> <u>psi</u>	<u>Flexural Strength</u> <u>Change After</u> <u>Exposure, %</u>	<u>Flexural Modulus</u> <u>Change After</u> <u>Exposure, %</u>	<u>Weight Change, %</u>
Sulfuric Acid, 10%	10,400	522,300	-16.40%	-1.50%	0.81%
Sodium Hydroxide, 5%	10,400	498,700	-0.10%	-3.20%	0.03%
Phosphoric Acid, 10%	10,400	525,400	-12.60%	-5.70%	0.26%
Gasoline, 100%	10,400	532,300	2.90%	-2.20%	-0.05%
Vegetable Oil, 100%	10,400	517,000	1.90%	-3.60%	0.11%
Detergent, 0.1%	10,400	521,000	-2.70%	-4.30%	0.27%
Soap, 0.1%	10,400	511,000	-1.60%	-2.80%	0.19%
Tap Water	10,400	513,200	-1.40%	-1.40%	0.17%
Control	10,400	509,800	0.00%	-1.20%	0.00%

In accordance with ASTM D 790, CIPP test specimens cannot lose more than 20% of their initial flexural strength and flexural modulus within one month.

Note 1: One month exposure for to chemical solutions.

Note 2: All results were calculated as average of 3 samples.

Note 3: Non-destructive tests. Same samples were tested before and after exposure to chemicals.