

1807 - MOISTURE-CURE URETHANE SYSTEM

SECTION 1807

MOISTURE-CURE URETHANE SYSTEM

1807.1 DESCRIPTION

This specification covers a moisture-cure urethane micaceous iron oxide paint system for use on structural steel. The system may also be used for overcoating applications.

1807.2 REQUIREMENTS

a. General.

(1) Each coating must be supplied as a single component material. All coatings must be well ground, free of caking, skins, gelation, and excessive settling with a shelf life of not less than 12 months. Pigmentation must contain no toxic heavy metals. The VOC content of the coatings must comply with the EPA Federal Register 40 CFR, Part 59, Subpart D, Table 1 for industrial maintenance coatings.

(2) All coatings must be able to be applied at relative humidity as high as 98% and temperatures as low as 20°F. There is no restriction on dewpoint temperature differential if the surface is visibly dry and free from condensate. Verify the surface to be free of any frozen water products when the application temperature is below 32°F.

(3) The manufacturer is responsible for the formulation. Once established, do not change the formulation without prior notification to and approval of the KDOT.

b. Coating system for use on full removal and repaint projects or new construction projects. This system consists of a zinc-rich, moisture-cure polyurethane primer stripe coat applied to all edges, corners, bolts, rivets, and weld seams; a zinc-rich, moisture-cure polyurethane full primer coat; and a micaceous iron oxide-filled, moisture-cure aliphatic polyurethane topcoat. The topcoat color will be specified on the Contract Documents. All micaceous iron oxide products must comply to ASTM D 5532, Type 1 and have a certificate of compliance.

(1) Stripe Primer and Full Primer:

- Total solids, % by weight 87 minimum
- Zinc in the dried film, % by weight 83 minimum

(2) Topcoat:

- Total solids, % by weight 77 minimum
- Pigment, Micaceous Iron Oxide 3 lb/gal minimum

(3) Paint System, Cyclic Corrosion/UV Exposure Test, 15 cycles (one cycle = 2 weeks; one week of UV exposure and one week in the Cyclic Corrosion Tester.):

- Scribe Corrosion 7 minimum
- Unscribed Area 8 minimum

c. Coating system for use on overcoating projects. This system consists of a zinc-rich/micaceous iron oxide-filled, moisture-cure polyurethane spot primer; a micaceous iron oxide-filled, moisture-cure polyurethane intermediate coat; and a micaceous iron oxide-filled, moisture-cure aliphatic polyurethane topcoat. The topcoat color will be specified in the Contract Documents. Comply all micaceous iron oxide products to ASTM D 5532, Type 1 and provide a certificate of compliance.

(1) Spot Primer:

- Total solids, % by weight 86 minimum
- Pigment, Zinc dust & Micaceous Iron Oxide 3.5 lb/gal minimum

(2) Intermediate Coat:

- Total solids, % by weight 82 minimum
- Pigment, Micaceous Iron Oxide 6 lb/gal minimum
- Color Tint to distinguish from primer and topcoat

1807 - MOISTURE-CURE URETHANE SYSTEM

(3) Topcoat:

- Total solids, % by weight 77 minimum
- Pigment, Micaceous Iron Oxide 3 lb/gal minimum

(4) Paint System, Cyclic Corrosion/UV Exposure Test, 15 cycles (one cycle = 2 weeks; one week of UV exposure and one week in the Cyclic Corrosion Tester.):

- Scribe Corrosion 7 - 10
- Unscribed Area 8 - 10

1807.3 TEST METHODS

a. Total Solids ASTM D 1644, except heat the sample for 72 hours at 100°F.

b. Cyclic Corrosion/UV Exposure ASTM D 5894 and KTMR-30

- Scribe Corrosion ASTM D 1654
- Unscribed Area ASTM D 1654

c. Zinc in the Dried Film.

- Pigment ASTM D 2371
- Total Solids of the Whole Paint, Non-Volatile ASTM D 2369

Calculations:

$ZnO \times 0.8034 = \text{Total Zinc}$

$(\% \text{ Pigment} \times \text{Total Zinc}) / \text{Total Solids} = \text{Zinc in Dried Film}$

1807.4 PREQUALIFICATION

a. Prequalification of the moisture-cure urethane system is required. Manufacturers desiring prequalification should submit a 1 pint sample of each component to the Engineer of Tests. Manufacturers will be notified of results when testing is complete. The Bureau of Construction and Materials will maintain a list of prequalified materials.

b. All applicable liquid components will be fingerprinted using infrared spectroscopy for use in screening future verification samples to verify that materials submitted for use are of an identical formulation as originally approved.

1807.5 BASIS OF ACCEPTANCE

Prequalification as required by **subsection 1807.4**.

Receipt and approval of a Type C certification as specified in **DIVISION 2600**.

Visual observation of performance on the project.