

Anatomy of an Anodized Package

This document serves as a step-by-step tutorial of Anomatic's anodizing process. The patented process is what allows Anomatic to remain innovative while meeting the exacting demands of its customers.

Cleaning

The first step in the anodizing process is cleaning the aluminum parts. Anomatic has upgraded from aqueous degreaser technology to utilize a new solvent with No Ozone Depleting or VOC Generating compounds.

Solvent – Reduces carbon based energy consumption for process by nearly 90% and increases recovery of stamping oil for direct reuse to 80 - 90%.

Attributes: superior cleaner, nonflammable, reusable and efficient.

Degreasing

The next stage of the process is degreasing the aluminum. There are three methods: bulk, tray and fixture.

Bulk - The least expensive but may involve part-on-part contact.

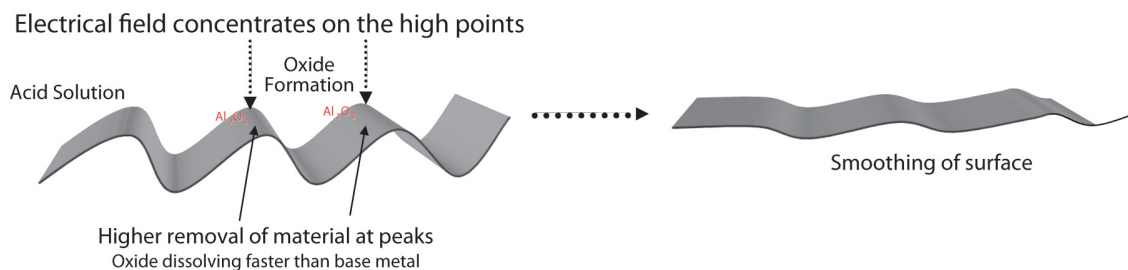
Tray and Fixture - More expensive, but less likely to have part-on-part contact.

Surface Preparation

The third phase is surface preparation. Anomatic utilizes three methods: mechanical, electropolishing and chemical polishing.

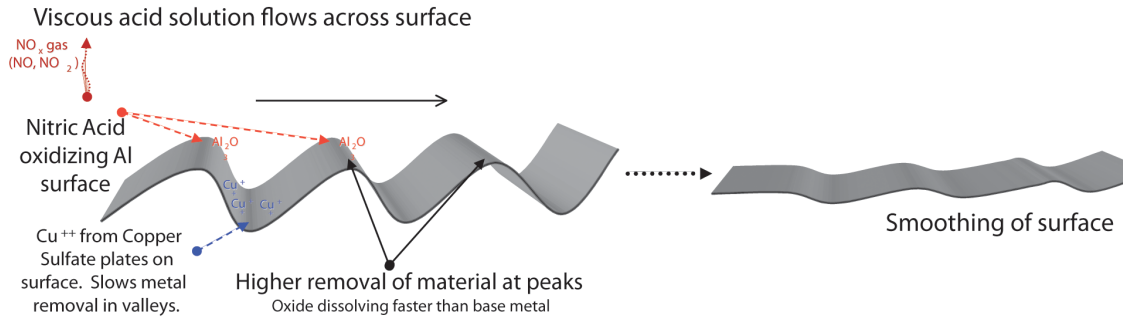
Mechanical – Also known as macropolishing. Used in pre-buffing, color buffing, texturing and vibratory finishing.

Electropolishing – An electrical field concentrates on high points, resulting in a higher removal of material at peaks. The oxide dissolves faster than the base metal, resulting in a smooth surface.



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Chemical Polishing – Results are same as electropolishing, but uses a viscous acid solution that flows across the surface. Nitric acid is used to oxidize the aluminum surface.



This process results in *anodizing*: the electrochemical conversion of the surface of aluminum metal to its oxide. Oxygen combines with aluminum, forming aluminum oxide on the surface.

Dyeing

After anodizing, the aluminum is ready to be dyed. This occurs in two ways: electrolytically or through absorption of dyestuffs from solution. Dyes enter the coating via diffusion and bind to the anodic pore wall.

Sealing

The final stage of anodizing is sealing. Slip seals provide lubricity to the surface, resulting in improved water shedding during sealing. This process also results in a more scuff-resistant surface.

