

1801 - INORGANIC ZINC PRIMER FOR STRUCTURAL STEEL

SECTION 1801

INORGANIC ZINC PRIMER FOR STRUCTURAL STEEL

1801.1 DESCRIPTION

This specification covers inorganic zinc primer for use on structural steel.

1801.2 REQUIREMENTS

a. General.

(1) The coating is either a single component or multi-component type that cures without the use of a separate curing solution. It must be well ground, free of caking, skins, gelation and excessive settling with a shelf life for each component of no less than 12 months. Formulate the paint with a tint that provides distinct color contrast with the blast cleaned metal surfaces and the finish coat. The VOC content of the coating must comply with the EPA Federal Register 40 CFR, Part 59, Subpart D, Table 1 for industrial maintenance coatings.

(2) The manufacturer is responsible for the formulation. Once established, the formulation may not be changed without prior notification to and approval of the KDOT.

b. Pigment. Use a finely divided zinc powder as the pigment. Zinc dust must comply with ASTM D 520, Type II and contain no toxic heavy metals.

c. Vehicle Component. Use a liquid component consisting of partially hydrolyzed silicate with appropriate extenders and solvents.

d. Mixed Paint.

- (1) Zinc in the dried film, % by weight 75 minimum
- (2) Cyclic Corrosion/UV Exposure Test, 15 cycles (one cycle = 2 weeks; one week of UV exposure and one week in the Cyclic Corrosion Tester.)
 - (a) Scribe Corrosion 7 minimum
 - (b) Unscribed Area 9 minimum

e. Packaging. Package the inorganic zinc primer such that when mixed according to the manufacturers instructions, a complete container of each component is utilized.

1801.3 TEST METHODS

a. Zinc in the Dried Film.

(1) Single Component Primer

Pigment ASTM D 2371

Total Solids of the Whole Paint, Non-Volatile Zinc Oxide ASTM D 2369

Calculations:

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

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

(2) Multi-Component Primer

Total Solids of Liquid Portion, Non-Volatile Zinc Oxide ASTM D 2369

The manufacturer will provide percent pigment by the mix ratio.

Calculations:

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

$(100 - \% \text{ Pigment})(\text{Non-volatile}) + \% \text{ Pigment} = \text{Total Solids}$

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

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

(1) Scribe Corrosion ASTM D 1654

(2) Unscribed Area ASTM D 1654

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1801.4 PREQUALIFICATION

a. Prequalification of the inorganic zinc primer is required. Manufacturers desiring prequalification should submit a 1 pint sample of each component to the Engineer of Tests. Manufacturers will be notified when testing is completed. The Bureau of Construction and Materials will maintain a list of prequalified materials.

b. Testing and evaluation by KDOT may be waived if complete testing has been performed on the identical product by AASHTO National Transportation Product Evaluation Program (NTPEP) or another state DOT. Forward an official copy of the test report along with evidence that the product referenced is identical to that submitted for prequalification, to the Engineer of Tests for evaluation.

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

1801.5 BASIS OF ACCEPTANCE

Prequalification as specified in **subsection 1801.4**.

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

Visual observation of performance on the project.