ALODINE

Alodine is an accelerated chromate conversion coating system which gives the best corrosion protection in comparison to other all conversion coatings. The chrome oxide conversion film has superior performance ratings compared to other pretreatments. In application, where anodizing is not feasible, chromate treatments of this type have been used in place of anodizing. **Alodine** chemical conversion coatings are the most widely used pre-paint treatment process for metal substrates. Processes specifically designed for aluminum are recent origin. The **Alodine** (chromate oxide film) provide the most reliable under film corrosion protection and paint adhesion.

Chromate coated parts are known to have passed more than 100 hours of salt spray and capable of withstanding very severe service conditions. They comply with military specifications MIL_C – 5541 and AAMA 605.2.

The coating will vary in color from very light yellow to iridescent yellow to dark gold or brown depending on time, temperature and as the thickness changes and as the bath composition changes with usages. Golden film is best for paint pretreatment. Coating weight can vary from 40 to 100 mg / ft2 (4.3 to 10.8 mg / dm^2)

The freshly formed film appears gel like, is readily leach able in hot water, and may be stripped from aluminum surface with dilute Nitric acid, initially it is also hydrophilic if heated above 150 F, the film becomes insoluble in dilute HNO_3. Aging of the coating beyond 16 hours shows similar effects due possible to a loss of hydration, accompanied by a gradual insolublization of chromium complexes in the coating and that the unpainted corrosion resistance started to drop off after the coating was heated above 200^{o}F(93^o C) temperature, getting progressively worse as the temperature was increased.

PRE CLEAN

Pre Cleaning is not required unless the articles are heavily soiled with lubricants. If necessary Trichloroethylene is preferred.

DEGREASING

Non- etching alkaline cleaners are preferred but etching cleaner i.e. NaOH 30 grams / Ltr at room temperature for a short time can also perform the function.

WATER RINSE

Rinsing in slow running water preferably heated to 40^o C to aid removal of viscous film.

DESMUDGE

In 50 % v/v HHO_3 for 0.5 minute or until the surface shows uniform brightness.

COLD RINSE

Rinse well in cold running water.

OPERATION SUMMARY

ALODINE TANK

Material for construction of tank.	Stainless steel.
Bath initial Make up.	**Alodine** @ 100ml / Ltr.
Working temperature.	40 to 80^{o} C)
Mode of application	Power spray plant or by Immersion.
PH of working solution	1.5 to 3.
Coating color	Transparent Light yellow to brown.
Adhesion	Excellent.
Corrosion resistance of painted Aluminum.	Excellent.
Contact time	1 to 10 Minutes.

WATER RINSE

Rinse well in cold running water followed by warm water rinse temperature below 60 C.

DRY / DI / ACIDULATED / SEAL RINSE(OPTIONAL)

The freshly formed colored film is gel like and should be dried carefully.

Note: Water quality requirements for the chromate and final rinse stages are critical. Excessive hard water salts and soluble contamination are detrimental to coating performance. Very often, these contaminations have been known to precipitate on the chromate film and cause paint blistering or corrosion problems when moisture penetrates the paint film in the field. Deoxylite-10 may be used @ ½ ml / Ltr in the final rinse, to

counteract the effects of hard water salts and acidifies the surface before painting at pH 3.5 to 5.5 for 10 to 15 seconds at 40 to 50° C. it thus reduces the risk of paint blistering under humid conditions.

The water supply should not exceed the following impurities limits. Total dissolve solids should not exceed 150 ppm, chloride 50 ppm, sulphates as ($CaCO_3$) 200 ppm.

Deionized water is recommended for the chromate and final rinse stages if the incoming water quality falls below these limits.

Powdery surfaces are obtained when the work is not properly cleaned, when traces of alkali remains on the work, when the solution is too hot, too strong or when the treatment is too long and when the acid rinse is contaminated or its temperature is too high or when the temperature of drying is too high.

ANALYSIS OF WORKING BATH

Take 5 ml of bath solution add 100 ml distilled water and few drops of phenolphthalein indicator. Titrate V/S N/10 NaOH solution. Reading should not be less than 6. If less add ALODINE concentrate accordingly.