INFORMATION SHEET – ANODISING

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MP Eastern Limited offer sulphuric anodising and hard anodising.

When specifying anodising wherever possible we recommend referring to published standards, most standards will require you to provide at least the following information to your anodiser;

- The specification reference, film thickness and sealing requirements.
- The grade and temper condition of the material.
    - The material has a significant effect on the final appearance and performance of the coating – different grades and temper conditions require different processing conditions. Different grades of alloy are not usually mixed during a process run.
- The significant surfaces and areas where measurements of the coating thickness are to be made.
    - Eddy current gauges are used to measure film thickness non-destructively, the accuracy and precision of measurements taken with these gauges are sensitive to material composition and surface finish.
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- Any areas that must not be used as contact points for jigging (or areas that are to be used).
    - It is necessary to carry an electric current to the part during processing, these contact areas will remain uncoated, typically parts are located on jigs using holes, bores, tapped holes or along edges. Hard anodising requires larger contact areas than sulphuric anodising.
- Any special inspection and test requirements.
    - The default inspection procedures for most specifications include for visual inspection and coating thickness measurement, if it is necessary to carry out other inspection procedures by batch or order then generally these have to be specified in the contract or order.
- Any special packing requirements.

The grade and condition of the aluminium have a significant effect on the final product.

The colour of the clear anodised film and shade of a dyed coating are influenced by;

- The composition of the aluminium, different alloying agents in the base material colour the anodised film.
- The film thickness.
- The surface finish and texture, changes in surface texture from different machining methods affect the appearance and shading.

Anodising grows perpendicular to the surface, where this growth meets at external sharp corners the coating can spall, thicker hard anodised surfaces are susceptible to this corners should be radiused as much as possible.

Our laboratory routinely monitors process chemistry, we visually inspect parts before and after anodising, the film thickness for specification work is measured using eddy current gauges.

We carry out periodic corrosion testing, coating weight and abrasion resistance testing on standard panels.

If you require batch or part specific tests these should be specified in the contract or on the drawing or order.

In the table below we have summarised information from the standards we typically process to. We also hold a large library of customer specific, superseded/legacy specifications so contact us if you need any help.

Typical standards for specifying sulphuric and hard anodising

Standard	Notes	Comments
BS EN 7599:2010	Sulphuric anodising; Film thickness is specified by referring to a specific class; Class 5 Min av thk 5 µm Class 10 Min av thk 10 µm Class 15 Min av thk 15 µm Class 20 Min av thk 20 µm Class 25 Min av thk 25 µm Surface preparation before anodising is designated by the symbols E0 to E8 Sealing either Hot water or nickel sealing as specified.	Supersedes BS EN 12373-1:2001 BS 1615
BS EN 2284:1991	Sulphuric acid anodising; Class A – Unsealed anodising Class B – Sealed anodising Thickness class 1 – 12 to 25 µm Thickness class 2 – 6 to 12 µm Sealing as specified; Dyed aluminium – hot water seal, Undyed aluminium – hot water seal or dichromate seal.	Aerospace series
AMS 03-25	Sulphuric acid anodising; Unless otherwise stated on drawing or order film thickness 8 to 13 µm, items that are to be dyed black may have a coating thickness <= 25 µm. Sealing, unless items are dyed black or are to retain their natural colour or are in contact with oxidants/propellants, items are to be dichromate sealed otherwise dyed black and items retaining their natural anodised colour shall be hot water sealed.	Supersedes Def Stan 03-25 Def 151 Type 1
BS EN 2536:1995	Hard anodising; Category 1 alloys < 1 % Cu : 30 µm to 120 µm film thickness Category 2 alloys 1% to 5% Cu : 30 µm to 60 µm film thickness. Note: Restrict thickness on splines & threads to 25 µm Sealing is specified, either hot water or dichromate seal	Aerospace series
BS ISO 10074:2010	Hard anodising; Unless otherwise specified on the drawing or order thickness is usually between 40 to 60 µm, sealing shall be as specified.	Supersedes BS 5599:1993(2002) Def Stan 03-26
MIL-A-8625F amd 1	Type II – Sulphuric anodising; Class 1 – Undyed Class 2 – Dyed Thickness as specified, sealing various methods permitted unless special or specific sealing processes are specified.	
	Type III – Hard anodising; Unless otherwise specified on the drawing, order or in the contract thickness shall be 0.002” (50 µm) +/- 20 % Sealing – Unsealed when main function is wear or abrasion resistance. Where requiring corrosion resistance (with permitted reduction in abrasion resistance) the contract or order shall specify that sealing is required. *Note:* Parts that are dyed usually require sealing to fix the dye.	