Hallcoat PL

Product Code: 2420010
Revised Date: 05/04/2006

Hallcoat PL

Hallcoat PL liquid concentrate is a chemical dip process for producing a bright, polished, protective finish on zinc die castings.

This treatment can be used as a final finish or as a base for clear lacquer or water soluble resin coating where added abrasion resistance is required. If necessary, the chromate conversion film can be readily removed in alkali so that the chemically polished surface can be used as a base for subsequent plating.

OPERATING CONDITIONS

Concentration:	20% (volume) or 20 gallons per 100 gallons water.
Temperature:	140-150f (60-66c)
Immersion time:	10 to 60 seconds
Ph:	1.3 to 2.4
Equipment:	316 stainless, pvc, polypropylene or polyethylene tank. Heating coils use 316 stainless or carbon. Racks or baskets use 316 stainless or polypropylene.

Note: due to the operating temperature of the bath, venting is recommended. Do not use this solution in ceramic, glass or porcelain containers.

MAINTENANCE:

Hallcoat PL liquid concentrate should be added to bring back the original concentration to the make-up solution concentration.

After the maintenance addition of liquid concentrate has been completed, the ph may be lowered if necessary with nitric acid. One percent (1%) concentration by volume of nitric will usually lower the ph 0.14.

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The solution level should be maintained at a constant level with frequent additions of water.

Any parts falling in the tank should be removed at once. Failure to remove fallen parts will definitely decrease the life of the bath.

METHODS OF CONTROL

1. Ph - ph paper or an electric ph control is sufficient.
2. **Hallcoat PL** concentration

(a) equipment
- (1) pipette 2 ml
- (2) burette 50 ml
- (3) erlenmeyer flask 500 ml
- (4) graduate 10 ml

(b) solutions
- (1) sodium thiosulfate 0.1 n
- (2) potassium iodide solution 10%
- (3) starch solution 1.2%
- (4) sulfuric acid concentrated
- (5) water distilled or d.i.

(c) method
- (1) pipette 2 ml of solution into 500 ml erlenmeyer flask and dilute to 250 mls with distilled water.
- (2) add 10 ml of 10% potassium iodide solution and 5 ml of concentrated sulfuric acid. Stir.
- (3) titrate with agitation using 0.1 n sodium thiosulfate solution to a light yellow color.
- (4) add 1 to 2 ml of starch solution.
- (5) continue titration with agitation until dark color from starch solution changes to a clear solution.

(d) calculations
m1 0.1 n thiosulfate 1.16 = % by volume **Hallcoat PL** liquid concentrate.

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PROCESS CYCLE

1. Alkaline soak clean in h-h cleaner 187b, 4-8 oz/gal, 140 - 180f
2. Rinse
3. Acid dip with 3-4 oz/gal h-h descaler d in 5% (by volume) of 42 be' nitric acid, 100f, 10-60 seconds.
4. Rinse
5. Immerse in **Hallcoat PL** (see make-up)
6. Rinse
7. Bleach dip in 3 oz/gal caustic soda, room temperature 1-15 seconds.
8. Rinse
9. Hot rinse
10. Dry

DRYING TECHNIQUES

A hot rinse of 130f is recommended before the **Hallcoat PL** solution to guarantee more uniform reaction on the zinc die casting.

All rinses should be flowing such that no alkali is carried over to the next process step.

The final hot rinse should be at 150f (not over 160f) to facilitate drying.

WASTE DISPOSAL

Before discharging the **Hallcoat PL** solution, it is necessary to reduce to hexavalent chrome with the addition of sodium meta sulfite, sodium bisulfite, sodium sulfite or sodium hydrosulfite.

After the hexavalent chrome has been reduced, adjust the ph of the solution between 6 to 8 with soda ash or caustic soda. The function of the alkaline addition is to neutralize the acidic **Hallcoat PL** solution and to precipitate out the metallic hydroxides.

CAUTION

Hallcoat PL solution is a chromate-fluoride acidic product. Avoid contact with skin and eyes. Wear protective clothing, goggles and rubber gloves. Flush exposed areas immediately with clean, cold water. In case of injury, contact a doctor immediately.

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WARRANTY

THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.

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