

TYPE 3 HARDCOAT ANODIZING

Hardcoat anodizing, often called "Type III anodizing" as denoted by MIL spec 8625, 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). Hardcoat Anodizing is generally used for applications that need a corrosive, abrasive, and wear resistant coating. Other advantages of Hardcoat Anodizing include improved paint adhesion, enhanced adhesive durability, excellent lubricity, resistance to atmospheric and marine corrosion, electrical resistance and high operating temperatures. Hardcoat Anodizing is also available with PTFE (Teflon™) for enhanced lubricity. The appearance of the coating ranges from light to dark gray (Class 1), depending on the alloy makeup of the aluminum substrate, but it can also be dyed black (Class 2).

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**
- **Salt Spray Corrosion Testing** (minimum 336 hours of salt spray resistance)
- **Thickness Analysis**
- **Coating Weight Analysis**
- **Taber Abrasion Testing**
- **Dielectric Testing**
- **Post Anodize Seal** (may reduce hardness)

Applicable Specifications:

MIL-A-8625F Type III (CI 1 & 2)	MIL-STD-171D (7.5.1 & 7.5.2)	
MIL-STD-186 D (207)	MIL-F-14072C (E514)	
ASTM B5580 (Type B,C,D,E,F)	AMS 2468 & 2469	
MIL-STD-193K	AMS B117	MIL-C-60536

Typical Hardcoat Anodizing Applications:

- **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
- **Aviation and Space:** durability and longevity
- **Ordnance:** corrosion protection, and abrasion and wear resistance
- **Cookware:** corrosion protection and non-stick properties.
- **Molds and Dies:** release and abrasion resistance
- **Sporting Goods:** durability and performance

All processes comply with industry specifications including ASTM, SAE, MIL, etc., as applicable for the particular process involved and are performed under ISO 9001:2000/AS9100B standards. Specific company approvals may also apply.



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