

**COVALENCE<sup>®</sup> HTLP-PP**
**Product Information**

A 3-layer polypropylene-field-joint coating system for polypropylene coated pipes.

**Product description:** Covalence<sup>®</sup> HTLP-PP system is a three layer wrap-around polypropylene heat-shrinkable sleeve field-joint coating system designed to meet the performance requirements of polypropylene coated pipelines operating at temperatures up to 120°C. HTLP-PP is especially suited for higher stress conditions caused both by elevated temperatures and by soils with severe contraction between wet-dry cycles.

Construction: Three-layer system

- *First layer:* Liquid epoxy, solvent-free two-component.
- *Second layer:* High shear strength polypropylene adhesive.
- *Third layer:* Radiation cross-linked, tough polypropylene backing.

A pre-attached fibre reinforced closure patch ensures a fast and secure installation during sleeve recovery.

The force cured high build liquid epoxy acts as the primary anticorrosion layer. The epoxy novolac chemistry ensures excellent adhesion to steel and superior long term cathodic disbondment resistance and hot wet performance.

The polypropylene adhesive is formulated to withstand the demanding forces exerted on the system during pipe lay and to 'seal for life' guarding against long term heat induced brittleness and ensuring excellent hot water immersion resistance.

The crosslinked polypropylene backing ensures guaranteed high mechanical performance due to the precise e-beam irradiation process. The backing will not become brittle at high rates of strain or degrade prematurely due to UV and heat exposure

**Features:**

- Available as a one-piece wraparound unit.
- High shear resistance.
- High operating temperature rating combined with ease of installation.
- Retains elasticity and integrity of the polypropylene mechanical protection layer at elevated temperatures and strain rates.

**Benefits:**

- Integrity of the 3LPP parent coating is not compromised due to the application temperature of the high build novolac epoxy layer.
- Ease of use contributes to excellent bonding to the polypropylene parent coating and reduced cycle times.

**Product selection guide**

<b>Max operating temperature</b>	120°C .
<b>Compatible line coatings</b>	Polypropylene
<b>Min. preheat temperature</b>	170° - 190°C
<b>Recommended pipe preparation</b>	Sa 2½
<b>Soil stress restrictions</b>	None
<b>Performance</b>	ISO 21809-3 compliant

**Product properties**
**Backing**

Property	Test method	Typical value
<b>Tensile strength at break</b>	ASTM D-638	35 MPa
<b>Elongation at break</b>	ASTM D-638	610%
<b>Elongation at break after heat aging</b>	ASTM D-638 @ 150°C , 4 weeks	484%
<b>Hot modulus @ 100% elongation</b>	ASTM D-638 @ 180°C	0.16 MPa
<b>Dielectric strength</b>	ASTM D-149	32 kV/mm
<b>Water absorption</b>	ASTM D-570 @ 95°C , 24 hrs	0.31 %

**Adhesive**

Property	Test method	Typical value
<b>Melting point</b>	ASTM D-3418	154°C
<b>Lap shear strength</b>	ISO 21809-3 @ 10 mm/min @ 23°C @ 110°C @ 120°C	7.8 N/mm <sup>2</sup> 1.2 N/mm <sup>2</sup> 0.7 N/mm <sup>2</sup>

**Installed sleeve**

Property	Test method	Typical value
<b>Peel</b>	ISO 21809-3 @ 23°C @ 100°C @ 110°C @ 120°C	11 N/mm 5 N/mm 4 N/mm 3 N/mm
<b>Hot water immersion</b>	ISO21809-3 @ 95°C, 100 days	Pass
<b>Cathodic disbondment</b>	ISO 21809-3 @ 95°C, 28 days	10 mm
<b>Resistance to shear load</b>	TP206 @ 120° C, 24 hrs	< 0.1 mm of displacement
<b>Impact resistance</b>	ISO 21809-3	> 10 J/mm
<b>Indentation resistance</b>	ISO 21809-3, 10 N/mm <sup>2</sup> @ 110°C @ 120°C	1.5 mm* 1 mm*
<b>Thermal heat aging</b>	ISO21809-3 @ 130°C, 100 days	Pass
<b>Low temperature flexibility</b>	ASTM D-2671, Method C, 1 inch mandrel	-45°C

\*remaining coating thickness

Note: The typical values in this data sheet are based on lab prepared samples and /1.2-2 construction. For project specific requirements please consult your local SFL representative.

Product thickness	/1.2-2
<b>Backing as supplied</b>	0.9 mm (0.035 in)
<b>Backing fully free recovered</b>	1.20 mm (0.047 in)
<b>Adhesive as supplied</b>	2.00 mm (0.078 in)

General order information		General information	
<p>Covalence® HTLP-PP products are available as a total system.</p> <ul style="list-style-type: none"> <li>The system includes the sleeve: a uni-sleeve with chamfered edges and with pre-attached closure patch*.</li> <li>Installation accessories must be ordered separately.</li> </ul> <p>Select sleeve width that will overlap on to the polypropylene line by 50 mm (2 inches) on each side of the weld joint. Take a 5% shrinkage of sleeve width during installation when calculating the minimum sleeve width.</p> <p>* HTLP-PP is not sold in roll form, only pre-cut uni-sleeves.</p>		<p><b>Product dimension</b> Sleeve cut lengths and appropriate closure patch widths depend on the pipe size and product construction, see latest application table AT-GIRTHWELD.</p>	
<p>S1401 two component epoxy onto bare steel.</p>		<p><b>Installation guide</b> For proper product installation, contact your Seal For Life representative. HTLP-PP products are installed with an induction coil.</p>	
<p><b>Epoxy</b></p>		<p><b>Recommended primer</b> HTLP-PP type products are installed with S1401-epoxy primer. Epoxy primers are ordered separately. For more ordering information on epoxy primers see latest product data sheet for S1401. HTLP-PP is fully compatible with FBE and LAT FBE for hybrid sleeve constructions.</p>	
<p><b>Installation accessories</b></p> <ul style="list-style-type: none"> <li><b>EQ-CLAMP-COIL:</b> induction coil for specific pipe diameter and sleeve width. Contact your Seal For Life representative for more information.</li> <li><b>EQ-GENERATOR-IHG-120-WITH-CABLE:</b> generator for induction coil. Contact your Seal For Life representative for more information.</li> <li><b>EQ-HEAT-SHIELD-150X3X25M:</b> to protect the PP line coating while preheating the steel area.</li> <li><b>EQ-T0-KIT-BN60-1.5MM:</b> torch with specific nozzle opening. Contact your Seal For Life representative for more information.</li> </ul>		<p>As field application of primers may vary, consult a Seal For Life representative or Authorized Distributor for rate of coverage guidance.</p>	
<p><b>Cut piece / Uni-sleeve</b></p>		<p><b>Handling</b> Handle with care. Keep boxes upright.</p>	
<p><b>Example</b> HTLP-PP-10750X17/1.2-2/UNI</p>		<p><b>Storage</b> Store indoor, clean and dry, away from direct sunlight in a cool place below +50°C. Unlimited shelf life.</p>	
	<b>Designation</b>	<b>Standard ordering options</b>	
<b>10750</b>	Outside pipe diameter (in)	3.500 (DN80 – 48.000 (DN1200))	
<b>17</b>	Sleeve width (in)	17.75 – 20.25 (450 – 514 mm) *	
<b>1.2-2</b>	Product thickness	/1.2-2 ,	
<b>UNI</b>	Designates pre-attached closure patch		
		* Nominal width. Other widths available on request. .	
		<p><b>Documentation</b> Extensive information is available on our web-site. Application instructions and other documentation can be obtained by contacting our head office, from our local distributor or by sending email to <a href="mailto:info@sealforlife.com">info@sealforlife.com</a></p>	
		<p><b>Certified staff</b> Application of the described coating system shall be carried out by certified personnel.</p>	

Local Distributor / Representative:



**MSP**  
MATSERVICE PETRÓLEO  
For contact details of local Distributors / Representatives



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