

Anodize Processes

Three anodize coatings for use in a wide range of functional and decorative applications

Type I (Chromic) Anodize

Chromic anodize is the thinnest anodic film and is used primarily in military and aerospace applications that require strong corrosion resistance and adhesive bondability.

Because it is typically just 0.0001 in. thick, chromic anodize is more functional than decorative. It is seldom dyed, except on precision optical housings and lens retainers, which usually call for black dye following anodize.

Most chromic anodized parts are subsequently painted or primed for later bonding and must consequently be wrapped and handled with special care.

Type II (Sulfuric) Anodize

Sulfuric anodize is the standard, most widely known anodic film. The coating can range from twice as thick to eight times as thick as Type I (chromic) anodize.

This added thickness allows sulfuric anodize coatings to accept dyes readily, allowing them to offer both decorative and highly functional properties at the same time.

Dyed coatings tend to be 0.0006 to 0.0008 in. thick while the thickness of clear or undyed films typically runs 0.0002 to 0.0004 in.

Sulfuric anodize — used in applications as diverse as architecture, aerospace, manufacturing, automotive, and computers — has been one of Anoplate's featured finishes since the company's founding in 1960.

Type III (Hardcoat) Anodize

Hardcoat anodize — or hard anodize — produces a tough outer skin on aluminum surfaces that need extra abrasion resistance, corrosion resistance, or dielectric strength.

Up to several mils thick, hardcoat anodize offers surface hardness greater than that of hard chrome (HRC > 70) combined with the light weight of aluminum. It is specified in a broad array of applications, including those as diverse as food

packing equipment, textile feeding devices, photographic film-tracking components, and paper rolls in photocopiers.

The finish requires close coordination of current density, bath temperature, and additive chemistry. Close control over current ramping during the coating's initial formation is especially important to prevent burning of the processed parts.

Hardcoat is rarely dyed except for identification purposes or for blackening to produce optical non-reflectivity. As such,

hardcoat is seldom used in decorative applications and is a truly functional finish that is often enhanced by sealing with a fluoropolymer such as PTFE.



■ *This optical component for the medical industry is hard-anodized outside for durability, and Type II black-anodized inside to minimize reflection.*

Other Anodizing Available from Anoplate

- Titanium anodize (AMS 2488, Type 2)
- Galvanic anodize for magnesium (Dow 9)
- Phosphoric acid anodize (for bonding applications)

Learn more about Anoplate at <http://www.anoplate.com>