

**SECTION 09 91 00
PAINTING**

PART 1-GENERAL

1.1 DESCRIPTION

- A. Section specifies field painting.
- B. Section specifies prime coats which may be applied in shop under other sections.

1.2 RELATED WORK

- A. Shop prime painting of steel and ferrous metals: Division 05 - METALS, Division 08 - OPENINGS, Division 10 - SPECIALTIES, .

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data:
Before work is started, or sample panels are prepared, submit manufacturer's literature, the current Master Painters Institute (MPI) "Approved Product List" indicating brand label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI "Approved Product List" where applicable is acceptable.

1.4 DELIVERY AND STORAGE

- A. Deliver materials to site in manufacturer's sealed container marked to show following:
 - 1. Name of manufacturer.
 - 2. Product type.
 - 3. Batch number.
 - 4. Instructions for use.
 - 5. Safety precautions.
- B. In addition to manufacturer's label, provide a label legibly printed as following:
 - 1. Federal Specification Number, where applicable, and name of material.
 - 2. Surface upon which material is to be applied.
 - 3. If paint or other coating, state coat types; prime, body or finish.
- C. Maintain space for storage, and handling of painting materials and equipment in a neat and orderly condition to prevent spontaneous combustion from occurring or igniting adjacent items.
- D. Store materials at site at least 24 hours before using, at a temperature between 18 and 30 degrees C (65 and 85 degrees F).

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.
- B. American Conference of Governmental Industrial Hygienists (ACGIH):
 - ACGIH TLV-BKLT-2008.....Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)
 - ACGIH TLV-DOC-2008.....Documentation of Threshold Limit Values and Biological Exposure Indices, (Seventh Edition)
- C. American National Standards Institute (ANSI):
 - A13.1-07.....Scheme for the Identification of Piping Systems
- D. American Society for Testing and Materials (ASTM):
 - D260-86.....Boiled Linseed Oil
- E. Commercial Item Description (CID):
 - A-A-1555Water Paint, Powder (Cementitious, White and Colors) (WPC) (cancelled)
 - A-A-3120Paint, For Swimming Pools (RF) (cancelled)
- F. Federal Specifications (Fed Spec):
 - TT-P-1411A.....Paint, Copolymer-Resin, Cementitious (For Waterproofing Concrete and Masonry Walls) (CEP)
- G. Master Painters Institute (MPI):
 - No. 1-07.....Aluminum Paint (AP)
 - No. 4-07.....Interior/ Exterior Latex Block Filler
 - No. 5-07.....Exterior Alkyd Wood Primer
 - No. 7-07.....Exterior Oil Wood Primer
 - No. 8-07.....Exterior Alkyd, Flat MPI Gloss Level 1 (EO)
 - No. 9-07.....Exterior Alkyd Enamel MPI Gloss Level 6 (EO)
 - No. 10-07.....Exterior Latex, Flat (AE)
 - No. 11-07.....Exterior Latex, Semi-Gloss (AE)
 - No. 18-07.....Organic Zinc Rich Primer
 - No. 22-07.....Aluminum Paint, High Heat (up to 590% - 1100F) (HR)
 - No. 26-07.....Cementitious Galvanized Metal Primer
 - No. 27-07.....Exterior / Interior Alkyd Floor Enamel, Gloss (FE)
 - No. 31-07.....Polyurethane, Moisture Cured, Clear Gloss (PV)
 - No. 36-07.....Knot Sealer
 - No. 43-07.....Interior Satin Latex, MPI Gloss Level 4
 - No. 44-07.....Interior Low Sheen Latex, MPI Gloss Level 2
 - No. 45-07.....Interior Primer Sealer
 - No. 46-07.....Interior Enamel Undercoat

- No. 47-07..... Interior Alkyd, Semi-Gloss, MPI Gloss Level 5 (AK)
 - No. 48-07..... Interior Alkyd, Gloss, MPI Gloss Level 6 (AK)
 - No. 49-07..... Interior Alkyd, Flat, MPI Gloss Level 1 (AK)
 - No. 50-07..... Interior Latex Primer Sealer
 - No. 51-07..... Interior Alkyd, Eggshell, MPI Gloss Level 3
 - No. 52-07..... Interior Latex, MPI Gloss Level 3 (LE)
 - No. 53-07..... Interior Latex, Flat, MPI Gloss Level 1 (LE)
 - No. 54-07..... Interior Latex, Semi-Gloss, MPI Gloss Level 5 (LE)
 - No. 59-07..... Interior/Exterior Alkyd Porch & Floor Enamel, Low Gloss (FE)
 - No. 60-07..... Interior/Exterior Latex Porch & Floor Paint, Low Gloss
 - No. 66-07..... Interior Alkyd Fire Retardant, Clear Top-Coat (ULC Approved) (FC)
 - No. 67-07..... Interior Latex Fire Retardant, Top-Coat (ULC Approved) (FR)
 - No. 68-07..... Interior/ Exterior Latex Porch & Floor Paint, Gloss
 - No. 71-07..... Polyurethane, Moisture Cured, Clear, Flat (PV)
 - No. 74-07..... Interior Alkyd Varnish, Semi-Gloss
 - No. 77-07..... Epoxy Cold Cured, Gloss (EC)
 - No. 79-07..... Marine Alkyd Metal Primer
 - No. 90-07..... Interior Wood Stain, Semi-Transparent (WS)
 - No. 91-07..... Wood Filler Paste
 - No. 94-07..... Exterior Alkyd, Semi-Gloss (EO)
 - No. 95-07..... Fast Drying Metal Primer
 - No. 98-07..... High Build Epoxy Coating
 - No. 101-07..... Epoxy Anti-Corrosive Metal Primer
 - No. 108-07..... High Build Epoxy Coating, Low Gloss (EC)
 - No. 114-07..... Interior Latex, Gloss (LE) and (LG)
 - No. 119-07..... Exterior Latex, High Gloss (acrylic) (AE)
 - No. 135-07..... Non-Cementitious Galvanized Primer
 - No. 138-07..... Interior High Performance Latex, MPI Gloss Level 2 (LF)
 - No. 139-07..... Interior High Performance Latex, MPI Gloss Level 3 (LL)
 - No. 140-07..... Interior High Performance Latex, MPI Gloss Level 4
 - No. 141-07..... Interior High Performance Latex (SG) MPI Gloss Level 5
- H. Steel Structures Painting Council (SSPC):
- SSPC SP 1-04 (R2004)..... Solvent Cleaning
 - SSPC SP 2-04 (R2004)..... Hand Tool Cleaning
 - SSPC SP 3-04 (R2004)..... Power Tool Cleaning

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Exterior Alkyd Enamel (EO): MPI 9.

- B. Fast Drying Metal Primer: MPI 95.
- C. High Build Epoxy Coating: MPI 98.
- D. Epoxy Anti-Corrosive Metal Primer: MPI 101.
- E. High Build Epoxy Marine Coating (EC): MPI 108.
- F. Exterior Latex, High Gloss (acrylic) (AE): MPI 119.

2.2 PAINT PROPERTIES

- A. Use ready-mixed (including colors), except two component epoxies, polyurethanes, polyesters, paints having metallic powders packaged separately and paints requiring specified additives.
- B. Where no requirements are given in the referenced specifications for primers, use primers with pigment and vehicle, compatible with substrate and finish coats specified.

2.3 REGULATORY REQUIREMENTS/QUALITY ASSURANCE

- A. Paint materials shall conform to the restrictions of the local Environmental and Toxic Control jurisdiction.
 - 1. Volatile Organic Compounds (VOC): VOC content of paint materials shall not exceed 10g/l for interior latex paints/primers and 50g/l for exterior latex paints and primers.
 - 2. Lead-Base Paint:
 - a. Comply with Section 410 of the Lead-Based Paint Poisoning Prevention Act, as amended, and with implementing regulations promulgated by Secretary of Housing and Urban Development.
 - b. Regulations concerning prohibition against use of lead-based paint in federal and federally assisted construction, or rehabilitation of residential structures are set forth in Subpart F, Title 24, Code of Federal Regulations, Department of Housing and Urban Development.
 - c. For lead-paint removal, see Section 02 83 33.13, LEAD-BASED PAINT REMOVAL AND DISPOSAL.

PART 3 - EXECUTION

3.1 JOB CONDITIONS

- A. Safety: Observe required safety regulations and manufacturer's warning and instructions for storage, handling and application of painting materials.
 - 1. Take necessary precautions to protect personnel and property from hazards due to falls, injuries, toxic fumes, fire, explosion, or other harm.
 - 2. Deposit soiled cleaning rags and waste materials in metal containers approved for that purpose. Dispose of such items off the site at end of each days work.
- B. Atmospheric and Surface Conditions:
 - 1. Do not apply coating when air or substrate conditions are:
 - a. Less than 3 degrees C (5 degrees F) above dew point.

- b. Below 10 degrees C (50 degrees F) or over 35 degrees C (95 degrees F), unless specifically pre-approved by the Contracting Officer and the product manufacturer. Under no circumstances shall application conditions exceed manufacturer recommendations.
2. Maintain interior temperatures until paint dries hard.
3. Do no exterior painting when it is windy and dusty.
4. Do not paint in direct sunlight or on surfaces that the sun will soon warm.
5. Apply only on clean, dry and frost free surfaces except as follows:
 - a. Apply water thinned acrylic and cementitious paints to damp (not wet) surfaces where allowed by manufacturer's printed instructions.
 - b. Dampened with a fine mist of water on hot dry days concrete and masonry surfaces to which water thinned acrylic and cementitious paints are applied to prevent excessive suction and to cool surface.
6. Varnishing:
 - a. Apply in clean areas and in still air.
 - b. Before varnishing vacuum and dust area.
 - c. Immediately before varnishing wipe down surfaces with a tack rag.

3.2 SURFACE PREPARATION

- A. Method of surface preparation is optional, provided results of finish painting produce solid even color and texture specified with no overlays.
- B. General:
 1. Remove prefinished items not to be painted such as lighting fixtures, escutcheon plates, hardware, trim, and similar items for reinstallation after paint is dried.
 2. Remove items for reinstallation and complete painting of such items and adjacent areas when item or adjacent surface is not accessible or finish is different.
 3. See other sections of specifications for specified surface conditions and prime coat.
 4. Clean surfaces for painting with materials and methods compatible with substrate and specified finish. Remove any residue remaining from cleaning agents used. Do not use solvents, acid, or steam on concrete and masonry.
- C. Ferrous Metals:
 1. Remove oil, grease, soil, drawing and cutting compounds, flux and other detrimental foreign matter in accordance with SSPC-SP 1 (Solvent Cleaning).
 2. Remove loose mill scale, rust, and paint, by hand or power tool cleaning, as defined in SSPC-SP 2 (Hand Tool Cleaning) and SSPC-SP 3 (Power Tool Cleaning). Exception: where high temperature aluminum paint is used, prepare surface in accordance with paint manufacturer's instructions.
 3. Fill dents, holes and similar voids and depressions in flat exposed surfaces of hollow steel doors and frames, access panels, roll-up steel doors and similar items specified to have semi-gloss or

gloss finish with TT-F-322D (Filler, Two-Component Type, For Dents, Small Holes and Blow-Holes). Finish flush with adjacent surfaces.

- a. This includes flat head countersunk screws used for permanent anchors.
 - b. Do not fill screws of item intended for removal such as glazing beads.
4. Spot prime abraded and damaged areas in shop prime coat which expose bare metal with same type of paint used for prime coat. Feather edge of spot prime to produce smooth finish coat.
 5. Spot prime abraded and damaged areas which expose bare metal of factory finished items with paint as recommended by manufacturer of item.

3.3 PAINT PREPARATION

- A. Thoroughly mix painting materials to ensure uniformity of color, complete dispersion of pigment and uniform composition.
- B. Do not thin unless necessary for application and when finish paint is used for body and prime coats. Use materials and quantities for thinning as specified in manufacturer's printed instructions.
- C. Remove paint skins, then strain paint through commercial paint strainer to remove lumps and other particles.
- D. Mix two component and two part paint and those requiring additives in such a manner as to uniformly blend as specified in manufacturer's printed instructions unless specified otherwise.
- E. For tinting required to produce exact shades specified, use color pigment recommended by the paint manufacturer.

3.4 APPLICATION

- A. Start of surface preparation or painting will be construed as acceptance of the surface as satisfactory for the application of materials.
- B. Unless otherwise specified, apply paint in three coats; prime, body, and finish. When two coats applied to prime coat are the same, first coat applied over primer is body coat and second coat is finish coat.
- C. Apply each coat evenly and cover substrate completely.
- D. Allow not less than 48 hours between application of succeeding coats, except as allowed by manufacturer's printed instructions, and approved by Resident Engineer.
- E. Finish surfaces to show solid even color, free from runs, lumps, brushmarks, laps, holidays, or other defects.
- F. Apply by brush, roller or spray, except as otherwise specified.

3.5 PRIME PAINTING

- A. After surface preparation prime surfaces before application of body and finish coats, except as otherwise specified.
- B. Spot prime and apply body coat to damaged and abraded painted surfaces before applying succeeding coats.

- C. Additional field applied prime coats over shop or factory applied prime coats are not required except for exterior exposed steel apply an additional prime coat.
- D. Prime rebates for stop and face glazing of wood, and for face glazing of steel.
- F. Metals except boilers, incinerator stacks, and engine exhaust pipes:
 - 1. Steel and iron: MPI 79 (Marine Alkyd Metal Primer)
 - 2. Zinc-coated steel and iron: MPI 134 (Waterborne Galvanized Primer)

3.6 EXTERIOR FINISHES

- A. Apply following finish coats where specified in Section 09 06 00, SCHEDULE FOR FINISHES.
- B. Steel and Ferrous Metal,:
 - 1. Two coats of MPI 8 (Exterior Alkyd, Flat (EO)) MPI 94 (Exterior Alkyd, Semi-Gloss (EO)) on exposed surfaces, except on surfaces over 94 degrees C (200 degrees F).

3.7 PROTECTION CLEAN UP, AND TOUCH-UP

- A. Protect work from paint droppings and spattering by use of masking, drop cloths, removal of items or by other approved methods.
- B. Upon completion, clean paint from hardware, glass and other surfaces and items not required to be painted of paint drops or smears.
- C. Before final inspection, touch-up or refinished in a manner to produce solid even color and finish texture, free from defects in work which was damaged or discolored.

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