Technical Data Sheet No: **LD-101.3**
Anodizing

Anodizing is an electro chemical process that thickens and toughens the naturally occurring protective oxide. The resulting finish, depending on the process is the second hardest substance known to man, second only to diamond. The anodic coating is part of the metal, but has a porous structure, which allows secondary infusions (i.e. organic and inorganic coloring, lubricity aids, etc.).

Courtesy of the Anodizing Association of Australia, 2008

Anodizing converts the surface of the aluminum from its natural state to another; with markedly different properties. This new surface is not a coating in the traditional sense as it is produced from the parent material and is integral to it, and therefore provides highly effective corrosive resistance.

Anodizing has many benefits:

Durability

Most anodized products have an extremely long life span and offer significant economic advantages through maintenance and operating savings. Anodizing is a reacted finish that is integrated with the underlying aluminum for total bonding and unmatched adhesion.

Color Stability

Exterior anodic coatings provide good stability to ultraviolet rays and do not chip or peel.

Ease of Maintenance

Scars and wear from fabrication, handling, installation, frequent surface dirt cleaning and usage are virtually non-existent. Rinsing or mild soap and water cleaning usually will restore an anodized surface to its original appearance. Mild abrasive cleaners can be used for more difficult deposits.

Aesthetics

Anodizing offers an increasing number of gloss and color alternatives. Unlike other finishes, anodizing allows the aluminum to maintain its metallic appearance.

Cost

A lower initial finishing cost combines with lower maintenance costs for greater long-term value.

Health and Safety

Anodizing is a safe process that is not harmful to human health. An anodized finish is chemically stable, will not decompose; is non-toxic; and is heat-resistant to the melting point of aluminum.

Since the anodizing process is a reinforcement of a naturally occurring oxide process, it is non-hazardous and produces no harmful or dangerous by-products. However, as the anodizing process doesn't 'cover up' the surface of the aluminum, surface scuffs and scratching due to manufacturing processes may be visible. Understanding that anodizing itself is a translucent finish, any inconsistencies within the supplied aluminum (including metallurgy, surface texture or grain structure) can become evident or accentuated after anodizing.

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Anodizing

Valmont® Structures ensures where practical, that raw material for any job is sourced from the same mill run, thereby reducing the variation in the level of impurities. However, even with this extra care Valmont Structures is unable to guarantee a consistent surface finish.

Anodizing Process/Method

During the anodizing process, there are a number of methods to clamp the material. Valmont Structures will specify the preferred method of anodizing to maximize the final appearance for your application needs.

1. Full Rack – This provides the best contact during anodizing, however it does leave a depression in each corner of the face.
2. Block – The rear of the sheet again is marked approximately 0.39in (10mm) square around the border, with depressions in each corner of the face.
3. Wire Jig – In theory this method shouldn't leave any marks on the sheet, however in practice the wire sometimes touches the surface of the material, leaving lines on the face and rear in the corners. The material can be re-anodized, but then is susceptible to color variation.
4. Oversized Sheets – Sheets are produced with an extra 2.0in (50mm) at each end, clamped using the full rack method (above) and guillotined afterwards to remove any marks, rainbowing or corner damage. This is the preferred method of Valmont Structures.

Specifying an Anodized Finish

See: **https://www.anodizing.org** for specifying convention of Aluminum Anodizers Council.
Valmont Structures recommends the following guidelines are followed to ensure a mutually beneficial result.

- Anodized Aluminum Performance: American Architectural Manufacturers Association AAMA 611
- Clear Anodizing: Aluminum Association specification AA-M12C22A41
- Color Coating: Aluminum Association specification AA-M12C22A42/A44

Always specify from a sample provided by Valmont Structures with the following information:

1. The alloy of the aluminum you wish to anodize.
   - Aluminum sheets will generally be from the 5000 series.
2. The finish.
   - Matte – anodized aluminum with a low specular reflectance.
   - Linishing – a mechanical treatment to provide a brushed finish to the aluminum.
3. The color or name of the finish you require.
4. The coating thickness required, according to the U.S. standards are most commonly AAMA611 type I, II, Milspec and AAMA612. AAMA611 is the most common for architectural applications where a finish is not maintained.

Contact your local Sales Representative today at: 941.402.3554 • facades@valmont.com