

# Dimetcote® 21-5/4A

*Water-based inorganic-zinc silicate primer*

## Product Data/ Application Instruction

- High zinc loading
- Water only formulation means:
  - Zero VOC
  - No flammability hazard
  - No solvent vapor hazard
- Unique silicate binder technology provides:
  - Resistance to mudcracking up to 12 mils
  - Rapid water resistance
  - Fast drying and handling
  - No lead pigments added

Dimetcote 21-5/4A represents a breakthrough in water-based inorganic zinc-silicate technology and ushers in a NEW GENERATION of easy to use IOZ primers. Based on a unique silicate binder formulation, this material has greatly improved application thickness tolerance.

### Typical Uses

Dimetcote 21-5/4A is generally applied as a single coat primer with or without topcoats. It will provide long-term protection on a variety of steel construction such as bridges, cranes, offshore platforms or any fabricated structure exposed to severe weathering, marine environments or moderate chemical fumes.

### Recommended Topcoats

Amercoat® 385, Amercoat 240,  
Amerlock® 2, 400  
PSX 700, Amercoat 741

### Typical Properties

#### Performance

|                        |              |
|------------------------|--------------|
| Salt spray (ASTM B117) | 6500 hrs     |
| face corrosion         | None         |
| face blistering        | None         |
| Humidity (ASTM D4585)  | 720 hrs      |
| face corrosion         | None         |
| Florida exposure       | 4 years      |
| face corrosion         | None         |
| Abrasion (ASTM D4060)  |              |
| 1 kg load/1000 cycles  | weight loss  |
| CS 17 wheel            | 40 mg        |
| Adhesion, Elcometer    |              |
| ASTM(D4541)            | 1000 psi     |
| Impact (ASTM G14)      | >160 in. lbs |

### Physical Data

|                             |  |                   |
|-----------------------------|--|-------------------|
| Finish                      | Flat   |                   |
| Color                       | Gray, light gray   |                   |
| Components                  | 2  |                   |
| Curing mechanism            | Water evaporation and chemical reaction between components |                   |
| Dry film thickness per coat | 3 mils (75 microns)*                                       |                   |
| Coats                       | 1  |                   |
| Theoretical coverage        | ft <sup>2</sup> /gal                                       | m <sup>2</sup> /L |
| 1 mil (25 microns)          | 1010   | 24.8              |
| 3 mils (75 microns)         | 336  | 8.3               |
| VOC                         | 0.0 lb/gal   | 0.0 g/L           |
| Temperature resistance      | Dry  |                   |
| continuous                  | °F   | °C                |
|                             | 750  | 382               |
| Flash point                 | Not applicable   |                   |

\*For high temperature service application using a topcoat, the dry film thickness should not exceed 3 mils

### Application Data

|                     |                                 |
|---------------------|---------------------------------|
| Applied over        | Prepared steel or galvanizing   |
| Surface preparation | SSPC-SP5 or 10                  |
| Method              | Conventional spray              |
| Mixing ratio        | as supplied, only mix full kits |
| Pot life (hours)    |                                 |

|  |       |       |       |
|--|-------|-------|-------|
|  | °F/°C |       |       |
|  | 90/32 | 70/21 | 50/10 |
|  | 5     | 8     | 12    |

#### Environmental conditions

|   |             |         |    |  |
|---|-------------|---------|----|--|
| Temperature   | °F          |         | °C |  |
| air   | 40 to 120   | 4 to 49 |    |  |
| surface   | 40 to 130   | 4 to 54 |    |  |
| Relative humidity during application and initial drying |             |         |    |  |
| maximum   | 85% at 70°F |         |    |  |

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation.

### Qualifications

#### AASHTO – M300

AASHTO – Standard Specification for Highway Bridges Table 10.32.3C Allowable Load for Slip Critical Connections Class B

AISC – Specification for Structural Joints Using ASTM A325 or A490 Bolts RCSC Specification for Structural Joints Table 3 Class B

## Surface Preparation

Coating performance is proportional to the degree of surface preparation. Surface must be clean, free of moisture, grease or other contaminants. Round off all rough welds and sharp edges, remove weld spatter.

**Steel** – uncoated, without pits or depressions, SSPC-SP10.– previously painted or pitted, SSPC-SP5.

Blast to achieve a 1 to 2 mils (25 to 50 microns) anchor profile as indicated by a Keane-Tator Surface Profile Comparator, Testex Tape or similar device. Rougher profiles are acceptable, but require increased film thickness for equivalent protections. Remove abrasive residue or dust from surface.

Apply Dimetcote 21-5/4A as soon as possible to avoid rusting or other recontamination. Do not leave blasted steel uncoated overnight. Spot blast to remove any contamination; solvent wiping is not satisfactory.

## Application Equipment

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

**Conventional spray** – Industrial equipment such as DeVilbiss MBC 510 with a heavy mastic spring, leather packing and a Clemtex ZS-5110 sprayhead with a DeVilbiss 64 air cap needs to be used to avoid sticking and packing of the fluid needle and tip. A pressure pot with variable speed agitator, oil and water trap and separate air and fluid regulators should be used. Instead of a pressure pot, a low pressure feed pump with recirculating lines can be used.

**Power mixer** – Jiffy Mixer

## Application Procedure

1. Flush all equipment with fresh water before use.
2. Stir liquid with a power mixer.

*Dimetcote 21-5/4A standard liquid is clear. The light gray liquid is cloudy when stirred (white pigment).*

3. Discard desiccant bag from powder and gradually stir powder into liquid. Continue stirring until powder is well dispersed and mixture free of lumps. Do not mix more material than will be used within 8 hours at 70°F. Do not reverse order nor vary proportions.

| Pot life (hours) | °F/°C |       |       |
|------------------|-------|-------|-------|
|                  | 90/32 | 70/21 | 50/10 |
|                  | 5     | 8     | 12    |

4. **Do not thin for any reason.**
5. Strain mixture through 30 mesh screen to prevent possible clogging of equipment.
6. Continue slow stirring during application to maintain material uniformity.
7. Apply a wet coat in even parallel passes, overlap each pass 50 percent to avoid pinholes, holidays or bare areas.
8. Insure proper thickness on welds, cutouts, sharp edges, rivets, bolts and corners as cracking may occur with excessive thickness.
9. Keep pressure pot at approximately same elevation as spray gun for proper material delivery to gun.
10. When dry through, check film thickness with a non destructive dry film thickness gauge. Recoat when dry to handle if greater thickness is required. Normal recommended thickness is 3 mils (75 microns). Allowable range is 2 to 12 mils (50 to 300 microns).

Drying time (ASTM D1640) @ 70% RH\* (minutes)

|        | °F/°C |       |       |      |
|--------|-------|-------|-------|------|
|        | 90/32 | 70/21 | 50/10 | 40/4 |
| touch  | 2     | 3     | 4     | 5    |
| handle | 3     | 6     | 13    | 22   |
| recoat | 3     | 6     | 13    | 22   |

**Time to water insolubility @ 70% RH\* (hours)**

|          |   |    |   |    |
|----------|---|----|---|----|
| @ 3 mils | ¼ | ½  | ¾ | 1  |
| @ 6 mils | ½ | 1½ | 2 | 3  |
| @ 9 mils | ¾ | 2  | 3 | 4½ |

**Topcoat (min hours)**

|          |    |    |     |     |
|----------|----|----|-----|-----|
| @ 3 mils | 12 | 24 | 48  | 72  |
| @ 6 mils | 24 | 36 | 72  | 120 |
| @ 9 mils | 36 | 72 | 120 | 180 |

**Cure for non-immersion water contact**

**@ 70% RH\* (hours)**

|          |    |    |     |     |
|----------|----|----|-----|-----|
| @ 3 mils | 12 | 24 | 48  | 72  |
| @ 6 mils | 24 | 36 | 72  | 120 |
| @ 9 mils | 36 | 72 | 120 | 180 |

**Cure for solvent splash and spill resistance**

**@ 70% RH\* (hours)**

|          |    |    |    |    |
|----------|----|----|----|----|
| @ 3 mils | 5  | 8  | 16 | 24 |
| @ 6 mils | 9  | 16 | 32 | 48 |
| @ 9 mils | 12 | 24 | 48 | 72 |

*\*Above 70% relative humidity up to the maximum of 90%, time will double.*

11. Touch up random pinholes, holidays, small damaged or bare areas by brush when film is dry to handle. Larger areas should be sprayed.
12. Ventilate with clean air during the application and curing following final coat. Ventilating air temperature and relative humidity between coats must be such that condensation will not form on the surface between coats. The surface must be free of moisture when the next coat is applied.

**Caution** – In confined areas or under stagnant air conditions, glazing of the Dimetcote 21-5/4A surface may occur. Lightly blast to roughen the surface before topcoating.

13. Clean equipment immediately after use with fresh water.

## Curing, Shipping, and Storage of Items Coated with Dimetcote 21-5/4A

Dimetcote 21-5/4A is a waterbased inorganic zinc silicate coating. Like all waterbased inorganic zinc coatings, trace amounts of alkaline compounds may be present on the surface of the coating after drying and curing. If standing water is allowed to collect on the surface of the coating, the alkaline residue present on the surface will become increasingly concentrated as the water evaporates. This will create a condition of high pH, resulting in irreversible damage to the coating. **Do not allow standing water or water-saturated dunnage to remain in contact with items coated with Dimetcote 21-5 during curing, shipping, or storage.**

The likelihood and scope of this problem can be minimized by water rinsing the Dimetcote 21-5/4A after it has cured for non-immersion water contact.

## Topcoating

Dimetcote 21-5/4A surface must be clean and dry before topcoating. Water soluble contaminants may be washed off with water. Remove grease and similar contaminants with an emulsion type cleaner or neutral detergent. Rinse with clean water and allow to dry. Solvent wiping is not satisfactory as contamination may only be spread and not removed. In some cases a mist coat/full coat technique may be required to prevent application bubbling.

## Shipping Data

| Packaging units   | 1-gal                        | 5-gal                  |
|---|------------------------------|------------------------|
| liquid  | 6.94 lbs in 1-gal can        | 34.69 lbs in 5-gal can |
| powder  | 16.8 lbs in 1-gal can        | 84.0 lbs in EnviroPac  |
| Shipping weight (approx.)                                 |                              |                        |
| 1-gal unit  | lb                           | kg                     |
| liquid  | 7.6                          | 3.5                    |
| powder  | 17.6                         | 8                      |
| 5-gal unit  |                              |                        |
| liquid  | 38                           | 17.3                   |
| powder  | 89                           | 40.5                   |
| Shelf life when stored indoors at 40 to 100°F (4 to 38°C) |                              |                        |
| liquid  | 2 year from manufacture date |                        |
| powder  | 2 years from shipment date   |                        |

Protect from freezing.

Numerical values are subject to normal manufacturing tolerances, color and testing variances. Allow for application losses and surface irregularities.

Mixed product is nonphotochemically reactive as defined by South Coast Air Quality Management District's Rule 102 or equivalent regulations.

Dimetcote 21-5/4A standard liquid is clear and the light gray liquid is cloudy when stirred (white pigment).

## Safety Precautions

Read each component's material safety data sheet before mixing. Mixed material has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

**CAUTION – Improper use and handling of this product can be hazardous to health.**

**Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep spray mist and vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interior and buildings.**

**This product is to be used by those knowledgeable about proper application methods. PPG makes no recommendation about the types of safety measures that may need to be adopted because these depend on application environment and space, of which PPG is unaware and over which it has no control.**

**If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product.**

**Note:** Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

***This product is for industrial use only. Not for residential use.***



**PPG Protective & Marine Coatings**  
www.ppgmc.com

One PPG Place, Pittsburgh, PA 15272 • Tel: (800) 441-9695