

# HARDCOAT ANODIZING

Hardcoat Anodizing, often called "Type III anodizing" as denoted by the MIL- A-8625 specification, is an electrochemical process that creates a controlled oxide film on the surface of aluminum. Hardcoat Anodizing utilizes sulfuric acid, low bath temperatures, and constant current rectification to achieve a very hard coating (60-70 Rockwell C as measured by scratch test). Hardcoat anodizing is generally used in applications where a highly abrasion resistant and wear resistant coating is required. Other advantages of hardcoat anodizing include improved paint adhesion, resistance to atmospheric and marine corrosion, and high electrical resistance. Hardcoat anodizing is also available with PTFE (Teflon®) for enhanced lubricity. The appearance of the coating ranges from light to dark gray, depending on the alloy makeup of the aluminum substrate, but it can also be dyed black. Both Type I chromic acid anodizing and Type II sulfuric acid anodizing can be used as a mask for hardcoat anodizing, although some specifications only allow for the Type I to be used. In this process, areas to be hardcoat anodized have the Type I or Type II coating machined off.

## Chem Processing Inc. Hardcoat Anodizing Capabilities:

- Typical Formed Thickness is 0.0001 to 0.0030 inches (50% build, 50% penetration)
- Available with PTFE (Teflon™)
- Bulk and Rack Processing
- Masking for Selective Surface Anodizing
- In-House Salt Spray Corrosion Testing
- Thickness Analysis
- Coating Weight Analysis
- Taber Abrasion Testing
- Post Anodize Seal (may reduce hardness)

## Applicable Specifications:

MIL-A-8625 Type III

MIL-STD-171

ASTM B580-79 (Type A)

AMS 2468 & 2469

## Typical Hardcoat Anodizing Applications:

- Aerospace: wear resistance, dry lubrication, longevity and electrical insulation
- Machinery: excellent abrasion resistance for high-speed machine parts
- Electronics: provides uniform emissivity and a high dielectric
- Marine: long-lasting corrosion resistance in salt-water
- Oil and Petrochemical: excellent corrosion and wear resistance
- Ordnance: corrosion protection, abrasion resistance and wear resistance
- Cookware: corrosion protection and non-stick properties.
- Molds and Dies: release and abrasion resistance
- Firearms: corrosion protection and wear resistance
- Sporting Goods: durability and performance



**CHEM PROCESSING, INC.**  
*Platings & Coatings for Industry*

Tf: 800.262.2119 Ph: 815.874.8118 Fx: 815.874.8234  
3910 Linden Oaks Drive, Rockford, Illinois 61109  
[www.chemprocessing.com](http://www.chemprocessing.com)