

SECTION 05 05 13 - SHOP-APPLIED POWDER COATINGS FOR METAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Shop-applied powder coatings for architectural aluminum extrusions.

B. Related Sections: Coatings specified in this Section apply to work of the following Sections:

Specifier: Include in the list below those project sections whose extruded aluminum component shop-applied coating requirements reference this section. Delete this paragraph and the subparagraphs below if completing information in Part 2 Shop Applied Coatings Schedule.

1. Division 01 Section "Sustainable Design Requirements."
2. Division 05 Section "Pipe and Tube Railings."
3. Division 05 Section "Decorative Metal."
4. Division 05 Section "Decorative Metal Railings."
5. Division 07 Section "Roof Specialties."
6. Division 08 Section "Overhead Coiling Doors."
7. Division 08 Section "Overhead Coiling Grilles."
8. Division 08 Section "Aluminum-Framed Entrances and Storefronts."
9. Division 08 Section "All-Glass Entrances and Storefronts."
10. Division 08 Section "Automatic Entrances."
11. Division 08 Section "Revolving Door Entrances."
12. Division 08 Section "Glazed Aluminum Curtain Walls."
13. Division 08 Section "Structural-Sealant-Glazed Curtain Walls."
14. Division 08 Section "Sloped Glazing Assemblies."
15. Division 08 Section "Aluminum Windows."
16. Division 08 Section "Metal-Framed Skylights."
17. Division 08 Section "Louvers and Vents."

1.2 REFERENCES

Specifier: If retaining References Article, edit to include only those references in edited section.

A. American Architectural Manufacturers Association (AAMA):

1. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
2. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
3. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

B. ASTM International (ASTM):

1. ASTM D 532 – Standard Test Method for Specular Gloss.
2. ASTM D 1400 - Standard Test Method for Nondestructive Measurement of Dry Film Thickness of Nonconductive Coatings Applied to a Nonferrous Metal Base.

3. ASTM D 1654 – Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
4. ASTM D 2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
5. ASTM D 4214 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.

C. International Organization for Standards (ISO):

1. ISO 2815 – Paints and varnishes – Buchholz indentation test.
2. ISO 3231 – Paints and varnishes – Determination of resistance to humid atmospheres containing sulfur dioxide

1.3 QUALITY ASSURANCE

Specifier: Retain paragraph below when applicable to products specified in Part 2. Approved extrusion coating applicator may be able to provide enhanced warranties listed in Warranty Article below.

- A. Applicator Qualifications: Coating manufacturer's approved Applicator who is equipped, trained and approved for application of coatings required for this Project, and who provides warranty specified in this Section.
- B. Single Source Responsibility: Provide shop-applied powder coatings provided by a single manufacturer responsible for coordinating finishes for work of all sections listed under Summary article.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of coating product specified. Include coating manufacturer's preparation requirements and application instructions for each substrate.
- B. LEED Submittals:

Specifier: Retain first paragraph below for projects requiring project documentation for LEED for Schools. Note that interior finishes on windows, storefront framing, and curtain wall products must comply.

1. Laboratory Test Reports for Credit EQ 4: For coatings applied to interior products, documents indicating compliance with California Department of Health Services testing and product requirements "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

Specifier: Normally retain one or both paragraphs below. Samples for verification of powder coat finishes are provided by the project coating applicator as powder coating on the specified substrate.

- C. Samples for Selection: For each coating type, color, gloss, and texture specified.
- D. Samples for Testing and Verification: For each coating product, for each coating type, color, gloss, and texture specified, on specified substrate.
 1. Submit related architectural metals components as a group to verify matching finishes.

1.5 INFORMATIONAL SUBMITTALS

- A. Product test reports, when requested by Architect.

B. Qualifications: For shop-applied coatings Applicator.

C. Warranty: Sample of special warranty.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, unload, and store shop-coated items so that they remain free of damage or deformation. Package and protect items during shipping and handling. Protect stored items from water; stack to facilitate drainage. Keep shop-coated items out of contact with materials that may adversely affect the coating.

B. Protect shop-coated items with protective covering until installed.

1.7 COORDINATION

A. Coordinate submittal and selection procedures for items to receive shop-applied coatings. Where items are indicated to match coatings selected for other items, adjust formulations as required to achieve match. Submit samples for verification indicating compliance with matching requirements.

1.8 WARRANTY

Specifier: Verify that coating applicator offers warranty meeting requirements below, or modify to suit project. Coating applicators are the ultimate warranting party for the Owner; AkzoNobel, as the coating manufacturer, offers warranties to the coater, who may modify them based upon project circumstances.

A. Coating Applicator's Warranty, General: Coating Applicator's warranty in which Applicator agrees to repair finish or recoat items that demonstrate deterioration of shop-applied finishes within warranty period indicated under individual coating products in this Article.

B. AAMA 2605 Powder Coatings on Aluminum Extrusions:

1. Exposed Coating: Deterioration includes but is not limited to:

- a. Color fading in excess of 5 Delta E units per ASTM D 2244.
- b. Peeling, checking, or cracking of coating adhesion to metal.
- c. Chalking in excess of a No. 8 per ASTM D 4214.
- d. Corrosion of substrate in excess of a No. 6 on cut edges and a No. 8 on field surfaces, when measured per ASTM D 1654.

2. Warranty Period: [20] years from date of Substantial Completion.

C. AAMA 2604 Powder Coatings on Aluminum Extrusions:

1. Exposed Coating: Deterioration includes but is not limited to:

- a. Color fading in excess of 5 Delta E units per ASTM D 2244.
- b. Peeling, checking, or cracking of coating adhesion to metal.
- c. Chalking in excess of a No. 8 per ASTM D 4214.
- d. Corrosion of substrate in excess of a No. 6 on cut edges and a No. 8 on field surfaces, when measured per ASTM D 1654.

2. Warranty Period: [10] years from date of Substantial Completion.

D. AAMA 2603 Powder Coatings on Aluminum Extrusions:

1. Exposed Coating: Deterioration includes but is not limited to:
 - a. Color fading in excess of 5 Delta E units per ASTM D 2244.
 - b. Peeling, checking, or cracking of coating adhesion to metal.
 - c. Chalking in excess of a No. 8 per ASTM D 4214.
 - d. Corrosion of substrate in excess of a No. 6 on cut edges and a No. 8 on field surfaces, when measured per ASTM D 1654.
2. Warranty Period: [5] years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Specifier: Retain option for substitutions below when required for project.

- A. Basis-of-Design Product: Provide shop-applied coatings manufactured by Akzo Nobel Coatings Inc. – Powder Coatings, Nashville TN, Telephone: (800) 626-7891 Ext 4; Email: marketingservices_us@akzonobel.com; Website: www.interpon.com/usa [or comparable products of another manufacturer approved by Architect prior to bid].

2.2 APPROVED COATING APPLICATORS

Specifier: A list of approved Applicators is available from AkzoNobel Powder Coatings.

- A. Acceptable Applicators: Provide shop-applied coatings applied by one of the following manufacturer-approved applicators:
 1. [Insert list of acceptable applicators].

2.3 HIGH-PERFORMANCE POWDER COATINGS FOR ALUMINUM EXTRUSIONS

Specifier: Edit list of materials in this Article to correspond to Shop-Applied Coatings Schedule.

Interpon D3000 Series Fluoromax is a family of hyper-durable powder coatings designed to meet the requirements of AAMA 2605. Fluoromax is a technically and environmentally benign alternative to liquid PVF2 systems for demanding environments.

Interpon D3000 Series Fluoromax conforms to Qualicoat Class 2 and EN 12206 (high durability systems).

- A. Powder Coatings, Superior Performance Coating Finish Process: One-coat dry system with 70 percent fluoropolymer resin, meeting performance requirements of AAMA 2605 and the following:
 1. Product: **Akzo Nobel Coatings Inc., Interpon D3000 Series Fluoromax Powder Coating.**
 2. Dry Film Thickness, ASTM D 1400: Not less than thickness applied to tested specimens meeting specified performance requirements, and as recommended by manufacturer for application.
 3. Specular Gloss, ASTM D 523 at 60 deg.: [25] [35] percent, plus or minus 5 percent.
 4. Dry Film Hardness, ASTM D 3363: Pass.

Specifier: Performance requirement below is in addition to AAMA 2605; consider retaining in environments where sulphur dioxide contaminants are an issue.

5. Sulphur Dioxide, ISO 3231 (Kesternich): Pass – no blistering, loss of gloss, or discoloration.

Specifier: **Interpon D2000 Series** is a family of ultra-durable powder coatings designed to meet the requirements of AAMA 2604 as a technically and environmentally benign alternative to liquid PVF2 systems for exterior exposure.

Interpon D2000 powders are available in 31 standard colors.

- B. Powder Coatings, High Performance Coating Finish Process: One-coat dry system with modified polyester resin, meeting performance requirements of AAMA 2604 and the following:
 1. Product: **Akzo Nobel Coatings Inc., Interpon D2000 Series Super Polyester Powder Coating.**
 2. Dry Film Thickness, ASTM D 1400: Not less than thickness applied to tested specimens meeting specified performance requirements, and as recommended by manufacturer for application.
 3. Specular Gloss, ASTM D 523 at 60 deg.: [25] [35] [45] [55] [65] [75] percent, plus or minus 5 percent.

Specifier: **Interpon D1000 Series** is a family of durable powder coatings designed to meet the requirements of AAMA 2603 as a technically and environmentally benign alternative to liquid PVDF systems for normal environmental and interior applications.

- C. Powder Coatings, Pigmented Thermal-Setting Coating Finish Process: One-coat dry system with polyester resin, meeting performance requirements of AAMA 2603, and the following:
 1. Product: **Akzo Nobel Coatings Inc., Interpon D1000 Series.**
 2. Dry Film Thickness, ASTM D 1400: Not less than thickness applied to tested specimens meeting specified performance requirements, and as recommended by manufacturer for application.
 3. Specular Gloss, ASTM D 523 at 60 deg.: [25] [35] [45] [55] [65] [75] [85] percent, plus or minus 5 percent.

Specifier: Retain paragraph below for LEED for Schools certified projects where control of VOCs for interior items that are shop-coated is a concern.

- D. Low-Emitting Materials: For interior coatings: Comply with testing and product requirements of California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.4 FINISHES, GENERAL

- A. Pretreatment: Mechanically clean and chemically pretreat fabricated items in accordance with coating manufacturer's requirements and AAMA requirements for finish indicated.
 1. Perform multi-stage chromate conversion coating or other chrome-free pretreatment acceptable to coating manufacturer.
- B. Application: Apply powder coating in accordance with coating manufacturer's requirements and AAMA requirements for finish indicated.

2.5 SHOP-APPLIED COATINGS SCHEDULE

Specifier: Verify coatings are available from manufacturers of each listed product in the referenced architectural metals sections.

First paragraph below references performance requirements of AAMA standard for pigmented organic coating on extrusions and panels.

- A. Powder-Coat Finish for Aluminum Extruded Items: AAMA [2603] [2604] [2605].
 - 1. Coated Items: [Insert list of extruded items to receive finish described].
 - 2. Color: [As selected from manufacturer's full range] [As designated or scheduled] [Match custom sample] [and coordinate with related architectural aluminum components].

Specifier: Retain paragraph below and edit gloss level for each item, or delete below and retain gloss level for all specified components above under coating description.

- 3. Specular Gloss: [25] [35] [45] [55] [65] [75] percent, plus or minus 5 percent.
- 4. Surface: [Smooth] [Rough texture, glossy surface] [Fine texture] [As selected from manufacturer's full range] [As designated or scheduled].

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Refer to individual specification sections for installation requirements for items receiving shop-applied coatings.

3.2 PROTECTION

- A. Remove protective wrap from coated items at time of installation.

END OF SECTION 05 05 13

Additional Specifiers Notes for AkzoNobel Shop-Applied Powder Coatings for Metal

Substitution Reviews: When reviewing substitution requests for other products for compliance with this specification, AkzoNobel recommends particular attention to the following issues:

Range of Color Options: AkzoNobel coatings offer globally-coordinated arrays of color options across high-performance coating product lines, in standard, bright, exotic, and metallic options, enabling close coordination of building exterior and interior architectural coatings and paints.

Approved Applicators: AkzoNobel's Approved Applicators provide comprehensive warranties available for specific applications. Compare warranty terms and conditions with those of products offered as comparable.

Coordination: Make sure you coordinate the following:

Extent of shop-applied coatings for each substrate, coating type, color, and finish.
Cross-reference to applicable specification section for each shop-applied coating application.
Submittal requirements for color-matching of samples from multiple sources.