STATE OF CALIFORNIA
Department of Transportation

Copper Color Finish Paint, Waterborne
Acrylic Latex Vehicle (Specification PWB 168D)

SCOPE

This specification covers a pre-mixed waterborne paint formulated for use as a finish coat on properly prepared metal surfaces. This coating is intended for spray application, limited application can be made by brushing and rolling.

REQUIREMENTS

General:

This specification is intended to specify paint that will meet service requirements for bridge construction and maintenance. All properties listed shall be maintained for a minimum of one year after acceptance. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

Materials:
The raw materials for use in the paint formula shall conform to the specifications designated or paint material code number herein after specified.

QUALITY ASSURANCE

All paint intended for use by the California Department of Transportation (Department) must be sampled, tested and approved by the Transportation Laboratory **before** shipment.

The manufacturer shall take a representative one-quart sample of each batch of paint and ship the samples to the Transportation Laboratory for approval, unless other arrangements have been made. Raw materials and copies of batch records used in the manufacture of the paint shall be submitted if requested.

Caltrans Transportation Laboratory, Chemical Testing Branch, 5900 Folsom Blvd., Sacramento, CA 95819
chemistry.branch@dot.ca.gov

A batch shall be that amount of paint that was manufactured and packaged in a single operation. The paint container shall be labeled with, but not limited to, the State Specification number, date of manufacture and batch number. The Department also reserves the right to retest any batch after delivery. Results from such retesting shall prevail over all other tests and will be the basis of rejection. Material not meeting the specification shall be removed and replaced by the supplier at their expense, including all costs for handling, retesting and shipping.

All tests shall be conducted in accordance with the appropriate ASTM test methods referenced under the "Characteristics of Mixed Paint" section of this document and methods used by the Transportation Laboratory.

Patents:
The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, and its duly authorized representatives from all suits at law or action of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

Composition

The paint shall be mixed in the following proportions:

Vehicle

Component		(lbs./100 gallons)	Weight Percent
Acrylic Latex	**(1)**	750.0	83.57
Coalescent	**(2)**	36.0	4.01
Ammonium Hydroxide (28%)		4.0	0.45
Defoamer	**(3)**	3.0	0.33
Preservative	**(4)**	0.4	0.04
Premix (5) and (6) together,			
Thickener	**(5)**	1.0	0.11
2-(2-Methoxyethoxy)ethanol	**(6)**	42.0	4.68

Under low shear slowly add:

Pigment

Pearlescent Pigment	**(7)**	61.0	6.80

Mix thoroughly being careful not to incorporate air into paint.

Avoid using high shear; this will cause fragmentation of the pigment resulting in unacceptable appearance of the paint.

Characteristics of Mixed Paint

Volatile Organic Content, g/L, ASTM Designation: D 6886	194

Density, grams per milliliter, ASTM Designation: D 1475	1.00 - 1.02
Nonvolatile Content, percent, ASTM Designation: D 2369	40.9 - 42.9
Pigment by weight of paint, percent, ASTM Designation: D3723	6.6 - 7.0
Consistency, Stormer Viscometer, ASTM Designation: D 562, g (equivalent KU)	120 - 155 (65 – 73)
Viscosity, Poise, ASTM Designation: D2196, Method A 50 rpm, #3 spindle	8 - 12
Fineness of Grind, Hegman, ASTM Designation: D 1210, minimum	6
pH	8-10

Drying Time at 25°C, 50% relative humidity,
3 mil-wet film, ASTM Designation: D 1640

set to touch, hours	1 max.
dry through, hours	4 max.

Color to match color chip PWB 168D on file at the Transportation Laboratory.

(1) Maincote® HG-54D (Rohm and Haas)
(2) 2,2,4-Trimethylpentanediol-1,3-monoisobutyrate
(3) Foamaster® AP (Henkel)
(4) Proxel® GXL (ICI Americas)
(5) Acrysol® RM-8W (Rohm and Haas)
(6) 2-(2methoxyethoxy)ethanol (methyl carbitol)
(7) Super Bronze 259Z (Mearl)

Application:

The paint shall be applied to a total dry film thickness of 1.5 mil minimum and 3 mil maximum. For best results, conventional spray application of this coating is recommended, however limited application can be made by brush and roll. Paint should not be applied when the ambient or surface temperature is above 38°C or below 10°C, when the relative humidity exceeds 75 percent, or when the surface temperature is less than 3°C above the dew point.

Clean-up:

Use tap water for clean-up. 10% ammonia, acetone or other suitable solvent may be used to remove dried paint from spray guns and other equipment.