

# COVALENCE® PERP

## Product Information

Repair system for damaged mill-applied PE coating.

**Product description:** Covalence® PERP is a heat-applied patch which, in combination with mastic filler, offers an economically effective and high quality repair system for factory PE pipe coatings damaged mechanically during transportation, storage and laying of pipes. PERP, PERP80 and PERP60E are designed to repair the damaged areas on line coatings, mainly 2 or 3 layer PE. PERP60E is designed to repair the damaged areas on PE coated pipes used in high shear applications, such as directional drilling.

- **Sleeves:** are recommended for large damaged areas (see selection table below).
- **Filler tape:** is used to fill the holiday, thus restoring the mill-applied coating thickness of the pipe.
- **Epoxy primer:** is additionally used when reinstatement of the epoxy layer is required.

Construction: Two-layer or three-layer system:

- **First layer:** Liquid epoxy, solvent-free two-component (optional).
- **Second layer:** Copolymer adhesive
- **Third layer:** Radiation cross-linked, high density polyethylene (unexpanded).

Installation is done with standard gas torches. To repair a damaged area, installers round out, roughen, clean and preheat the area and apply the filler tape to fill out the holiday. PERP, cut to size, is positioned onto the treated area and heated. During heating, the adhesive softens and flows to form a tight bond with the substrate. The bond strength builds up during cool-down and is fully retained after job completion.

### Features:

- Adaptable repair system.
- Resistant to high shear forces.
- Excellent adhesion to commercial, PE mill-applied coatings.
- No special equipment required.

### Benefits:

- Long lasting and high performance.
- Provides a virtually monolithic coating repair of high quality.
- Saves time with fast and convenient installation. Saves money by keeping inventory and logistics costs low.
- Makes installation fast and easy. Keeps installation costs low.

## Product selection guide

	PERP	PERP80	PERP60E
<b>Max operating temperature</b>	65°C (149°F)*	90°C (194°F)	70°C (158°F)
<b>Compatible line coatings</b>	PE, FBE, PP, PU	PE, FBE, CTE	PE, FBE
<b>Min. preheat temperature</b>			
<b>Bare metal</b>	70-80°C (158-176°F)	70-80°C (158-176°F)	70-80°C (158-176°F)
<b>Line coating</b>	70-80°C (158-176°F)	90-100°C (194-212°F)	70-80°C (158-176°F)
<b>Recommended pipe preparation</b>	ST3 or SA2½	ST3 or SA2½	SA2½
<b>Filler tape</b>	S1137-50X3X3000	S1137-50X3X3000	S1182-50X1X9000 or S1137-50X3X3000
<b>Epoxy primer (optional)</b>	S1301-M	S1301-M or S1401(-M)	S1301-M
<b>Soil stress restrictions</b>	None	None	None
<b>Performance</b>	EN12068, Class C50	EN12068, Class C80	EN12068, Class C60 UV

\* Max. 70°C (158°F) when used a repair to HSS under infill.

## Product properties

### Backing

Property	Test method	Typical value PERP, PERP80 & PERP60E
<b>Tensile strength at break</b>	ASTM D-638	2450 psi 17 MPa
<b>Elongation at break</b>	ASTM D-638	400 %
<b>Hardness, Shore D</b>	ASTM D-2240	55
<b>Shrink force</b>	ASTM D-638 @ 150°C (302°F)	40 psi
<b>Dielectric strength</b>	ASTM D-149	26 kV
<b>Moisture absorption</b>	ASTM D-570	0.05%

### Adhesive

Property	Test method	Typical value		
		PERP	PERP80	PERP60E
<b>Softening point</b>	ASTM E-28	103°C (217°F)	120°C (248°F)	94°C (201°F)
<b>Shear strength</b>	ASTM D-1002	350 psi @ 23°C (73°F)	750 psi @ 23°C (73°F)	500 psi @ 23°C (73°F)
		11 psi @ 65°C (149°F)	65 psi @ 80°C (176°F)	87 psi @ 50°C (122°F)
	EN12068	0.22 N/mm² @ 50°C (122°F)	0.12 N/mm² @ 80°C (176°F)	0.10 N/mm² @ 70°C (158°F)

### Installed sleeve

Property	Test method	Typical value		
		PERP	PERP80	PERP60E
<b>Peel to PE</b>	ASTM D-1000	25 lb/in	21 lb/in	60 lb/in
	EN12068	3.5 N/mm	3.5 N/mm	11 N/mm
<b>Impact resistance</b>	EN12068, Class C	>15 J	>15 J	>15 J
<b>Indentation</b>	EN12068, Class C	Pass @ 50°C (122°F)	Pass @ 80°C (176°F)	Pass @ 70°C (158°F)

Note: The typical values in this data sheet are based on lab prepared samples. Values shown are not to be interpreted as product specifications.

## Product thickness

	PERP - PERP80	PERP60E
<b>Backing as supplied</b>	0.76 mm (0.030 in)	0.76 mm (0.030 in)
<b>Adhesive as supplied</b>	0.65 mm (0.026 in)	0.80 mm (0.031 in)

Ordering information	
Covalence® PERP type products are available	
<ul style="list-style-type: none"> <li>- As a kit</li> <li>- As a roll</li> </ul>	
<b>Example:</b>	
	<b>Standard ordering options</b>
<b>PERP-KIT</b>	1 pc PERP patch 170 mm x140 mm with rounded corners, 1 pc S1137 (50x3x25 mm), 1 pc abrasive paper P60 (150x50 mm), installation instruction <i>For damaged areas less than 40x70 mm</i>
<b>PERP-450X10000*</b>	Roll of 10 m (32.5 ft) length, 450 mm (17.75") width
<b>PERP80-450X10000-PCI*</b> <b>PERP60E-450X10000PCI*</b>	PCI = Permanent Change Indicator (embossed backing)
<b>S1137-50x3x3000</b>	50 mm (2") wide, 3 mm (0.12") thick, 3 m (10 ft) long Filler adhesive for PERP + PERP80 <i>Filler adhesive, necessary where PERP rolls are used. NOTE: 3 rolls of filler per roll of PERP are recommended.</i>
<b>S1182-50X1X9000</b>	50 mm (2") wide, 1 mm (0.039") thick, 9 m (30 ft) long Filler adhesive for PERP60E <i>Filler adhesive, necessary where PERP60E rolls are used. NOTE: 3 rolls of filler per roll of PERP are recommended.</i>
<b>PERP-280X280-05</b>	Kit of 2 pcs PERP-280x140-05 with punched hole <i>To be used with HTTE, house tap tee protection</i>
<b>S1301-M</b> <b>S1301-M or S1401-M</b>	<b>Epoxy primer</b> For PERP + "PERP60E For PERP80 <i>Only when 3-layer coating</i>

\* Rolls can have max one splice.

Application table	
Max.damaged area for using PERP. *	
Pipe diameter	Max.damage
<10"	50 mm x 50 mm
<30"	100 mm x 100 mm
>= 30"	150 mm x 150 mm

\* For larger damaged areas, the use of heat-shrinkable sleeves is recommended (refer to Covalence girth weld sleeves).

General information	
<b>Installation guide</b>	For proper product installation, see latest installation instruction.
<b>Handling</b>	Handle with care. Keep boxes upright.
<b>Storage</b>	Store indoor, clean and dry, away from direct sunlight in a cool place below +50°C. Unlimited shelf life.
Information	
<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 an email to <a href="mailto:info@sealforlife.com">info@sealforlife.com</a>
<b>Certified staff</b>	Application of the described coating system shall be carried out by certified personnel.



DISCLAIMER: Seal For Life Industries warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the technical data sheet when used in compliance with Seal For Life Industries' written instructions. Because many installation factors are beyond the control of Seal For Life Industries, the user shall determine the suitability of the products for the intended uses and assume all risks and liabilities in connection herewith. Seal for Life's liability is stated in its General Terms and Conditions of Sale. Seal For Life Industries makes no other warranty either express or implied. All information contained in this technical data sheet is to be used as a guide and is subject to change without notice. This technical data sheet supersedes all previous data sheets on this product. Seal For Life Industries is a registered marks of the Berry Global Group, Inc. or its affiliates.

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