

Factory Finish Standards, Practice & Product

PROCESS

PalmSHIELD powder coating process and standards are based on a three-step process.

Step 1. Removal of oil, dirt, lubrication greases, metal oxides, welding scale etc. is essential prior to the powder coating process. PalmSHIELD utilizes both phosphates spray application and sweep blasting the surface. The use of a phosphate spray consist of degreasing, etching, de-smutting, various rinses and the final phosphating of the substrate The pre-treatment process both cleans and improves bonding of the powder to the metal. Blast media and blasting abrasives are used to provide surface texturing and preparation, etching, finishing, and degreasing.

Step 2. Applying the powder. The most common way of applying the powder coating to metal objects is to spray the powder using an electrostatic gun. The gun imparts a negative charge to the powder, which is then sprayed towards the grounded object by mechanical or compressed air spraying and then accelerated toward the workpiece by the powerful electrostatic charge.

Step 3. Curing the powder. When a thermosetting powder is exposed to elevated temperature, it begins to melt, flows out, and then chemically reacts to form a higher molecular weight [polymer](https://en.wikipedia.org/wiki/Polymer) in a network-like structure.

STANDARDS

PalmSHIELD meets and exceeds the following standards for applying our factory finish to aluminum fence panels, posts and gates to receive a polyester powder coating.

Polyester powder coating: Electrostatically applied colored polyester powder coating heat cured to chemically bond finish to metal substrate.

Minimum hardness measured in accordance with ASTM D3363 2H.

Direct impact resistance tested in accordance with ASTM D2794. Withstand 160 inch-pounds.

Salt spray resistance tested in accordance with ASTM B117: No undercutting, rusting, or blistering after 500 hours in 5 percent salt spray at 95° F and 95% relative humidity after 1,000 hours, less than 3/16 inches undercutting.

Weatherability tested in accordance with ASTM D822: No film failure and 88 percent gloss retention after 1 year exposure in South Florida with test panels tilted 45°.

PRODUCT

PalmSHIELD uses only the highest quality products. Using PPG, Peridium TGIC Polyester powder coatings offering excellent application and performance characteristics. Peridium’s tightly controlled particle size distribution provides extremely good first pass transfer efficiencies and edge coverage along with the smoothest film available. Long term exterior durability, high performance mechanical properties and overbake resistance are also common characteristics of these premium TGIC polyester coating

Cured Film Properties:

PCI Powder Smoothness Rating 8-9 (high gloss)

Specific Gravity (ASTM D792) 1.2 to 1.8

Adhesion (ASTM D3359) 5B (100%)

Gloss (ASTM D523) 30-99

Pencil Hardness (ASTM D3363) H-4H

Impact (ASTM D2794) 160 - 240+ inch lbs.

Flexibility (ASTM D522) 1/8 inch - No fracturing

Humidity (ASTM D2247) 1,000+ hours

Salt Spray (ASTM B117) 1,000+ hour