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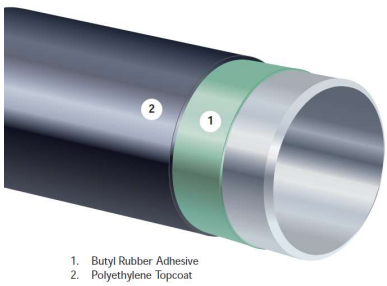
# Bonded Corrosion Protection Pipe Coatings: Synergy® versus Pritec®

## Multi-layer Coating Systems:

For decades, it has been recognized that pipeline corrosion control can be attained by using coating systems (with CP) that can electrically insulate, be installed without coating damage, and remain integral over time. However, there is no single material that easily meets all of those requirements. The emergence of multi-layer systems was intended to solve the deficiencies of any one monolithic material layer by bringing the various strengths of multiple material layers to bear. Two of the multilayer coatings that have been tested by decades of field installation and performance are Synergy® and Pritec®.

## Pritec® Two-Layer PE Coating:




Pritec® is a two-layer system which utilizes a butyl rubber layer on a prepared pipe surface and then incorporates a plant-extruded top layer of polyethylene (PE) for protection against handling and installation damage. The butyl rubber layer provides high adhesion and cathodic protection for the coating system. Both the butyl rubber layer and the PE layer are heated and hot-extruded onto the pipe in the coating plant. In some cases shrink-back from differential cooling at pipe edges has been reported. The coating has been widely used in the oil and gas business and the water industry for more than two decades.

*Figure 1: Pritec® by Bredero Shaw*

## Synergy® Three-Layer Fused Coating:

Like Pritec®, Synergy® has a PE top layer for mechanical protection. Unlike Pritec®, however, Synergy® starts with a butyl rubber layer, or primer, which provides optimal adhesion to the pipe substrate and the adjacent polymer layer. Sandwiched between the butyl rubber and the PE top layer is another polymer layer that provides additional chemical bonding between the layers. All three layers are applied to a heated pipe allowing for the resultant heat-soak to fuse the layers into a cohesive system. The polymer layers are factory quality controlled (ISO 9002) and sent to the applicator only after passing plant QA/QC requirements. Synergy® has been used for over 22 years in a variety of oil & gas as well as water pipeline applications

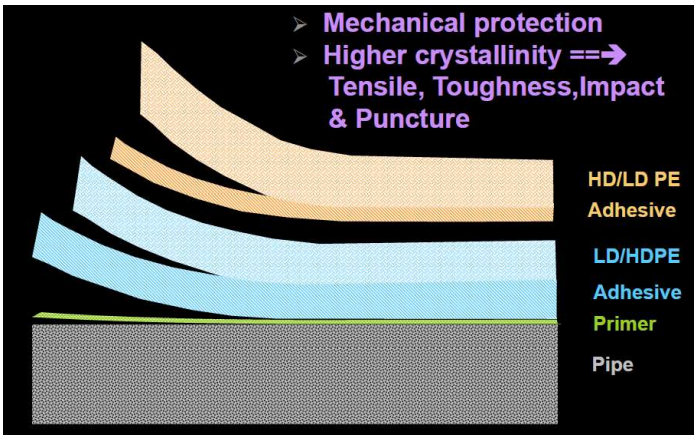



*Figure 2: Synergy® by Berry Plastics*

## Physical Property Comparison:

| Test/Characteristic | SYNERGY® | PRITEC® |
|---|---|---|
| Thickness | 50 mils | 50 mils |
| Cathodic Disbondment [1] | 6mm, 14mm | 6mm, 12mm |
| Cathodic Disbondment[2] | 40 | 38 |
| Impact Resistance[3] (in-lb) | 45 | 40 |
| Penetration Resistance[4] (%) | 11 | 8 |
| Peel Force[5] (lb/in) | 45 | 30 |
| Soil Stress Resistance (rating) | 13.5 | 13.0 |

**Berry Plastics test data*

1. ASTM G-8: 30 day, 90 day – mm radius
2. ASTM G-42
3. ASTM G-14 @70°F
4. ASTM G-17
5. ASTM D-1000

## Conclusion:

Multi-layer coatings like Synergy® and Pritec® for corrosion protection of pipe systems offer a strong combination of experience, economic feasibility, and technical capability. Naturally, one of the most important aspects of coating effectiveness is the choice of applicator. Experience with the coating, reputation, reliability, and presence of a quality control system are important considerations.