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## **PAINT / POWDER COATING SHOP APPROVAL**

### **GENERAL**

Paints of all miscellaneous steel products shall conform to the Iowa Department of Transportation Specification requirements and as described herein. Acceptance of all painted miscellaneous steel products shall be on the basis of certification from an approved paint shop. Paint can be applied either by the conventional spray methods or by the powder coating methods.

Powder coatings are dry rather than liquid products. The common constituents of the coating films such as resins, pigments, and modifiers are usually present in the powder. The powder is fused by heating to form a continuous protective film. In most cases this one-coat thickness (approximately 3- 6 mils) by electrostatic spray.

### **PAINT SHOP APPROVAL**

Each paint shop shall be approved PRIOR to the commencement of any paint work for the State of Iowa. Paint shops seeking approval shall provide the Central Materials Office a written application to become an approved paint shop. The application shall include the following:

1. Quality control procedures that the company has established to ensure quality paint work.
2. Source and type of paint
3. Sand blasting (outdoor, indoor and size of bulk sand hopper)
4. Painting bay (size in square feet, heated, unheated)
5. Paint storage room (heated, unheated)
6. Hoist (capacity in tons)
7. Lighting minimum requirement 50 foot-candles (lm/ft<sup>2</sup>)
8. Ventilation systems
9. Humidity/temperature/air flow
10. Qualified/certified painter
11. Paint certification
12. Storage of painted items
13. Shipping & handling

### **PRE-PAINTING APPLICATION REQUIREMENTS**

1. Surface Preparation
  - a. Galvanized
  - b. Non-galvanized
2. Pretreatments or Blasting (SSPC Requirements), profile measurement
3. Material Handling & Storage
4. Approved Paints
  - a. Primer
  - b. Topcoat
  - c. Three-coat System
5. Mixing & Thinning

### **PAINT APPLICATION REQUIREMENTS**

1. Contact Surfaces
2. Temperature Control
  - a. Metal Temperature
  - b. Room Temperature
  - c. Paint Temperature
3. Humidity Control
4. Paint Thickness
5. Paint Damage Repair/Re-coating/Touch-up

### **APPLICATION METHODS**

Spray Application/Manufacturer's Recommendations

1. Air Spray
2. Airless Spray
3. Roller Application
4. Brush Application
5. Coating Thickness

### **CURING METHODS**

1. Air at Room Temperature
2. Heated Bay
3. Other Methods

### **SHIPPING & HANDLING**

Painted items shall be protected:

1. While in Storage
2. In Stocking
3. In Shipping & Handling

### **TEST PANEL**

Each paint shop seeking approval by the State of Iowa shall demonstrate the ability to properly apply shop coats to test panel. Test panels shall be steel (hot-rolled or equivalent) measuring 6 inches by 8 inches or greater, shall be white metal blast-cleaned (SSPC SP5) with a nominal anchor profile between 1.5 to 3.5 mils and coated with zinc-rich paint.

Panels shall be blast-cleaned and coated on both sides and all edges. The paint shall be spray-applied and cured in accordance with manufacturer's recommendations. The dry film thickness shall be between 3.0 and 5.0 mils. Prior to any exposure testing, panels shall be aged for 14 days at 75°F-79°F and 45-55% relative humidity.

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Mudcracking:

The coating after the cure period shall show no mudcracking to the naked eye and when viewed under 10x magnification.

Adhesion:

The coating when applied and hardened shall adhere to the steel substrate when subjected to testing.

Gloss & Color Retention & Ultraviolet (UV) Resistance Testing:

The paint manufacturer shall present a certificate of compliance by an independent certified laboratory stating that the paint has been tested for gloss and color retention and UV resistance and has met the intended specification requirements.

**POWDER COATING SHOP APPROVAL**

Each powder coating shop shall be approved prior to the application of any powder coating process. Powder coating shops seeking approval shall provide the Central Materials Office a written application to become an approved powder coater by the State of Iowa. The application shall include the following:

1. Quality control procedures that the company has established to ensure quality and durable coating
2. Source and type of powder
3. Powder storage – controlled environment
4. Sand blasting (Indoor / Outdoor)
5. Surface preparation, Anchor profile
6. Powder application bay (size in sq. ft)
7. Conveyer line powder application booth
8. Type of pretreatment
9. Curing ovens (convection and / or infrared ovens)
10. cure temperature (250° - 350°F)
11. Hoist (Type and Capacity in tons)
12. Lighting minimum requirement 50-foot candles (lm/ft<sup>2</sup>)
13. Ventilation systems
14. Humidity / Temperature / Air flow
15. Qualified / Certified painters and / or coaters
16. Powder certification
17. Storage of coated items
18. Shipping & Handling

**Storing Powder Coatings**

Powder coating shall be stored under dry, cool, clean conditions at a temperature typically below 77°F (25°C) and / or as recommended by the powder's manufacturer.

### Surface Preparation

Items to be coated, shall receive an abrasive blast and shall comply with the requirements of SSPC SP10 (near white metal) to achieve a recommended surface profile of (2.0 – 4.0 mils) necessary for satisfactory bonding of the powder to the substrate.

### Film Thickness

Unless otherwise specified the film thickness shall have a minimum of 3.0 mils and maximum of 5.0 mils with an average target value of 3.4 mils.

### Test Panel

Each powder coating shop seeking approval by the state of Iowa shall demonstrate the ability to properly apply powder coat to a test panel (powder coat applied over galvanized and ungalvanized surface). Test panel shall be steel (hot rolled or equivalent) measured 6-inches by 8-inches or greater.