

# TRANS-WRAP™ APEX

## OPTIMIZED COMPOSITE REPAIR SYSTEM

<b>Description</b>	Trans-Wrap™ is a custom engineered, ASME PCC-2 4.1,4.2 compliant, optimized composite repair for system that utilizes a special APEX optimized bi-directional fiberglass in conjunction with NRI's Trans-Wrap epoxy system.
<b>Typical Applications</b>	<ul style="list-style-type: none"> <li>• Repair external and internal corrosion in distribution and transmission pipe</li> <li>• Transmission and distribution pipeline integrity</li> </ul>
<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Conformable for repairing elbow, tees, nozzles, welds and headers</li> <li>• Ambient-cured epoxy</li> <li>• Design conforms to ASME PCC-2, ASME B31, ISO TS24817, DOT, API, and CSA Z662 standards for nonmetallic reinforcing and repair</li> </ul>
<b>Surface Preparations</b>	Surface preparation and profiling shall promote continuous intimate contact between the FRP system and pipe by providing a clean, smooth, and circumferential surface. Surface preparation shall be in accordance with SSPC-SP1 "Solvent Cleaning" and SSPC-SP11 "Power Tool Cleaning" with a 1-3 mil surface roughness (25-76 microns) minimum, or better. NRI's composite repair systems are bond-critical and require a strong adhesive bond between the clean pipe and the composite system for maximum effectiveness.
<b>Thickness</b>	As determined by NRI engineering calculations
<b>Mixing &amp; Mix Ratio</b>	Power mix Part A, then combine with Part B and power mix. Do not mix partial kits. Resin to hardener 100:31.3 by weight
<b>Pot Life</b>	150 minutes @ 75°F (24°C), less at higher temperatures
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Application temperature shall be a minimum of 100°F (38°C) and a recommended maximum of 175°F (79°C)</li> <li>• Relative humidity must be 85% or below during installation</li> <li>• Pipe surface must be 5 °F (3°C) above dew point during installation</li> <li>• Maximum service temperature: 212°F (100°C)</li> </ul>
<b>Related Products</b>	The following products are system components of the Trans-Wrap Apex: <ul style="list-style-type: none"> <li>• Trans-Wrap™ Optimized Performance Fiberglass</li> <li>• Trans-Wrap Epoxy, Part A &amp; B</li> </ul>

Properties	Property	Circumferential Direction	Axial Direction
	Tensile Modulus	4.9 Msi (24.3 GPa)	2.64 Msi (18.2 GPa)
Thermal Expansion Coefficient	10.0 ppm/°F (5.59 ppm/°C)	21.77 ppm/°F (12.0 ppm/°C)	
Property		Typical Test Values	
Hardness, Shore D	83		
Laminate Thickness	0.0415" (1.05mm)		
Poisson Ratio	0.120		
Glass Transition Temperature	248°F (120°C)		
Shore D Hardness	87		
Lap Shear Strength	1.158 psi (7.98 MPa)		

**Installation** Installation of the Trans-Wrap composite repair system shall be performed by NRI qualified applicators only. Surface preparation, mixing of epoxy, material saturation, and installation of the system shall be in accordance with NRI's product specific installation guides, latest revision. Quality control inspection during and after installation of the system shall be performed per NRI's Installation Validation Procedure: Quality Control Records, latest revision.

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Cure Schedule	Temperature	Working Time	Cure Time
	100°F (38°C)	35 Minutes	17 hours
	130°F (54°C)	17 minutes	9 hours

**Cleanup and Safety** For proper information regarding the safe handling, storage, and disposal of chemical products, users shall refer to the most recent SDS, latest revision, containing physical, ecological, toxicological, and other safety-related data.

**Shelf Life** 12 Months (epoxy and fabric)

**Storage Conditions** Epoxy: Store in original, unopened containers indoors at a max temp of 95°F (35°C)  
Fabric: Store at temperatures below 100°F (38°C) away from moisture and any contaminants in original packaging.

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