

# UNICHROME - C

## ( Yellow Chromatizing Solution For Aluminium & Aluminium Alloys )

The Chromatizing process is an excellent pre-treatment for Aluminium and its alloys, by dip / Spray processes. The treatment leaves on the substrate an amorphous, rainbow to yellow brown, Oxide-Chromate Coating. The colour intensity & the coating thickness / depth depends upon the bath concentration, the immersion period, Composition of the metals etc. The chromate conversion Coating offers excellent corrosion resistance ( more than 100 Hrs on a 5 % Sodium Chloride Salt-Spray Test ) & added bonding with Paints, Powder Coatings & Organic coatings deposited on the metal.

### PROCESS SEQUENCE :

- 1) **DEGREASING** : By dipping , using Degreaser-NF 5 -10 % Solution at R.T. for 10 min.
- 2) **WATER RINSE** : by dipping for 2 min . The Rinse water tank may be overflowing.
- 3) **ACTIVATOR** : By dipping in a 5 - 10 % Activator Solution for 2 min .
- 4) **Water Rinse** : By dipping for 2 min. The Rinse water tank may be overflowing.
- 5) **CHROMATIZING** : By dipping in a 2.5 to 5 % soln of UNICHROME-C , at R.T. for 2 to 10 min.

The chromatized components are then oven dried / Air dried & Painted preferably within 24 hrs. In the case of Aluminium Alloys; it is recommended to give a 5 minutes dip in a 10 % solution of **activator solution** for the removal of the Oxide scales and the rust spots. This treatment shall enhance the coating deposition as well as the uniformity of the chromate coating on the alloys. This will enhance corrosion protection.

### CHROMATIZING BATH MAKE-UP

- Fill the tank with clean water.
- Add **Unichrome - C** at the rate of 25 to 50 Litres per 1000 Litres of water for required Pointage.
- Stir uniformly and make-up up-to the working level.

The Immersion period for obtaining a Rain-bow coloured coating shall be 2 min. For getting darker coatings, immersion period shall be 2 -10 min. The conversion Coating tends to dissolve on prolonged dipping, beyond 20 minutes.

**Material of Construction of Tanks:** All the Tanks shall be Mild Steel of 3-5 mm gauge MS, preferably PVC lined. FRP lining tends to become brittle within 2 years of usage & hence not recommended.

**Bath Maintenance :** The pH of the bath shall be between 2 – 3.

**Total Acid Pointage :** Pipette out 10 ml of the bath solution + 50 ml water + 10 ml of H<sub>3</sub>PO<sub>4</sub> /H<sub>2</sub>SO<sub>4</sub> mixture +10 ml of 10% potassium Iodide Solution . Titrate against 0.1 N Sodium Thiosulphate , till pale yellow and now add 1-2 ml of freshly prepared 1% starch solution. Titrate further to an End Point : Blue to Colourless. Burette Reading in ml is **total acid pointage & it shall be maintained between 9 -11 points.**

**Free Acid Pointage :** 10 ml of bath solution + 20-30 ml water + 3 - 5 drops of Bromo Cresol Green indicator and titrate against 0.1 N NaOH . **End Point : yellow to green.** B.R.in ml indicates Free Acid Pointage Range : 3 to 5.

After Chromatizing process is completed, dip the treated articles in water for 30 - 45 seconds. Dry the components by forced air or in an oven at 100°C for 2 to 5 min. The components shall then be painted / powder coated.

**Effluent treatment : An acidic effluent of Unichrome – C , at a pH of 2.5 to 3 , is subjected to reduction process. HexaValent Chromium is reduced to TRIVALENT & then precipitated as Chromium Hydroxide.**

**Handling PRECAUTIONS and Effluent Treatment :** Operators shall use rubber Gloves / Aprons / Face shield and the normal protective gear while working with Unichrome – C and during its handling. Unichrome – C is an acidic chemicals. This is water based and Hence it is Non-Flammable .In case of Spillage on Floor or contact with skin; flush affected area of the body with plenty of running water. Call for Medical assistance. The Floor Spillage is neutralized to pH 7 by adding / Sprinkling any alkali solution , 5 % solution of Caustic or Lime water, till neutral pH ( 7 ) is reached.

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