

STANDARD SPECIFICATIONS

SECTION 09900

PAINING AND COATING

PART 1 - GENERAL

A. Description

This section pertains to District distribution piping and appurtenances and includes the materials and application of painting and coating systems for buried and exposed surfaces. This section does not apply to piping and appurtenances within structures, or to vaults, tanks or structures, or any District facilities which are constructed with their own set of plans and specifications.

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

C. Approved Manufacturers: See Approved Materials List

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 (Supertank) 505

D. Paint Schedule

It is desired that above ground or exposed facilities be color coded for domestic water or fire facilities.

1. Domestic Water System
 - a. Above Ground Piping, Valves and Enclosures: National Blue
FSC Coatings – Silicone PolyPlus
 - b. Public Fire Hydrants: Safety Yellow
FSC Coatings – Silicone PolyPlus
 - c. Private Fire System: ANSI Safety Red

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. Non-Oxide Grease and Wax Tape

- 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 to 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 painting of adjacent areas:

1. Stainless steel
2. Metal letters
3. Nameplates
4. Grease fittings
5. Brass and copper
6. Buried pipe, unless specifically required in the piping specifications
7. 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. 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. Non-Oxide Grease and Wax Tape

1. Buried metal (flanges, non-stainless steel nuts and bolts, flexible couplings, exposed reinforcing steel, etc.) shall be coated with a non-oxide grease and wax tape.
2. All surfaces coated with bituminous mastic shall be covered with 8 mil polyethylene wrap

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