



GUIDELINES FOR HANDLING HIGH TEMPERATURE COATINGS

Corr-Paint CP30xx, CP40xx, CP40xx-S, CP40xx-S1, CP5000, HiE-Coat 840-xx Coatings

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1.0 Overview

This document provides guidelines for using Aremco's water and solvent-based, high temperature, corrosion protective coatings. These coatings have been specially formulated for high temperature applications with a minimum operating temperature of 450 °F.

2.0 Coating Preparation

- 2.1 Single-part coatings should be remixed gradually and thoroughly prior to use.
- 2.2 CP5000, a two-part coating, should be mixed in accordance with the powder-to-liquid mix ratio stated on the container. Mix powder gradually into the liquid. After the powder is added, mix for 5-10 minutes. Allow the mixture to "let down" for 10-15 minutes to allow air bubbles to break. [Caution: Make sure to use a proper safety mask to protect from airborne powders.]
- 2.3 Make sure that no residual solids remain at the bottom of the container after mixing.
- 2.4 Filter coating with a standard paint strainer to remove any lumps.
- 2.5 Although thinning is not recommended, water-based coatings can be thinned by adding 1-2% water by weight.
- 2.6 Periodic stirring will be necessary in order to prevent settling.

3.0 Surface Preparation

- 3.1 Make sure parts are fully degreased prior to coating.
- 3.2 Sandblast parts to a "near white blast" or .001" surface profile. Remove residual media using a pneumatic (air) gun. Do not wipe down with a solvent.
- 3.3 Parts should be handled with clean hands or gloves. Parts should be positioned on a rack that is free of dirt, oil or other contaminants.
- 3.4 Coating should be applied within 24 hours after sandblasting. No surface rust should be evident at the time of application.
- 3.5 An excellent alternative to sandblasting is the use of a zinc-phosphate based etchant such as Aremco's Corr-Prep CPR2000. This is a waterborne solution that is brushed or sprayed onto the substrate then washed off after a few minutes. The use of this etchant significantly improves adhesion of the coating.

4.0 Application

4.1 Recommended Equipment & Tools

A) Spray Gun

Binks 2001 or equivalent including:

#63SS Fluid nozzle

#66SK Air cap

#563 Needle

Siphon cup for small applications; pressure pot with low speed mixer for larger mixtures.

Note: Since this equipment will be used for water-based coatings, it is extremely important that the equipment and any feed lines be thoroughly cleaned of all solvents if used previously with a solvent-based coating.

B) Air Source

0-90 Psi air source

Recommended spraying pressure 30-50 psi

Air filter capable of trapping particulate and moisture to 0.3 microns

C) Spray Booth

Vented exhaust system with paint arrestor pads.

D) Safety Masks

North 7700-30L or equivalent with NIOSH approved dust/mist filters.

Organic vapor cartridges are not required for this product.

E) Curing Oven

Batch or in-line, gas or electric fired conventional radiant oven capable of reaching 500 °F.

F) Gauges

Dry film thickness gauges capable of measuring films from 1-10 mils.

G) Adhesive Strength Tester

Gardco PTA Kit, PA-2000 adhesive tape test kit including 14 tooth variable spaced scratch tool and Permacel tape. The Gardner Company, 1-800-762-2478, sells this product.

4.2 **Ambient Conditions**

For best results, coatings should be applied in a dry climate at 50-90 °F. Indoor spraying is preferred to eliminate variables such as dusting, rain and wind. For cases in which outdoor coating is necessary, steps should be taken to insulate parts from rain during the drying and curing cycle. For outdoor coating it is also recommended to cure at 150-200 °F within 1-2 hours of application.

4.3 **Primer Coat (CP5000)**

A primer coat of CP5000 is recommended only for structures that will be located outdoors under humid and/or salt fog conditions. Only a very fine mist coat of primer is recommended. Allow to air dry fully prior to overcoating. The length of time will vary depending on the relative humidity. Dry time may take as little as 30 minutes or as much as 4 hours. When possible it is suggested that the part be heated to 150-200 deg F to promote drying. Inspect primer coating to make sure it is dry and well adhered before overcoating. If peeling is evident, remove flakes and touchup by repeating the above procedure.

4.4 **Main Overcoat**

The main overcoat should be a full, wet, continuous coat. A maximum wet film thickness of 4-5 mils is recommended.

4.5 **Curing**

The following cure schedules are provided as guidelines only. Some modifications to dry times and curing profiles may be necessary depending on the ambient temperature and relative humidity.

A) CP3015-XX

Two alternative curing profiles may be used for these coatings:

- 1) Air set for 24 hours, then slowly ramp up to operating temperature.
- 2) Air set for 30 minutes, heat cure at 200 °F for 1-4 hours, then slowly ramp up to operating temperature (~200 °F per hour.)

Some blistering may occur if the temperature ramp is too extreme. For outdoor applications, some white streaking will appear if coating is not exposed to 750 °F during operation. Note: Parts should be exposed to a minimum of 500 °F within 24-48 hours of application; otherwise, some corrosion may appear (this is especially important for outdoor structures).

B) CP40xx-Series & 840-MS Coatings

Air set for 30-60 minutes minimum (until dry to the touch), then heat cure at 450 °F for 1 hour. No further curing is necessary if the operating temperature is higher than 700 °F. If the operating temperature is between 450 and 700 °F, a second cure step at 700 °F is recommended for 30-60 minutes.

Note: Adequate ventilation is required when curing these products. Outgassing will occur above 300 °F and cease at approximately 750 °F.

C) CP5000

Two alternative cure schedules may be used:

- 1) Air set for 24-48 hours then gradually ramp to operating temperature.
- 2) Air set for 1-2 hours then heat cure at 200 °F for 2 hours. Ramp up can proceed immediately after curing.

Note: Parts should be exposed to a minimum of 500 °F within 24-48 hours of application, otherwise some corrosion may appear on the substrate for outdoor applications.

D) 840-C, 840-CM, 840-M

Two alternative curing profiles may be used for these coatings:

- 1) Air set for 24 hours, then slowly ramp up to operating temperature.
- 2) Air set for 30 minutes, heat cure at 200 °F for 1-4 hours, then slowly ramp up to operating temperature (~200 °F per hour.)

Some blistering may occur if the temperature ramp is too extreme.

4.6 Inspection

Parts should be thoroughly inspected as follows:

- A) Parts should be randomly inspected for a minimum dry film thickness of 1-3 mils.
- B) Parts should be inspected visually for evidence of blisters and cracks.
- C) Parts should be randomly tested using the Gardco PA-2000 scratch test unit for adequate adhesive strength according to ASTM D-3359. A 5B classification is expected.

4.7 Touch-Up

Touch-up may be performed on cured parts that have small cracks or blisters. Remove loose particles using a clean tool or glove and follow the coating and curing procedures outlined in Section 4.5. For small areas, a fine brush or sandpaper may be used to "feather out" the area. Note: Do not clean surfaces with a solvent. If cleaning is required, use distilled water and dry thoroughly before coating.

5.0 Handling & Storage

5.1 Parts Handling, Storage & Packaging

Cured parts should be handled using clean cotton or nylon gloves and stored on racks, fixtures or in packaging materials that are free of dirt, oil or other contaminants. Plastic bags or coverings and soft packaging materials should be used in order to minimize marring and absorption of dirt, oils or moisture.

5.2 Coating Storage

The coating should be stored in its original packaging or in a clean, tightly closed polypropylene container. A time and date stamp should be used to carefully track the shelf life from date of opening.