MATERIAL SPECIFICATION

ITEM 708.9301--25 EPOXY-MASTIC SELF PRIMING COAT

1. SCOPE:

The epoxy-mastic shall be a lead and chromate free two component epoxy. The epoxy-mastic shall be designed for single or multi coat high build complete protective coating system with excellent adhesion to tight rusted steel and most deteriorated coating systems that have been prepared to SSPC-SP2 and SSPC-SP3 or better cleaning standards. All SSPC, ASTM, NACE or other referenced standards shall be the most current published version on the date of Contract Letting.

2. COMPOSITION:

2.1 Vehicle

The vehicle shall be epoxy and shall not contain coal tar or bituminous ingredients.

The curing agent shall have suitable insensitivity to moisture to allow trouble free application within the conditions set forth in each job specification.

A. Pigment and Vehicle Properties

The epoxy-mastic shall contain sufficient solids to meet the most restrictive Volatile Organic Concentration (VOC) regulations in the location of the structure being coated but in no case shall its VOC be higher than 254 grams per liter (2.1 lbs. per gallon). All VOC measurements shall be at mixed consistency as delivered by coatings manufacturer without any addition of thinners or solvents. Regardless of VOC content, the volume solids shall not be less than 76% as measured in accordance with ASTM D2697 modified to a dry time of 72 hours at 100°F.

Aluminum paste or flake pigments may not be used.

The epoxy-mastic shall have a shelf life of 12 months or longer at the end of which there shall be no heavy settlement, caking of pigment/filler ingredients, skinning or gellation of the vehicle.

Viscosity of paint after mixing of base and activator portions shall be within the minimum and maximum limits as set forth by the manufacturer of each epoxy-mastic in their printed Product Technical Data Sheet. Measurement of viscosity must be accomplished prior to addition of any solvents and/or thinners.

2.2 Properties of Mixed Paint

The epoxy-mastic shall display compatibility over aged alkyds properly prepared in accordance with SSPC-SP2 or SSPC-SP3 cleanliness standard when cured for 7 days at 75°F. Compatibility shall be deemed acceptable if no lifting of old alkyd occurs when epoxy-mastic is applied within the minimum and maximum dry film thicknesses (DFT) recommended in the coatings manufacturer's printed Product Technical Data Sheet.

The epoxy-mastic shall display adhesion to alkyds without affecting the adhesive value of the alkyd in accordance with the following test:

2. COMPOSITION: (cont'd)

2.2 **Properties of Mixed Paint** (cont'd)

Apply 2.0- to 2.5 mils DFT of SSPC-Paint 25 "Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer" to six 6" X 4" X 1/8" A36 hot rolled steel panels that have been abrasive blasted to SSPC-SP10 Near White Blast with a1.0 to 1.5 mils anchor profile as measured with TES TEX tape and micrometer then cured for 7 days at 120°F. Apply 5 to 7 mils of epoxy-mastic to 3 panels and allow all panels to cure for 7 more days. Measure adhesion on all panels with Elcometer 106 in accordance with ASTM D4541 doing 3 adhesion pulls per panel. The mean adhesion of the epoxy-mastic coated system shall be not less than 80% of the adhesion of the primer alone.

The epoxy-mastic shall be supplied as a two-package material with either a one-to-one or four-to-one volume mix of base and activator. Both base and activator components shall be ground to a minimum grind of 4 on a Hegman Grind Scale.

The epoxy-mastic, when mixed in accordance with manufacturer's printed application instructions, shall be capable of being airless spray applied without exhibiting runs or sags when applied in one cross hatch spray coat yielding 8 mils DFT. Application shall be done without addition of any thinners and solvents.

The epoxy-mastic shall air cure at a temperature of 75°F or above to a hard tough film within 5 days. It shall be dry to the touch in 12 hours at 75°F, and be able to withstand foot traffic without damage in 48 hours 75°F.

The epoxy-mastic shall have a pot life of no shorter than 2.5 hours at 75°F or 1.5 hours at 90°F.

The epoxy-mastic shall not crack or lose adhesion when bent 180° over a one inch diameter mandrel in accordance with ASTM D522 (Cylindrical Mandrel Test).

Application shall be to a 1/32 inch thick steel panel abrasive blasted to SSPC-SP5 White Metal Standards and cured for 10 days at 75°F.

3. RESISTANCE:

3.1 All resistance criteria shall be judged on three (3) steel test panels meeting the requirements of A36 hot rolled steel having dimensions of 2"x5"x1/8", prepared to SSPC-SP5 White Metal Standards with a 1.0 to 1.5 mils anchor profile as measured with TESTEX tape and micrometer, then exposed to Salt Fog according to ASTM B117 for 30 days so that a uniform rusting occurs followed by water wash according to SSPC-SP1 then hand cleaning with a wire brush in accordance with SSPC-SP-2.

Test panels shall have 5 to 7 mils of epoxy mastic applied by spray in one coat and cured in accordance with manufacturers printed instructions for ambient curing but in no case in excess of 10 days at 75°F.

All coated test panels shall be scribed down to base metal with an X of at least 2 inch legs.

3. RESISTANCE: (cont'd)

3.2 **Test Sequence A:**

A. Expose panels in QUV Cabinet equipped with UV-B lamp and condensing capabilities in accordance with ASTM G53 and ASTM D4587 Procedure D for a period of 7 days. Remove and immediately place in freezer at 32°F overnight.

B. Expose panels in Salt Fog Cabinet in accordance with ASTM B117 for 7 days.

C. Repeat for 6 complete cycles.

Pass or Fail Criteria:

The epoxy-mastic must withstand a minimum of six cycles without exhibiting rusting, blistering or delamination beyond 1/16" from the center of the scribes. Loss of gloss or chalking shall not be considered a failure.

3.2 **Test Sequence B:**

Immerse in distilled water for 30 days in accordance with ASTM D870 at 75EF.

Pass or Fail Criteria:

No blistering.

The Authority shall have the option of requiring random samples from initial shipments to the job site for fingerprinting with IR scans. Random sampling may be required for retesting at any time. Failure to pass shall require removal and replacement of all epoxy-mastic applied to the entire job from which the samples were taken.

4. PACKAGING AND LABELING:

The epoxy-mastic coating shall be packaged in 2 containers clearly identified as Base and Activator Portions. (Activator portion may also be identified as Reactor, Cure, Converter or Hardener.) Components mixed in accordance with manufacturer's written instructions shall yield a complete unit measured in full gallon multiples. Separate components may be packaged in unitized containers provided portions are prevented from coming into contact with each other prior to opening.

Each container shall bear a label on which shall be clearly shown the manufacturer or brand name of the coating, as well as the lot and batch number designating date of manufacture.

5. APPLICATION:

Complete written instructions for mixing and application of epoxy-mastic shall accompany each shipment along with Material Safety Data Sheets (MSDS).

6. PRODUCT CERTIFICATION:

The manufacturer shall furnish references and certify that the modified epoxy-mastic has been used successfully in similar service and environment. Successful performance must include sustained adhesion to both steel and aged coatings.

Prior to approval and use of any epoxy-mastic, the manufacturer shall submit a certified test report from an independent testing laboratory approved by the Authority showing specific test results conforming to the requirements of this specification. The certified test results shall clearly identify lot or batch numbers, manufacturer and brand name of the coating from which the data was compiled.

The following testing laboratories are approved by the Authority:

KTA-TATOR, Inc.
115 Technology Drive
Pittsburgh, PA 15275
412-788-1300

S.G. Pinney & Associates, Inc.
2500 S.E. Midport Rd.
Port St. Lucie, FL 34985
407-337-3080

Corrosion Control Consultants and Labs, Inc.
4403 Donker Ct. S.E.
Kentwood, MI 49512
616-940-3112

Any formula changes to approved epoxy-mastic shall require submission of new test results from the independent laboratory approved by the Authority before the epoxy-mastic can be used on any more Authority jobs.

No payment for any coating will be made prior to the Authority's receipt of these certifications and test results. The cost of these certifications and testing shall be included in the price bid for any items involving the application of the epoxy self-priming coating.

7. FIELD ACCEPTANCE:

To obtain final acceptance of the epoxy-mastic on each job, the manufacturer shall furnish a certification stating that the material furnished to the job site is formulated the same as the material upon which the approval was granted by the Authority. The Authority reserves the right to sample and retest at any time.

8. TINTING:

Field tinting will not be permitted.

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9. STIPULATED ACCEPTANCE LIST:

The following coatings meeting this specification have been thoroughly investigated and/or tested by the Authority:

1.	Rustoleum 9100	Manufactured by Rusteloum
2.	Amerlock 400	Manufactured by Ameron
3.	Macropoxy 646	Manufactured by Sherwin Williams
4.	Carboline 890	Manufactured by Carboline

* Only products from the same manufacturer which are certified as being compatible shall be used on any one structure per contract. The top coat shall be an epoxy mastic, pigmented to match Munsell notation number 7.5GY5/4, sage green, unless otherwise indicated in the contract documents, "Or Equal" products shall be submitted prior to the letting date with complete documentation establishing equality of composition and performance to the stipulated references. No substitutions shall be entertained after letting.