

# PROTECTING THE EDGES

## How moisture ingress is prevented using Enviropeel

Typically, Enviropeel is applied to flanges either on a horizontal pipe or a vertical pipe, the pipe would be expected to have an intact protective coating as in the example shown in Fig 1. Here we can see that the flange edges and bolts are corroded but that the main pipe coating is in good condition.

A standard Enviropeel application, as shown in Fig 2, encapsulates all the vulnerable areas and continues the coating until a reasonable area of intact coating has also been covered.

*Fig 3: unpainted carbon steel testpiece after 3000 hr ASTM B117 hot salt fog test.*



*Slight 'blending' between unprotected and protected areas can be seen after removal of encapsulation.*

Although, on the unpainted steel test substrate in Fig 3, a small margin can be detected where moisture meets the inhibitor, on a painted substrate the effect is completely insignificant. All the vulnerable areas are locked in a moisture-free, inhibitor rich environment, away from any potential ingress. The example in Fig 4, shows a substrate which, without encapsulation, would have bolts failing within 18 months because carbon steel bolts in a stainless substrate suffer badly from galvanic corrosion. As can be seen, no corrosion has occurred within the encapsulation.

On a vertical pipe, there would seem to be more potential for problems but the right application techniques will prevent ingress even in the worst possible circumstances. In long-term salt-water



*Fig 1: typical substrate prior to use of Enviropeel  
Fig 2: typical Enviropeel application*



*Fig 4: a mixed stainless and carbon steel joint with carbon steel bolts with Enviropeel encapsulation removed after more than 6 years*



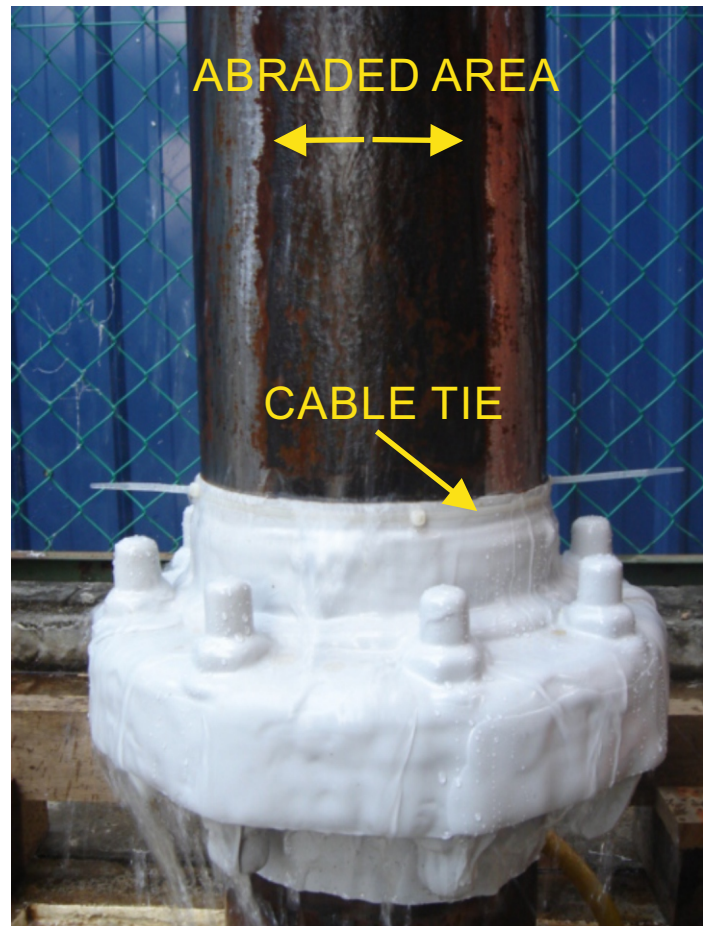


deluge tests, shown here and overleaf, the ability of Enviropeel to prevent corrosion in these areas is clearly demonstrated.

For the test, an uncoated carbon steel pipe and flange test piece was placed in a stream of 20% salt water. To emulate splash zone conditions, the flow was turned on and off on a 12 hour cycle.

To ensure no protection of any kind was on the substrate, a 15cm strip was abraded with an angle grinder (to remove mill scale etc) along the whole length of the pipe.

The test was run over three months, following which the Enviropeel was cut away to reveal the results.



*Fig 5 above: substrate and Enviropeel encapsulation shortly after the beginning of the trial. On potentially vulnerable edges, cable ties provide extra security.*

*Fig 6 left: two weeks into the trial, the circular water delivery system can be seen at the top of the photo.*

*Fig 8 below: initially, strips of Enviropeel are removed from the substrate.*



*Fig 7 right: substrate after three months, just prior to removal of Enviropeel*







Fig 9 above: the removal of the mill scale is clearly visible

Fig 10 above right: following removal of all the Enviropeel material from the joint, the level of protection is clearly visible.

Figure 11 below: cutting through the sealing tie reveals a sharp line between the protected and unprotected areas of the substrate.



Because Enviropeel cools and contracts on to the substrate, with a constant release of inhibiting oils, moisture is prevented from entering the interface. Where there is likely to be substantial or sustained water pressure, extra material is applied and cable ties are employed to provide extra security. Sealing upper edges securely is particularly important as these are the areas that are subject to rain and water flows.

As this test shows, despite the high salinity and constant flow of water, no corrosion or penetration of any kind can be seen within the Enviropeel encapsulation.

Technical information, equipment details and safety data sheets are available on our website [EnviropeelUSA.com](http://EnviropeelUSA.com), where there is much more information on Enviropeel anti-corrosion systems.

Contact the EnviropeelUSA office for technical advice and availability in your area.

**ENVIROPEELUSA**

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