

# Hallcoat A 1

**Hallcoat A 1** is a water soluble powdered-chromated product used for applying a chemical conversion coating (iridescent-gold color), by immersion, on aluminum and aluminum alloys to provide paint adhesion or corrosion protection. The coating is applied from the solution at room temperature and produces a film which can be used as a final finish or can be dyed various colors.

## Features & Benefits

Mil-C-5541 E Class 1A compliant	One product for paint base or corrosion resistance; low inventory impact
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\*Not QPL listed

## Operating Conditions

1. Soak clean in either etch or non-etch cleaner.
  - (a) Soak clean in non-etch cleaner, Aquaease S 187 NE  
 8 oz/Gal (45 to 60 g/L)  
 160°F to 180°F (71°C to 82°C)  
 1 to 5 minutes
  - (b) Soak clean in Extend Etch  
 4 – 10 oz/Gal (30 to 75 g/L)  
 120°F to 160°F (48°C to 72°C)  
 30 seconds to 3 minutes.
2. Cold water rinse.
3. Deoxidize/De-smut in either of the non-chromate deoxidizer/de-smutters.
  - (a) Deoxidizer 13L  
 20 to 30% (vol)  
 Ambient temperature  
 1 to 5 minutes.
  - (b) Deoxidizer 13  
 8 – 12 oz/Gal (60 to 90 g/L)  
 Ambient temperature  
 1 to 5 minutes.
4. Cold water rinse.
5. Hallcoat A 1 (see conditions below).
6. Cold water rinse.
7. Dye.



8. Cold water rinse.
9. Hot water rinse, 140°F, 2 to 5 seconds (temperature never above 160°F).
10. Dry.

### Equipment

Polyethylene, Koroseal or equivalent lined tank.

### Solution Makeup and Operating Conditions

Concentration	3/4 – 2 1/4 oz/Gal (5.6 – 16.8 g/L)
Temperature	70°F – 90°F (21°C to 32°C)
Immersion time (1.25 oz/Gal)	30 sec – 5 min
pH range	1.1 – 1.9
pH range (1.25 oz/Gal)	1.3 – 1.6

## Titration Method

1. Pipette a 10 mL sample into a 500 mL Erlenmeyer flask, add 250 mL of distilled water.
2. Add 10 mL of 10% Potassium Iodide.
3. Add 5 mL of Concentrated Sulfuric Acid.
4. Immediately titrate with 0.1 N Sodium Thiosulfate until the solution turns straw color. Add 1 mL of 1% starch solution and continue titrating until the blue solution changes to clear green.
5. Record mL used.

Calculation

$$\text{Concentration (oz/Gal)} = \text{mL } 0.1 \text{ N Na}_2\text{S}_2\text{O}_3 \times 0.08$$

Additions:  $(1.25 \text{ oz/Gal} - (\text{oz/Gal analyzed}) \times \frac{\text{gals sol}}{16}) = \text{lb to be added to tank.}$

Ph meter is preferred to pH paper for determining ph. The pH may be lowered by additions of 42 be' nitric acid (3 Fl oz/100 gallons will lower pH by 0.1). Caustic soda may be used to raise the ph.

## Waste Disposal

Neutralize solutions of before discharging the Hallcoat A 1 solution. It will be necessary to reduce the hexavalent chrome with either the addition of sodium meta sulfite, sodium bisulfite, sodium sulfite or sodium hydrosulfite.



After the hexavalent chrome has been reduced, then adjust the pH of the solution between to a pH between 6.0 to 8.0 with either soda ash or caustic soda. The function of the alkaline addition is to neutralize the acidic Hallcoat A 1 solution and to precipitate out the metallic hydroxides.

### Caution

Hallcoat A 1 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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For more information on this process,  
please call us at 203.756.5521 or email: [techservice@hubbardhall.com](mailto:techservice@hubbardhall.com)

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