Hope's Finishing Process

Advanced Cleaning Process • PPG POWERCRON® 8000 Cathodic Epoxy Coating • PPG/Matthews Paint Acrylic Polyurethane Top Coat

HOPE'S®

STEEL & BRONZE • WINDOWS & DOORS

HANDCRAFTED IN USA

Outstanding Pretreatment and Finish Performance

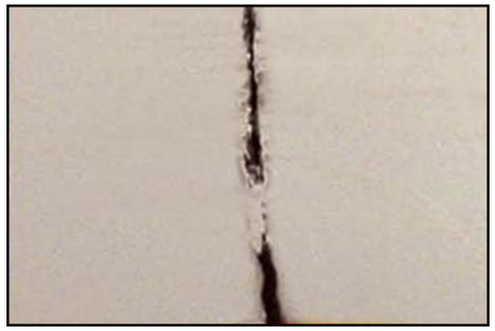
As the world's largest manufacturer of custom hot-rolled steel windows and doors, Hope's Windows, Inc. has partnered with PPG Industries, the world leader of high-performance, quality coatings. This alliance enables Hope's Windows to lead the industry with a superior pretreatment and finishing system through the cutting edge technology of electrocoat (e-coat) pretreatment and an acrylic polyurethane top coat finish.

Advanced Cleaning & Electrocoat Pretreatment

The E-coat Advantage

Immersion in e-coat provides superior corrosion resistance by ensuring a complete protective coating and a consistent coating thickness — even in corners, on edges, and in hard to reach partially enclosed spaces of every shape, size, and weight. Should damage on the product occur, any resulting corrosion will be confined to the point of damage rather than spread throughout the surface as with other pretreatment systems such as galvanizing.

Galvanized sample after 2000 hours exposure



Electrocoat sample after 5000 hours exposure

The photos illustrate the superior effectiveness of e-coat pretreatment as compared to galvanizing pretreatment. The sample panels were scribed and subjected to salt spray testing in accordance with ASTM standards. The galvanized sample (left) shows significant blistering and delamination after 2000 hours of testing. In comparison, the e-coat sample (right) after 5000 hours of salt spray exposure equating to an anticipated 25-year life cycle in a corrosive environment—two and a half times that of the galvanized sample—shows minimal blistering at the scribe point and excellent adhesion.

How E-coat Works

E-coat is an immersion coating process in which charged epoxy primer particles are attracted to an oppositely charged metallic surface.

PPG POWERCRON® 8000 cathodic epoxy coatings offer the ultimate corrosion and chemical resistance and serve as the benchmark for primer performance. This newest lead-free product offers corrosion resistance better than prior leaded versions.

Prior to e-coating, a steel window or door goes through a multiple stage cleaning process. The part is then immersed in an e-coat bath consisting of 80-90% water and 10-20% primer paint solids. The water acts as the vehicle for the primer particles that are under constant agitation.

The epoxy primer consists of a careful balance of resins, pigments and corrosion inhibiting agents. Resin is the primary factor of the final primer film and provides the corrosion protection, durability and toughness of the finish. Pigments are used to provide color and gloss.

The e-coat system applies a DC charge to the metal part immersed in a bath of oppositely charged primer particles. These particles are drawn to and deposited on the metal part, forming an even, continuous film over the entire surface. The film thickness is controlled by the amount of voltage applied. Upon reaching the directed thickness, the film insulates the part where attraction stops and the process is complete.

As the metal parts exit the bath, primer solids cling to the surface and are rinsed to maintain efficiency and aesthetics. After exiting the post rinses, the coated parts enter the bake oven converting the primer films to a hard enamel composition that is abrasive resistant with superior corrosion resistance.

Durable Top Coat Application

High Performance Acrylic Polyurethane Top Coat

Following the e-coat pretreatment, all Hope's products receive a spray application of PPG/Matthews Paint acrylic polyurethane assuring our absolute commitment to the quality of Hope's finish performance. Our performance meets the demanding requirements of environmental applications.

- Acrylic polyurethane provides weather resistance unmatched by ordinary polyurethane coatings.
- Top coats have exceptional abrasion, chemical and solvent resistance and are engineered for minimal maintenance.
- Top-performing acrylic polyurethanes are engineered for maximum color and gloss retention and are lead and chromate-free.
- Color-matching abilities are unrivalled.
- Hope's acrylic polyurethane finish is an air dry system allowing for on-site touch-up if necessary.

Stringent Testing

Corrosion Resistance & Durability

Hope's finishes have been rigorously tested and proven to provide outstanding performance and durability:

- Paint Blistering Test
  ASTM D714-02
- Humidity Test
  ASTM D4585
- Salt Spray (Fog) Test
  ASTM B117-03
- Painted Products in Corrosive Environment
  ASTM D1654-05
- Cyclic Fog/Dry Test (Prohesion)
  ASTM G85
- Salt Fog/UV Painted Metal
  ASTM D5894-96
- Pull Off Strength of Coating Test
  ASTM D4541

Hope's Finishing & The Environment

Eco-Friendly Finish

Hope's finishing is lead-free and very low in Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAPs). Hope's finishing process is in compliance with the Clean Air Act of 1990 as administered by the EPA.

Hope's finishing system is endorsed by PPG Industries
and carries a 10-year limited warranty.

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Printed in USA