

STATE OF CALIFORNIA

Department of Transportation

Metallic Gold Finish Paint Waterborne Acrylic Latex Vehicle (Specification PWB 170B)

SCOPE

This specification covers a pre-mixed waterborne paint formulated for use as a finish coat on properly prepared primed metal surfaces complying with *California Department of Transportation Standard Specifications Section 59*. This coating is intended for spray application on top of a suitable intermediate coat. 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 date of manufacture. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

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

<u>Component</u>		<u>(lbs./100 gallons)</u>	<u>Weight Percent</u>
Acrylic Latex	(1)	750.0	76.41
Preservative	(2)	0.4	0.04
Defoamer	(3)	3.0	0.31
: Premix 4-4b			
: Thickener (Acrysol RM-8W)	(4)	1.1	0.11
: 2-(2-Methoxyethoxy)-Ethanol	(4a)	42.0	4.28
: Thickener (Acrysol RM-2020)	(4b)	1.1	0.11
Coalescent solvent (Texanol)	(5)	42.0	4.28
Ammonium Hydroxide (28%)	(6)	4.0	0.45

Under low shear slowly add:

Pigment

Gold Pigment	(7)	138	14.0
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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

VOC, grams per liter, ASTM Designation: D 6886 220

Density, grams per milliliter, ASTM Designation: D1475 1.10 - 1.14

Nonvolatile Content, percent, ASTM Designation: D2369	45.0 – 47.5
Pigment by weight of paint, percent, ASTM Designation: D3723	13.9-14.1
Consistency, Stormer Viscometer, ASTM Designation: D562, g equivalent KU	200 - 225 77-81
Viscosity, Poise, ASTM Designation: D2196, Method A 50 rpm, #3 spindle	13.5 – 15.5
Fineness of Grind, Hegman, ASTM Designation: D1210	6 min.
pH	8-10
Drying Time at 25°C, 50% relative humidity, 6 mil-wet film, ASTM Designation: D 1640	
set to touch, hours	1 max.
dry through, hours	2 max.

Color to match color chip PWB 170B on file at the Transportation Laboratory.

- (1) **Maincote® HG-54D (Rohm and Haas)**
- (2) **Proxel® GXL (ICI Americas)**
- (3) **Foamaster® AP (Henkel)**
- (4) **Acrysol® RM-8W (Rohm and Haas)**
- (4a) **2-(2-methoxyethoxy)ethanol (methyl carbitol)**
- (4b) **Acrysol® RM-2020 NPR (Rohm and Haas)**
- (5) **2,2,4-Trimethylpentanediol-1,3-monoisobutyrate (Texanol)**
- (6) **Ammonium Hydroxide (28%)**
- (7) **Afflair® 9307 SW Star Gold Pigment, (EM Science)**

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 100°F or below 50°F, when the relative humidity exceeds 75 percent, or when the surface temperature is less than 5°F 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.