

STANDARD SPECIFICATIONS

SECTION 09900

PAINING AND COATING

PART 1 - GENERAL

A. Description

This section includes the materials and application of painting and coating systems for buried and exposed surfaces.

All articles to be painted or coated will be painted or coated in the place of manufacture, unless field painting and coating is absolutely necessary. The District representative will make the determination. In the event that the paint or coating is damaged in the field, it will be touched up in the same manner as the original paint or coating applied in the place of manufacture.

B. Related Work Described Elsewhere

All related work specified elsewhere, or in other codes or standards, will be as last revised, unless a specific date of issuance is called out in opposition to later revision date(s).

Other sections of the technical specifications, not referenced below, shall also apply to the extent required for proper performance of this work.

1.	Ductile-Iron Pipe and Fittings:	15056
2.	Manual Valves:	15100
3.	Fire Hydrants:	15139
4.	Domestic and Recycled Water Facilities Identification:	15151

C. Approved Manufacturers

1. Organic Zinc Primer
 Koppers
 Tnemec 90-93
 Rust-Oleum

2. Alkyd Enamel
 Koppers Glamortex 501
 Dunn-Edwards Syn-Lustro
 Rust-Oleum Industrial Enamel
 Tnemec Endura Shield IV

3. Epoxy Paint
 - a. Field Applied

Koppers 200
Tnemec Series 66 Epoxoline
Rust-Olem 9100 High Performance Epoxy
 - b. Factory Applied

Keysite 750
Tnemec Series 140 NSF 61
 - c. Factory Applied
Fusion Bonded Epoxy
3M Scotchkote 134 NSF 61
4. Bituminous Mastic
Minnesota Mining and Manufacturing EC 244
Koppers Bitumastic (Supertank) 505

D. Paint Schedule

It is desired that aboveground or exposed facilities be color coded depending if they are recycled water facilities, domestic water or wastewater facilities.

1. Domestic Water System
 - a. Piping and Equipment: Moulton Blue

Tnemec 74-B0821 Endura Shield IV
 - b. Public Fire Hydrants: School Bus Yellow

Tnemec 7-50355 Tnene-Cryl SG
Frazee #343
 - c. Private Fire System: ANSI Safety Red

Rust-Oleum No. 7644
Dunn-Edwards No. 10-19
Koppers No. 314
 - d. Steel Reservoir Exterior: Desert Sand

Tnemec EN O4 Endura Shield IV

2. Sewer System
 - a. Lift Station Piping and Equipment: Moulton Tan or Brown

Tnemec 7-S0356 Tneme-Cryl SB
Tnemec 7-S0355 Tneme-Cryl SB
3. Recycled Water Facilities: Moulton Magenta

Tnemec R-0581 Series 66 High Build Epoxline

E. Permits

All work shall conform to the specifications and requirements of the State of California Department of Transportation, the Orange County PFRD, the city having jurisdiction, or and other agencies involved. The contractor shall keep a copy of all the required permits in the job site and comply with all the terms and conditions of said permits.

PART 2 - MATERIALS

A. Primer

1. All primer shall be synthetic-alkyd based.
2. All primer shall contain not less than 73% solids by volume and not less than 54% pigment by weight.
3. All primer shall contain not less than 43% zinc chromate pigment and 14% red iron oxide pigment by weight.

B. Alkyd Enamel

1. All enamels shall be synthetic-alkyd based.
2. All enamels shall be lead-free.
3. All enamels shall be high gloss industrial type intended for use on exterior metal surfaces.
4. All enamels shall contain not less than 60% solids by volume and not less than 30% pigment by weight.

C. Bituminous Mastic

1. Bituminous mastic shall be coal-tar pitch based.
2. Bituminous mastic shall have a minimum of 68% solids by volume.

D. Epoxy Paint

- 1. Epoxy shall be a colored polyamide cured epoxy with not less than 49% solids by volume.
- 2. All coatings and pigments to be used on domestic water services shall have FDA approval for use with domestic water.

PART 3 - EXECUTION

A. Surface Preparation

- 1. Do not sandblast or prepare more surface area than can be coated in one day. Remove all sharp edges, burrs, and weld spatter. Do not sandblast epoxy-coated pipe that has already been factory coated.
- 2. Surface preparation shall conform with the SSPC specifications as described below:

Solvent Cleaning	SP-1
Hand Tool Cleaning	SP-2
Power Tool Cleaning	SP-3
White Metal Blast Cleaning	SP-5
Commercial Blast Cleaning	SP-6
Brush-Off Blast Cleaning	SP-7
Pickling	SP-8
Near-White Blast Cleaning	SP-10

- 3. Wherever the words "solvent cleaning," "hand tool cleaning," "wire brushing," or "blast cleaning" or similar words are used in these specifications or in paint manufacturer's specifications, they shall be understood to refer to the applicable SSPC (Steel Structure Painting Council, Surface Preparation Specifications, ANSI A159.1) specifications listed above.

B. Painting Systems

- 1. All materials of a specified painting system, including primer, intermediate, and finish coats, shall be produced by the same manufacturer. Thinners, cleaners, driers, and other additives shall be as recommended by the paint manufacturer for the particular coating system.
- 2. Deliver all paints to the job site in the original, unopened containers.

C. Surfaces Not To Be Coated

The following surfaces shall not be painted and shall be protected during the painting of adjacent areas:

- 1. Mortar-coated pipe and fittings
- 2. Stainless steel

3. Metal letters
4. Nameplates
5. Grease fittings
6. Brass and copper, submerged
7. Buried pipe, unless specifically required in the piping specifications
8. Bronze meters and strainers

D. Protection of Surfaces Not To Be Painted

Remove, mask, or otherwise protect hardware, lighting fixtures, switch plates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors to prevent paint and other materials from entering the motors.

E. Field Touch Up of Manufacturer-Applied Prime Coats

Surfaces that are primed at the place of manufacture shall receive a field touch-up of organic zinc primer to cover all scratches or abraded areas.

F. Alkyd Enamel

1. The following items shall be painted using an alkyd enamel system:
 - a. All aboveground or exposed piping and all piping in vaults
 - b. Fire hydrants
 - c. Valve box lids
 - d. Air release valves
 - e. Meter box reading lids for all recycled water services
 - f. Steel meter vault covers for all services 3 inches and larger
 - g. All exposed metalwork as directed by the District representative
2. Surface Preparation:
 - a. All rust, mill scale, or weld splatter shall be removed by sandblasting or power tool cleaning.
 - b. All unpainted surfaces shall be solvent cleaned in accordance with SP-1.
 - c. All abraded or scratched enamel coatings shall be sanded smooth or receive power tool cleaning per SP-3.

- d. All failures in the existing coating shall be sandblasted in accordance with SP-6.
 - e. All existing surfaces to be repainted shall be washed with TSP, or other cleanser suitable for removing grease, dust or other residue, and a stiff bristle brush.
3. All unpainted or damaged surfaces shall be coated with primer to a dry-film thickness of not less than 2 mils.
 4. The finish coats shall be two or more coats of alkyd enamel applied to a dry-film thickness of 3 mils, providing a total painted dry film thickness of not less than 5 mils.

G. Bituminous Mastic

1. Buried metal (flanges, non-stainless steel nuts and bolts, flexible couplings, exposed reinforcing steel, etc.) shall be coated with a minimum of 20 mils of bituminous mastic.
2. All surfaces coated with bituminous mastic shall be covered with 8 mil polyethylene wrap per Section 15056.

H. Epoxy Coating

1. Only those metal surfaces specifically called out shall be epoxy coated.
2. Epoxy lining and coating of valves shall be per AWWA C550 and Section 15100 Manual Valves. All valves shall be lined and coated by manufacturer.
3. Surfaces to be epoxy coated shall be sandblasted to SP-6 requirements.
4. Sandblasted surfaces shall be coated with organic zinc primer to a dry film thickness of 3 mils.
5. Apply two coats of epoxy paint (4 mils each) to the primed surface. The manufacturer's recommended drying time between coats shall be followed.
6. Prepare multiple-component coatings using all of the contents of the container for each component as packaged by the paint manufacturer. Do not use partial batches. Do not use multiple-component coatings that have been mixed beyond their pot life. Provide small quantity kits for touch up painting and for painting other small areas. Mix only the components specified and furnished by the paint manufacturer. Do not intermix additional components for reasons of color or otherwise, even within the same generic type of coating.

H. Dry-Film Thickness Testing

1. Measure coating thickness specified for metal surfaces with a majestic-type dry-film thickness gage. Test the finish coat (except zinc primer and galvanizing) for holidays and discontinuities with an electrical holiday detector, low-voltage, wet-sponge type. Measuring equipment shall be provided by the contractor. Provide detector as manufactured by Tinker and Razor or K-D Bird Dog. Provide dry-film thickness gage as manufactured by Mikrotest or Elcometer. Check each coat for the correct dry-film thickness. Do not measure within eight hours after application of the coating.

2. If the item has an improper finish color or insufficient film thickness, the surface shall be cleaned and topcoated with the specified paint material to obtain the specified color and coverage. Visible areas of chipped, peeled, or abraded paint shall then be primed and finish coated in accordance with the specifications. Work shall be free of runs, bridges, shiners, laps, or other imperfections.

END OF SECTION