

CEILCOTE® 387 HYBRICOTE

Hybrid novolac coating

IMPORTANT: READ THIS FIRST

Master Builders warrants the performance of this product if and only if the instructions of this document and other related Master Builders documents are adhered to in all respects.

DESCRIPTION

The CEILCOTE 387 HYBRICOTE system is a catalyzed, flake filled pigmented hybrid novolac coating which can be spray or roller applied in two coats at 16 to 22 mils (400 to 560 microns) per coat to achieve a total film thickness of 20 to 35 dry mils (500 to 890 microns). This thick, durable film provides exceptional protection against corrosive environments. It is applied to properly prepared steel and concrete substrates.

CEILCOTE 387 HYBRICOTE material may be applied by brush, spray or roller.

Installation information contained in this procedure is as specific as possible but cannot cover all variations in field conditions.

EQUIPMENT

For Surface Preparation:

- Abrasive blasting
- Blastrac (concrete only)
- Scarification or other mechanical means (concrete only)

If none of these methods are possible, consult Master Builders, Inc.

For Mixing:

- Volume measure for liquid, 1 qt or 1 gal (3.8 liters)
- Volume measure for Hardener (cubic centimeters or ounces)
- 5 gal pail for mixing
- Drill motor
- Blade (Jiffy Type) or other suitable types

For Application:

- Spray equipment - conventional, airless or air assisted airless
- Paint rollers and brushes
- Clean buckets
- Wet film thickness gage
- Surface thermometer
- Psychrometer - for determining air temperatures, relative humidity and dew point
- Solvent for cleaning tools and equipment

PROJECT PREPARATION

Environmental Conditions:

For all application steps, the surface temperature, air temperature and material temperature should be between 50 °F (10 °C) and 110 °F (43 °C), 70 °F (21 °C) is preferred. If the temperature is outside these parameters consult a Master Builders representative.

Do not apply if humidity is above 90% or the surface temperature is less than 5° above the dew point of the air in the work area.

CAUTION: Concrete “gassing” or “breathing” may occur when the surface temperature is rising due to sunlight or increasing ambient temperature. This can cause bubbles or holes in the applied coating. When this problem occurs it is necessary to shade the surface from sunlight and/or apply the material in the cooler evening or at night so that initial cure can take place without air escaping from the concrete. Consult Master Builders bulletin #CC3 for more detailed recommendation.

SURFACE PREPARATION:

A. Steel

For immersion service clean to “White Metal” in accordance with SSPC SP-5-89 or NACE No. 1. For immersion all fillet and edge welds shall be rounded to 1/8" (3 mm) minimum radius. Welds shall be continuous and smooth but not necessarily flush with adjacent surface. Surface weld defects such as crevices or depressions shall be filled by rewelding. Ripples shall be blended to a smooth finish but not necessarily flush with the adjacent surface. All weld spatter shall be removed by chipping or grinding prior to blasting. Prime immediately with CEILCOTE 386 Primer or CEILCOTE 380 Primer.

Grit blasting with clean, sharp abrasives or approximately 12 to 30 mesh size to achieve a minimum anchor profile of 3 mils as determined by the Keane-Tator Visual Comparator or Testex X-Course tape. Round grit or shot is not recommended.

For noncondensing fumes or occasional spillage, use a “Near White” abrasive blast SSPC SP-10-89 or NACE No. 2. The CEILCOTE 387 HYBRICOTE system must be applied to cleaned surfaces before rusting occurs. CEILCOTE 386 Primer or CEILCOTE 380 Primer should be applied immediately to steel surfaces to prevent rusting.

Refer to Spec. 3-2.2 for full details of constructing steel tanks to receive monolithic linings.

B. Concrete

Surfaces should be abrasive blasted to provide a clean, strong surface. All concrete surfaces must be primed with CEILCOTE 386 Primer or CEILCOTE 380 Primer or CEILCOTE 380C (Conductive) Primer if sparktesting is desirable.

New concrete must be strong and dry. All form oils, curing solutions and laitance must be completely removed. Prepared surfaces must be clean, dry and firm. Use plastic sheet test method ASTM D-4263 to ensure concrete is moisture free. If moisture is detected, retest until dry.

All oils, grease, dirt, old coatings, or chemical contaminants must be removed by surface preparation. Contaminated concrete may require detergent and/or solvent cleaning, abrasive blasting, or in some instances may be unsuitable for coating. If this is the conclusion, consult Master Builders Technical Service Group.

All fins or projections should be struck flush, all holes, pits, voids, and cracks must be filled. For nonimmersion service use fast set cements for filling such as EMACO® S88-CA or EMACO T430 mortars.

CEILCOTE 387 HYBRICOTE Coating Installation Procedure
PAGE 3 of 6

For immersion service on concrete, fill voids with a mortar made by mixing 1 gallon (3.8 liters) of catalyzed CEILCOTE 380 Primer or CEILCOTE 386 Primer and adding approximately 7 to 9 lbs (3 to 4 kg) of CEILCOTE S-11 Powder or 18 to 20 lbs (8 to 9 kg) of CEILCOTE S-1 Powder, depending on the size of the void, to make a thick paste. Adjust working thickness by adding more or less powder. Fill voids by troweling in both directions and tightly approximately 10 mils (250 microns) of material. Allow to cure hard (4 to 8 hrs) and refill shrinkage cracks if necessary. Allow to cure 8 hours before priming.

Storage:

CEILCOTE 387 HYBRICOTE liquids, primer liquids and hardeners should be stored in a cool place and away from flames. The liquid components may gel after 4 to 6 months from date of manufacture when stored at 70 °F (21 °C); sooner at higher temperatures. Expiration dates are printed on the containers. Powders are stable indefinitely at all temperatures if kept dry.

APPLICATION

Primer:

Concrete

Apply 1 coat of CEILCOTE 386 Primer or CEILCOTE 380 Primer.
For spark testing use CEILCOTE 380C (Conductive) Primer.

Steel

Prime with CEILCOTE 386 Primer or CEILCOTE 380 Primer.

DO NOT THIN

Mixing:

When batch mixing, catalyze no more material than can be applied within the pot life period. Available working time, temperature, and complexity of the area to be coated will determine how much material should be catalyzed at one time. Stir material thoroughly. Mechanical agitation is recommended.

Temperature	Pot Life (1 gallon)	Recoat Minimum	Recoat Maximum*
50 °F (10 °C)	90 min	12 hrs	7 days
70 °F (21 °C)	25 min	4 hrs	4 days
90 °F (32 °C)	10 min	2 hrs	2 days

* 4 hours if in direct sunlight

Variations in temperature and humidity will increase or decrease pot life and curing times. Before placing freshly catalyzed material into pressure pot, remove all remaining material and wipe out pot since old material will reduce pot life of freshly mixed material.

Flush pot and lines thoroughly after every 3 to 4 batches if temperature is below 80 °F (27 °C). CAUTION - material hardens quickly when pot life time is exceeded, especially in warm weather. Keep material cool and shield pot from direct sunlight in hot weather. Pot life can be extended by keeping material cool before mixing and immersing pot in ice water during hot weather.

Airless Spray - Spray tip must be .036" (.9 mm) or larger to pass flake pigments. Pump must be capable of at least 3.5 gpm.

Conventional Air Spray:

Equipment	Binks	Devilbiss
Gun	18 or 2001	JGA or MBC
Fluid Tip	68	D or AC
Fluid Needle	68 or 568	D or AC
Air Cap	68 PE or PB	64 or 62
Pressure Pot	85 - 5402	QM-5748
Pump	4:1 or 8:1	4:1 or 8:1
Material Hose	Use solvent resistant 1/2" I.D.	Use solvent resistant 1/2" I.D.
Air Hose	Minimum 5/16" I.D.	Minimum 5/16" I.D.

Turn atomizing air off and material pressure on. Regulate fluid pressure to provide adequate material from nozzle (approximately 2 foot or 60 cm horizontal stream). Regulate atomizing air to provide good break-up and even spray pattern without excessive over spray. Apply two wet coats, overlapping 30 to 50% on each spray pass while keeping the gun at a 90° angle to the surface. Proper application will provide a uniform but slightly rippled "orange peel" surface.

When using the pressure pot system, keep the pressure pot at approximately the same level as the spray gun. Maximum recommended hose length is 25 feet (8 meter). For longer hose lengths and faster production rates use a 4:1 or 8:1 pump in place of the pressure pot.

Minimum air requirements for the above equipment is 25 CFM at 100 psi (0.7 MPa). MIX ONLY
QUANTITIES OF MATERIAL WHICH CAN BE APPLIED WITHIN THE POT LIFE LIMITATIONS.

Recoat - The base coat (first coat) should be recoated as soon as possible. Hybrid Novolac materials have a short recoat window when applied in direct sunlight and at higher temperature (4 hours). See Technical Bulletin for minimum and maximum recoat windows.

Roller - Use medium nap mohair type roller covers (3/8" or 10 mm).

Brush - Use pure or natural bristle, generally throw away types.

Touch Up and Repair

Touch up and repair can be accomplished using grinders, sanders, or sandblasting down to metal/concrete surface and feathering the coating back 1 to 2 inches (25 to 50 mm). Use the above recommended application techniques and procedures for touch up and repair.

Testing

Allow to cure completely (fingernail hard) before testing. Visually inspect for color variation due to inadequate hardener and test with fingernail for obvious soft spots. Check dry film thickness with magnetic dry film gauge after reaching full hardness (steel only). For immersion service test coating for pinholes and holidays by using a DC spark tester at 100 volts/mil (4 volts/micron) to a maximum of 5,000 volts.

CLEAN UP

Use T-410 Solvent, MEK, xylene or lacquer thinner for cleaning equipment and hoses before material hardens. **DO NOT USE ACETONE SOLVENTS FOR CLEANING.** It can react with CEILCOTE HYBRICOTE Hardener to produce flammable crystals.

SAFETY

REFER TO MATERIAL SAFETY DATA SHEET (MSDS).

Use two men on enclosed jobs; one man outside for safety. If affected by inhalation, move to fresh air. Continue ventilation until product is cured - usually 4 hours @ 70 °F (21 °C). For open areas, use an absorptive respirator or fresh air masks if fumes become objectionable.

Wear eye protection when mixing or handling hardener. Eye contact results in irritation and may cause corneal injury. Flush eyes immediately with water for 15 minutes (seconds count) and **CONSULT PHYSICIAN IMMEDIATELY.** Prolonged skin contact will cause mild irritation and may result in superficial burns. Wash skin with soap and water. Contaminated clothing should be removed and wash before re-wearing. Do not take internally. If swallowed, **DO NOT INDUCE VOMITING - CALL A PHYSICIAN IMMEDIATELY.**

Store at temperatures below 100 °F (38 °C) to avoid decomposition. Refer to safety instructions on CEILCOTE HYBRICOTE Hardener labels before using.

WARNING - CONTACT WITH METALS OTHER THAN STAINLESS STEEL, TEMPERATURES ABOVE 140 °F (60 °C), OR CONTAMINATION OF THE HARDENER BY ANY OTHER MATERIAL CAN CAUSE VIOLENT HARDENER REACTIONS. Use caution when handling to insure that Hardeners contact only the original plastic container or stainless steel until mixing with the CEILCOTE 387 HYBRICOTE Liquid.

Hardener No.2(C) have **YELLOW** labels and must never be combined with Hardeners using **RED** labels. They will react violently if mixed or spilled together. Do not store or ship packages with **YELLOW** labels with packages containing **RED** labels.

NOTE: Department of Transportation diamond shipping labels are not color coded as per the warning above.

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The installation data furnished herein is true and accurate to the best of our knowledge. However, no guarantee of accuracy is given or implied.

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