

Anodising

Anodising is an electrochemical process that thickens and toughens the naturally occurring protective oxide. The resulting finish, depending on the process, is the second hardest substance known to man, second only to diamond. The anodic coating is part of the metal, but has a porous structure which allows secondary infusions (ie organic and inorganic colouring, lubricity aids, etc).

Courtesy of the Anodisers Assoc of Australia, 2008

Anodising converts the surface of aluminium from its natural state to another; with markedly different properties. This new surface is not a coating in the traditional sense as it is produced from the parent material and is integral to it, and therefore provides highly effective corrosive resistance.

Anodising has many benefits:

Durability. Most anodised products have an extremely long life span and offer significant economic advantages through maintenance and operating savings. Anodising is a reacted finish that is integrated with the underlying aluminium for total bonding and unmatched adhesion.

Colour Stability. Exterior anodic coatings provide good stability to ultraviolet rays and do not chip or peel.

Ease of Maintenance. Scars and wear from fabrication, handling, installation, frequent surface dirt cleaning and usage are virtually non-existent. Rinsing or mild soap and water cleaning usually will restore an anodised surface to its original appearance. Mild abrasive cleaners can be used for more difficult deposits.

Aesthetics. Anodising offers an increasing number of gloss and colour alternatives. Unlike other finishes, anodising allows the aluminium to maintain its metallic appearance.

Cost. A lower initial finishing cost combines with lower maintenance costs for greater long-term value.

Health and Safety. Anodising is a safe process that is not harmful to human health. An anodised finish is chemically stable, will not decompose; is non-toxic; and is heat-resistant to the melting point of aluminium.

Since the anodising process is a reinforcement of a naturally occurring oxide process, it is non-hazardous and produces no harmful or dangerous by-products.

However, as the anodising process doesn't 'cover up' the surface of the aluminium surface scuffs and scratching, due to manufacturing processes, may be visible. Although all care is taken to prevent this, Locker Group cannot guarantee against it, and light scratching and other marks are often emphasised by the anodising process.

Understanding that anodising itself is a translucent finish, any inconsistencies within the supplied aluminium (including metallurgy, surface texture or grain structure) can become evident or accentuated after anodising. Locker Group ensures where practical, that raw material for any job is sourced from the same mill run, thereby reducing the variation in the level of impurities. However, even with this extra care Locker Group is unable to guarantee a consistent surface finish.

Anodising Process/Method

During the anodising process, there are a number of methods of clamping the material. In order to maximise the final appearance, please specify the preferred method when ordering, Locker Group can assist in your selection.

1. Full Rack – this provides the best contact during anodizing, however does leave a 20mm wide mark all the way around the back of the sheet, plus 3mm round depressions in each corner of the face.
2. Block – The rear of the sheet again is marked approximately 10mm square around the border, with depressions in each corner of the face.
3. Wire Jig – in theory this method shouldn't leave any marks on the sheet, however in practice the wire sometimes touches the surface of the material, leaving lines on the face and rear in the corners. The material can be reanodised, but then is susceptible to colour variation.
4. Oversized sheets – sheets are produced with an extra 50mm at each end, clamped using the full rack method (above) and guillotined afterwards to remove any marks, rainbowing or corner damage. The only drawback is that it leaves a raw edge. This is the method Locker Group recommends.

Specifying an anodised finish

The following guidelines for specifying anodised aluminium are provided by the Anodisers Association of Australia, Locker Group recommends these important steps are followed to ensure a mutually beneficial result.

Always specify from a sample provided by Locker Group, which should outline the following:

1. The alloy of the aluminium you wish to anodise.
 - Aluminium sheet will generally be from the 5000 series
 - The above alloys are examples of standard international gradings of aluminium type alloys.
2. The finish
 - Matt - anodised aluminium with a low specular reflectance
 - Linishing - a mechanical treatment to provide a brushed finish to the aluminium
3. The colour or name of the finish you require.
4. The coating thickness required, according to the Australian Standard AS 1231-2000
5. The method of clamping that best suits your application.

Anodising Specifications for External Applications				
Exterior Description	Atmospheric Classification	Thickness Grade	Cleaning Intervals	Sample Locations
Mild	3	15 microns	12 months	Outback Australia Rural communities (not coastal)
Moderate	3	15 microns 20 microns & 25 microns	9 months	Adelaide Brisbane Hobart Melbourne Perth Sydney New Zealand * Excluding coastal locations
Tropical	4	25 microns	9 months	North Queensland (coastal) Northern Territory (coastal) North-West Western Australia (coastal)
Severe	5	25 microns	6 months	New South Wales Coast Queensland Coast New Zealand Coast South-East Coast of South Australia South-West Western Australia Port Phillip Bay (coastal up to 100m from beach) Port Pirie (industrial area) Newcastle (industrial area)

*Note: Within 5km of the coast is a coastal location
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