

THERMO-WRAP™

COMPOSITE REPAIR SYSTEM FOR HIGH TEMPERATURE AND PROCESS PIPING



Description

Thermo-Wrap™ is a custom engineered composite system utilizing a high strength, bidirectional, woven fiberglass tape in conjunction with NRI's proprietary Thermo-Poxy™ epoxy system for the repair and restoration of pipes operating at elevated temperatures. This composite system was designed and tested to repair defects in accordance with the ASME PCC-2 and ISO TS-24817. Thermo-Wrap is specifically designed for repair applications which require the composite to maintain the high design strengths in high temperature environments, while still curing under room temperature conditions.

Mechanical Properties

| Test | Method | Temperature | Results |
|-----------------------------------|------------|---------------|-------------------------|
| Tensile Strength | ASTM D3039 | 75°F (23°C) | 101,500 psi (6,998 bar) |
| | | 300°F (149°C) | 70,650 psi (4,871 bar) |
| Tensile Modulus | ASTM D3039 | 75°F (23°C) | 4,480 ksi (308,885 bar) |
| | | 300°F (149°C) | 3,570 ksi (246,142 bar) |
| Flexural Strength | ASTM D790 | 75°F (23°C) | 121,700 psi (8,390 bar) |
| Flexural Modulus | ASTM D790 | 75°F (23°C) | 4,180 ksi (288,200 bar) |
| Hardness, Shore D | ASTM D2240 | 75°F (23°C) | 90 |
| In-Plane Shear Strength | ASTM D5379 | 75°F (23°C) | 13,055 psi (900 bar) |
| Chord Shear Modulus | ASTM D5379 | 75°F (23°C) | 629 ksi (43,368 bar) |
| Lap Shear (to steel) | ASTM D5868 | 75°F (23°C) | 3,700 psi (255 bar) |
| CTE | ASTM E831 | 75°F (23°C) | 6.79 µm/m°C |
| Heat Deflection Temperature (HDT) | ASTM D648 | 75°F (23°C) | >515°F (268°C) |

Typical Applications

- Ideal for flare lines
- Steam piping
- Girth welds, elbows, tees
- Anywhere elevated temperatures are of concern or expected

Benefits

- High temperature rating with an ambient cured epoxy
- No heating or post-curing required
- Full factory engineering calculations, consultation, and support

Physical Properties

VOCs: None

Cure Time:

Approx. 18 hrs @ 75°F (24°C)

Approx. 3 hrs @ 280°F (138°C)

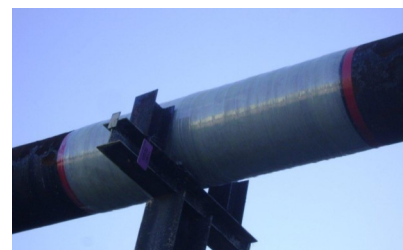
Service Temperature:

Max: Up to 300°F (149°C)

Application Temperature:

50 to 200°F (5 to 93°C)

Shelf Life (epoxy): 12 Months



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