ACCU-LABS INC.

4831 S. Whipple Avenue
Chicago IL 60632
Phone: 773.523.3100 Fax: 773.523.4008
www.accu-labs.com

A2LA Accredited ISO/IEC 17025:2005 Certificate # 2558.01

615 Aluminum Dichromate

Accu-Labs 615 Aluminum Dichromate is a dry, granular compound which, when dissolved in water, forms a solution for chromating aluminum and aluminum alloys. The chromate coating formed is a light yellow to brown and has excellent corrosion resistance. It provides a good base for adherent paint coatings. This chromate process for aluminum meets the requirements of Military Specification MIL-C-5541.

Chromate coatings from the Accu-Labs 615 Aluminum Dichromate solution are normally applied by immersion for 1 to 5 minutes at a concentration of 1 to 2.5 ounces per gallon. Optimum concentration is 1.5 ounces per gallon.

OPERATING CONDITIONS

Accu-Labs 615 Aluminum Dichromate	1.0 - 2.5 oz/gal
Temperature	70 - 100°F
pH Range	1.1 - 1.9
Time	1 - 5 minutes

Light yellow coatings suitable for subsequent application of paint or lacquer are obtained at the lower part of the range of concentration, temperature, and time. Darker coatings, providing maximum corrosion resistance, are applied at the higher concentration, time and temperature. Exceeding the high limits may result in smutty deposits, which are harmful to corrosion resistance and paint adhesion.

Good rinsing prior to chromating is necessary for uniform results. Drag in of alkaline rinse water will raise the pH of the process solution, reducing or stopping the formation of the chromate film. In some cases it may be necessary to reduce the pH of the chromating solution with nitric acid addition (up to 0.2 % addition).

EQUIPMENT

The processing tank and heating coils may be constructed of stainless steel 18-8. The tank may also be steel with polyethylene of Koroseal lining.

PROCESSING GUIDELINE

1. Vapor degrease if necessary.
2. Clean in Accu-Labs 110 Non-Etch Aluminum Cleaner at 140-160°F.
3. Cold water rinse.
4. Remove surface smut with suitable desmut solution (Accu-Labs DX-14 Desmut)
5. Cold water rinse.
6. Immerse in solution of Accu-Labs 615 Aluminum Dichromate.
7. Cold water rinse.
8. Hot water rinse at temperature not to exceed 140°F.
9. Warm air dry 5 minutes at 140°F maximum.
10. Chromate coatings will age harden in 48 hours.

ANALYSIS OF ACCU-LABS #615 Aluminum Dichromate

1. Pipette 10 ml of working solution into 400 ml beaker. Dilute to 250 ml with distilled water.
2. Add 10 ml of 10% potassium iodide and 5 ml concentrated sulfuric acid. Stir.
3. Titrate with 0.1 N sodium thiosulfate reagent grade to a light yellow color.
4. Add 2 ml starch solution of 0.1 gram of thyodene indicator.
5. Continue adding sodium thiosulfate while stirring until dark color fades to a clear solution.

Calculation: oz/gal Accu-Labs 615 Aluminum Dichromate = ml sodium thiosulfate x N x 0.81

SPECIAL ANALYTICAL PROCEDURES FOR ACCU-LABS 615 CHROMATE SOLUTIONS

1. Draw a 10 ml sample of the chromate solution. Sample size should be adjusted until suitable titration is achieved. Usually a titration of 10-25 ml is best.
2. Add 20 ml of 10% Kl solution and 20 ml of 30% H_2SO_4.
3. Titrate with 0.11 N sodium thiosulfate to orange-green color.
4. Add 2 ml starch indicator.
5. Continue titration to clear blue-green endpoint.
6. Accu-Labs 615 Aluminum Dichromate = titration x 0.089

Check pH with a pH meter, calibrated with appropriate buffer.

MAINTENANCE ADDITIONS

Properly maintaining the concentration and pH of Accu-Labs 615 Aluminum Dichromate solution will provide optimum performance and solution life. For most applications, a concentration of 1 to 2 ounces per gallon is suitable. However, there is no exact concentration which will work for all applications.

Assuming the production is best at 2 oz/gal, maintenance additions are calculated as follows:

(2.0 - Concentration) x Tank volume divided by 16 = addition (in pounds)

The pH of a working chromate solution should be maintained within the range of 1.5 - 2.0. If the concentration is correct, but pH needs adjustment, dilute sodium hydroxide may be used to raise the pH or dilute nitric acid may be used to lower pH.

STRIPPING ALUMINUM CHROMATE FILMS

1. Hot caustic etch if feasible.

2. Non-etch: non-etch alkaline cleaner followed by immersion in 50% nitric acid containing Accu-Labs 216 Aluminum Salts.

CAUTION: Always wear eye protection and personal protective gear when handling or working with this product. Read MSDS prior to using.

DISCLAIMER

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