

Structural Steel Primers For Anchor Bolts Used With High Mast Light Towers And Cantilever Sign Structures.

1. Inorganic Zinc-Silicate Primer

a. General Requirements

The inorganic zinc-silicate primer shall be a (catalyzed, one-component or two-component) self-cure, ethyl silicate zinc-rich primer which cures without the use of a special curing solution. The primer is intended for use as a prime coat only on blast-cleaned steel and by spray application. Brush application shall be limited.

b. Composition of One-Component Type

(1) Mixed Primer Composition:

Weight per Gallon, 77 F, pounds..... 17 Min.
Total Solids, percent by weight..... 67 Min.
Metallic Zinc,
Percent by weight of total solids..... 75 Min.

(2) Pigment Composition:

The zinc dust portion of the pigment shall be a finely divided metallic powder containing a minimum of 94% by weight of metallic zinc and minimum of 97.5% by weight of total zinc, calculated as Zn. All other materials contained in the pigment shall be inert.

(3) Pigment Requirements:

The zinc dust shall conform to the requirements of ASTM D 520 (Type I).

c. Composition of Two-Component Type

(1) Mixed Primer Composition:

Weight per Gallon, 77 F, pounds..... 17 Min.
Total Solids, percent by weight..... 72 Min.
Metallic Zinc,
percent by weight of total solids..... 75 Min.

(2) Pigment Component:

The zinc dust portion of the pigment shall be a finely divided metallic powder containing a minimum of 94% by weight of metallic zinc and a minimum of 97.5% by weight of total zinc, calculated as Zn. All other materials contained in the pigment shall be inert.

(3) Vehicle Component:

Weight per Gallon, 77 F, pounds..... 9.2 to 9.6
Total Solids, percent by weight..... 39 to 43
Storage Life, 77 F, months..... 12 Min.

(4) Pigment Component Requirements:

The zinc dust shall conform to the requirements of ASTM D 520 (Type I).

(5) Vehicle Component Requirements:

The vehicle component shall consist primarily of partially hydrolyzed ethyl silicate in an appropriate solvent.

d. Mixed Primer Properties

(1) Storage Life. The storage life without gelation of the one-component type shall be a minimum of 12 months. The settling shall be easily dispersed.

(2) Pot Life. The usable pot life of the mixed two-component type shall be not less than 8 hours at 77 F. Any settling shall be easily dispersed.

(3) Water Tolerance. The mixed primer shall tolerate up to one percent water contamination without gelation.

e. Cured Primer Coat Properties

(1) Finish. Low-gloss matte.

(2) Adhesion. The cured coat shall show satisfactory adhesion to clean blasted steel.

2. Organic Zinc-Rich Primer

a. Zinc-rich primer is intended for use as a prime coat for structural steel.

b. Primer Composition

Pigment, percent by weight..... 80 Min.
Vehicle, percent by weight..... 20 Max.
Weight per Gallon, 77 F, pounds..... 25 Typical
Total Solids, percent by weight..... 84 Min.
Zinc Dust, percent by weight of
film forming solids..... 94 Min.

c. Pigment Composition

(1) The pigment portion shall be made up as follows (percent by weight):

Zinc Dust..... 99.5 Min.
Suspending Agents..... 0.5 Max.

(2) The extracted pigment, on analysis, shall conform to the following quantitative requirements (percent by weight):

Total Zinc (Calculated as Zn)..... 97.0 Min.
Metallic Zinc (Zn)..... 93.5 Min.
Zinc Oxide (ZnO)..... 5.9 Max.
Material other than metallic Zn and ZnO
(by difference)..... 1.5 Max.

d. Vehicle Composition

Epoxy Ester or Alkyd Resin.
percent by weight..... 20 Min.
Aromatic Solvents.
Driers and Anti-Oxidant..... 80 Max.

e. Pigment Requirements

The zinc dust (Type I) shall conform to the requirements of ASTM D 520.

f. Detail Requirements

(1) The mixed primer shall have a consistency of 85 Krebs Units (typical) at 77 F using a paddle-type rotor and the Krebs-Stormer viscosimeter.

(2) The mixed primer shall air-dry set to touch in about 15 minutes and dry hard within 30 minutes.

(3) The mixed primer shall dry to a smooth, low gloss finish that will show satisfactory adhesion to clean blasted steel.

(4) The mixed primer shall be of a gray color characteristic of the composition.