# HAVACOAT AL-Y
## ALUMINUM CHROMATE PROCESS

**HAVACOAT AL-Y** is a chromate conversion coating material used to produce colored conversion coatings on aluminum and aluminum alloys.

**HAVACOAT AL-Y** coatings are usually uniform and range in color from deep gold to light iridescent, depending on the alloy processed.

**HAVACOAT AL-Y** serves as an adherent paint base and provides required corrosion protection and is formulated to conform to MIL-C-5541 and MIL-C-81706.

## OPERATING CONDITIONS:

Suggested conditions for Immersion are:

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|---|---|
| Concentration: | 1 - 3 oz/gal. (7.5 - 22.0 g/L) |
| Temperature: | 60 – 80 ºF (15 – 25 ºC) |
| Time: | 1 - 2 minutes: longer immersion times deepen the coating color, but may not appreciably improve film characteristics in other respects. |

Uniform chromate conversion coatings can be obtained only if the work is thoroughly pre-cleaned and the surface properly prepared for receiving the finish.

## TYPICAL PROCESSING CYCLE:

1. Clean in appropriate **HPC** cleaner.
2. Cold water rinse.
3. Etch in appropriate **HPC** etchant.
4. Cold water rinse.
5. Desmut in appropriate **HPC** deoxidizer / desmutter.
6. Cold water rinse.
7. Chromate conversion coating with **HAVACOAT AL-Y**.
8. Water rinse not over 120 °F (50 °C)
9. Air dry, do not exceed 140 °F (60 °C). Occasionally specifications will not allow etching. In these instances, Steps 3 and 4 would be eliminated. The appearance of the **HAVACOAT AL-Y** finish then will depend on the uniformity of the aluminum surface.

## EQUIPMENT RECOMMENDATIONS:

Processing tanks fabricated of stainless steel, ceramic, or mild steel lined with polyvinyl chloride are satisfactory. Use racks and other equipment constructed of the same materials. Unlined mild steel is unsatisfactory.



Approved: Graham M. Torr, CEF-3
Technical Service Manager

**Haviland Products Co.**
421 Ann St. N.W.
Grand Rapids, MI 49504-2075
(616) 361-6691 Fax (616) 361-9772

## SOLUTION CONTROL:

1. To a 10 ml sample of the bath, add 50 ml distilled water, 25 ml 25% Potassium Iodide solution, and 10 ml 50% Sulfuric Acid (H2SO4).
2. Titrate with 0.1N Sodium Thiosulfate to a straw color.
3. Add 3 ml soluble Starch indicator.
4. Continue Sodium Thiosulfate titration from deep blue to pale blue-green color that lasts for 10 seconds.
5. Calculations:

oz/gal **HAVACOAT AL-Y** = 0.116 X ml1 0.1N Sodium Thiosulfate
g/l **HAVACOAT AL-Y** = 0.867 X ml 0.1N Sodium Thiosulfate

## pH CONTROL:

Determine the pH of the **HAVACOAT AL-Y** bath with a pH meter. Adjust the pH to operating range of 1.7 - 1.9. Use nitric acid to lower the pH and ammonium hydroxide to raise the pH.

## SAFE HANDLING INSTRUCTIONS:

**WARNING: CAUSES SEVERE BURNS. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED.**

**Proper handling information is labeled on all HAVILAND PRODUCTS COMPANY products. All personnel using subject products should familiarize themselves with these instructions before use.**

**HAVACOAT AL-Y is acidic and an oxidizing material. Contact with the skin or eyes may cause irritation or burns. Observe the same safety precautions as when handling acid products. Personnel should wear eye protection, NIOSH approved air mask, rubber gloves and apron or other protective clothing when working with HAVACOAT AL-Y. Provide tank used for HAVACOAT AL-Y with an adequate exhaust system to protect the workers against irritating or corrosive contaminants.**

## WASTE DISPOSAL:

**Wastes must be tested using methods described in 40 CFR Part 261. It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous wastes. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.**

**When empty, containers may still be hazardous because of product residue. All labeled hazard precautions must be observed.**

**Consult MSDS for additional safety and waste treatment information.**

**NON-WARRANTY:**

**The data contained in this bulletin is believed by Haviland Products Company to be true, accurate and complete. However, since final methods of use for this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin. Haviland Products Company cannot assume any responsibility for the use of this product by the customer in any process, that may infringe the patents of third parties**.