THE MEASURE OF DEFENSE AGAINST CORROSION

In collaboration, industry-leading Valmont® Utility and Valspar Protective Coatings have formulated the greatest force for below-grade protection by combining a proper duplex coating system and an advanced application process creating the highest grade of defense to combat corrosion.

**CHALLENGE:** Hard Edge (water shelf)  
**SOLUTION:** Beveled Top Edge  
Eliminates application variability and any hard edges

**CHALLENGE:** UV Exposure  
**SOLUTION:** Valspar Duraspar®  
Duraspar UV Top Coat provides technically proven UV performance along with excellent durability and chemical resistance, for the most demanding applications

**CHALLENGE:** Base Coat Performance  
**SOLUTION:** Valspar CorroCote® II Ultra  
Improves critical characteristics such as adhesion, cathodic disbondment, abrasion and impact resistance  
**Dual Pass Method**  
Maximizes corrosion protection
CURRENT INDUSTRY STANDARD

Current base coat standards meet the minimum requirements for protection based on optimal application conditions.

TRIFORCE EXCLUSIVE FEATURE

The new Valspar CorroCote II Ultra offers appreciably more adhesion than its predecessors and is a more user-friendly and application-tolerant product, delivering consistent results and improved performance in adhesion, cathodic disbondment, impact and abrasion resistance. A balanced cure window provides the necessary time to wet out and penetrate the steel profile.

Although Polyurethane, Polyurea and Hybrid products are UV resistant, they are not truly UV-stable and only offer marginal UV protection. UV-resistant coatings will have some chalking and coating loss with UV exposure.

Valspar Duraspar UV stable coatings provide optimal protection even in the harshest UV environments with added chemical and abrasion resistance against pollutants, etc. Adding the UV top coat provides an additional coating system with exceptional performance.

A hard edge or shelf on the coating provides a place for moisture and contaminants to accumulate and initiate corrosion. A feathered edge is heavily dependent upon the applicator to maintain consistency and repeatability, which poses challenging.

The patented Shadow-Mask chamfered lip top edge, utilizing aerospace technology, creates a clean, rounded top edge which is highly repeatable with consistent transition areas extending coating design life expectancy.

Variable environmental conditions along with fast application methods can create holidays in the base coat that accelerate corrosion.

The Dual Pass application rotates each structure twice, applying 50% of the target coating thickness each time to achieve the full coating thickness. This technique dramatically reduces pin holes that penetrate the entire thickness of the coating thereby reducing the risk of premature corrosion.
TRIFORCE™ COATING SYSTEM VS. SINGLE COATING

No single coating product can match the corrosion protection of the TRIFORCE™ multi-coating system. Steel utility structures routinely encounter a tremendous amount of environmental stresses and service conditions. Although individual polymer coatings can be optimized to offer a greater balance of important characteristics related to corrosion protection (adhesion, chemical resistance, abrasion resistance, impact resistance and UV resistance, etc.), trade-offs are typically inevitable...but, not anymore.

With TRIFORCE, you no longer need to settle for merely adequate levels of protection. You can now safeguard and extend the service life of the infrastructure, powering long-term performance.

The Course for Protection

Above-ground performance has proven that galvanizing offers powerful and effective corrosion protection in most instances. When buried, a stronger protective coating system is vital to the health of the structure. The high-build polyurethane offers all the additional protection the structure requires below grade. Although formulated to be UV resistant, to optimize the UV protection above grade, a fully UV stable top coat is required.

TRIFORCE incorporates specialized coatings products, each with a specific function, to achieve optimal performance:

- **Galvanizing** – Proven protective performance above ground line.
- **CorroCote® II Ultra** – An enhanced polyurethane providing the best below-grade corrosion protection (technology transferred from the underground pipe market), exceeding the required minimum industry requirements (including increased adhesion; improved abrasion, impact and chemical resistance; reduced cathodic disbondment; reduced water absorption/permeability). Test results prove consistent regardless of prep and application.
- **Duraspar® UV Top Coat** – Further enhancing the system without compromising the corrosion protection of the base coat by adding additional properties, Valmont Utility utilizes a compatible UV-stable top coat applied to the above-ground portion of the coating. This top coat can also be applied over the entire embedded section if the poles remain in storage for an extended period of time. Valspar Duraspar provides exceptional durability and UV stability, backed by decades of proven performance in commercial uses.
- **This system, applied with the Valmont Utility dual-pass application method and beveled-edge finish delivers the best corrosion protection available for embedded utility structures on the market.**

RECOMMENDED APPLICATION

- Steel
- Galvanized Layer
- CorroCote® II Ultra
- Duraspar® UV Topcoat

Full length UV topcoat available upon request.

Alternative masking method can create a sloped edge, reducing ability to hold water/moisture.

Actual Colors

- PMS 440C Duraspar Color
- PMS 423C CorroCote Color

Custom colors available upon request.
## Testing: From the Lab to Real World Application

### Third-Party Testing Results

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Min/Current Performance</th>
<th>CC II Ultra</th>
<th>Improvement</th>
<th>Description &amp; Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesion (Carbon Steel)</td>
<td>ASTM D-4541 (SSPC-10)</td>
<td>1,500psi**</td>
<td>&gt;3,400 psi***</td>
<td>226%</td>
<td>The coating’s ability to adhere to the steel substrate relates directly to its ability to protect the steel from corrosion. CorroCote® II Ultra offers significantly more adhesion than its predecessors and offers enhanced protection over a wider range of substrate surface preparation conditions.</td>
</tr>
<tr>
<td>Abrasion Resistance</td>
<td>ASTM D-4060 (CS-17 Taper, 1kg weights, 1000 revolutions)</td>
<td>&lt;75mg**</td>
<td>&lt; 30 mg***</td>
<td>150%</td>
<td>A more abrasion-resistant coating resists being worn off over time when exposed to physical stresses such as rubbing, scratching and backfilling. Higher abrasion resistance translates to better corrosion protection.</td>
</tr>
<tr>
<td>Impact Strength</td>
<td>ASTM D-2794 (20 mils)</td>
<td>95 in. lbs**</td>
<td>125 in. lbs***</td>
<td>31%</td>
<td>The better a coating can withstand rapid deformation from the inevitable impacts during manufacturing, transit and service, the greater the service life will be. This is a measure of the ability of the coating to stand up to physical impacts.</td>
</tr>
<tr>
<td>Chemical Resistance - 10% Sulfuric Acid (Wt Gain %)</td>
<td>ASTM D-543</td>
<td>6-15%**</td>
<td>&lt;0.8%***</td>
<td>&gt;750%</td>
<td>Exposure to acidic and other aggressive soil conditions can accelerate corrosion. A coating which is more chemical resistant will provide greater corrosion protection, especially in harsher conditions.</td>
</tr>
<tr>
<td>Cathodic Disbondment</td>
<td>CSA Z245 (65°C, 48 hours, 20milis)</td>
<td>&lt;12mm average results**</td>
<td>&lt; 8 mm average results*</td>
<td>50%</td>
<td>A critical characteristic in the steel pipeline coatings industry, this describes the ability of the coating to resist being lifted or pried off by corrosion once it begins, something vital to long-term corrosion protection.</td>
</tr>
<tr>
<td>Water Immersion</td>
<td>ASTM D-570</td>
<td>2.2%-3.0%**</td>
<td>&lt;1%***</td>
<td>&gt;217%</td>
<td>All polymer coatings absorb water when immersed for extended periods; therefore the greater the absorption, the greater the negative effect on electrical insulation resistance, dielectric losses, mechanical strength and overall corrosion protection.</td>
</tr>
<tr>
<td>VOCs</td>
<td>ASTM D-2369</td>
<td>&lt; 2% VOCs (by weight &amp; volume)**</td>
<td>VOCs: 0 g/L 100% Solids Zero VOCs</td>
<td>300%</td>
<td>Properly applied high-solids coatings not only offer excellent corrosion protection, but also contain little or no volatile organic compounds (VOCs), and thus are more environmentally friendly.</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>ASTM D149</td>
<td>200V/mil**</td>
<td>&gt;600V/mil</td>
<td>300%</td>
<td>A coating’s insulative properties relates directly to its ability to prevent corrosion. Higher dielectric values also allow for embedded structures to be buried in closer proximity to existing cathodically protected infrastructure (eg. Pipelines).</td>
</tr>
</tbody>
</table>

* Per AWWA C222
** Previous coating(s)
*** A2LA Certified Third-Party Testing