

### CHROMATE CONVERSION, PTFE COATINGS, MASKING and FLUORESCENT PENETRANT INSPECTION

#### CHROMATE CONVERSION COATINGS

Chromate conversion coatings are produced on Aluminium by chemical methods. The coatings are usually applied by immersion, spray or swabbing.

The appearance of the film can vary from a silver colour to dark yellow depending on the solution composition. Chromate films are thin and not very abrasion resistant but do give exceptional corrosion resistance with low electrical resistance.

Paint and organic finishes adhere well to the chromate film and it is often used as a base coat.

The most common type of conversion coating in use today is known as Alocrom. This available in 2 major variations, Alocrom 1000 (clear film), and Alocrom 1200 (golden film).

#### PTFE COATINGS

The porosity of a hard anodised film has been used for a PTFE coating process, known in the UK as 'Lubrok'. It produces a highly abrasion resistant non-stick finish having an outstanding wear life and a coefficient of friction lower than 0.05. This coating is designed for low friction, low load, repetitive stress applications.

The PTFE is translucent and so the natural colour of the anodised Aluminium will be unaffected. The coating is non-toxic and as such is suitable for some catering applications but service temperatures may be limited depending on the application technique.

#### MASKING

The comprehensive masking service offers extra flexibility to parts being anodised. By a combination of wax, paints, and mechanical techniques, a wide range of masking operations are possible. This enables a single part to have a multiplicity of different finishes on its surface.

Typical applications include masking bores and tapped holes where size is critical, on electrical components to provide an earth point after finishing, and wear resistant hard anodising on the key faces and corrosion resistant anodising elsewhere on the same part.

#### FLUORESCENT PENETRANT INSPECTION

Fluorescent penetrant inspection is a non-destructive test which provides a rapid and reliable test for finding imperfections in Aluminium.

The test identifies any discontinuities which are open to the surface on any essentially non-porous solid surfaces,

Penetrants possess the ability to enter into extremely fine-cracks, which cannot be normally seen, and the brilliant contrast afforded by the fluorescent penetrant systems provides good sensitivity in relation to the size of the discontinuities which may be detected by this method as compared to other methods of non destructive testing.

The inspection technique uses a water washable fluorescent penetrant which is applied to the component under inspection. Excess dye is washed off and then the component is inspected under ultra violet light. Any crack or other defect is shown up by the fluorescent dye.

**Quality inspectors at Acorn Surface Technology hold the British Aerospace recognised qualification ASNT LEVEL 2 for fluorescent penetrant inspection, together with many other major specification house approvals.**

**The major SPECIFICATIONS worked to at Acorn Surface Technology for penetrant flaw detection are:-**

1. **BS 6443.** Method for penetrant flaw detection.
2. **M39.** Method for penetrant inspection of aerospace materials and components.
3. **BAE MP100.** Non-destructive testing - penetrants, (Pre-emulsifiable fluorescent and red dye).
4. **BAE MP101.** Non-destructive testing - penetrants, (Post-emulsified fluorescent).