**Description**

Thermo-Wrap™ CF is a custom engineered carbon fiber composite system utilizing a high strength, biaxial hybrid carbon and glass fiber 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 CF 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**

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Temperature</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>ASTM D3039</td>
<td>75°F (23°C)</td>
<td>130,000 psi (8,960 bar)</td>
</tr>
<tr>
<td>Tensile Modulus</td>
<td>ASTM D3039</td>
<td>75°F (23°C)</td>
<td>12,000 ksi (824,337 bar)</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>ASTM D790</td>
<td>75°F (23°C)</td>
<td>104,500 psi (7,205 bar)</td>
</tr>
<tr>
<td>Flexural Modulus</td>
<td>ASTM D790</td>
<td>75°F (23°C)</td>
<td>7,165 ksi (494,009 bar)</td>
</tr>
<tr>
<td>Hardness, Shore D</td>
<td>ASTM D2240</td>
<td>75°F (23°C)</td>
<td>90</td>
</tr>
<tr>
<td>Lap Shear (to steel)</td>
<td>ASTM D5868</td>
<td>75°F (23°C)</td>
<td>3,150 psi (217 bar)</td>
</tr>
</tbody>
</table>

**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
- High tensile strength and stiffness

**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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