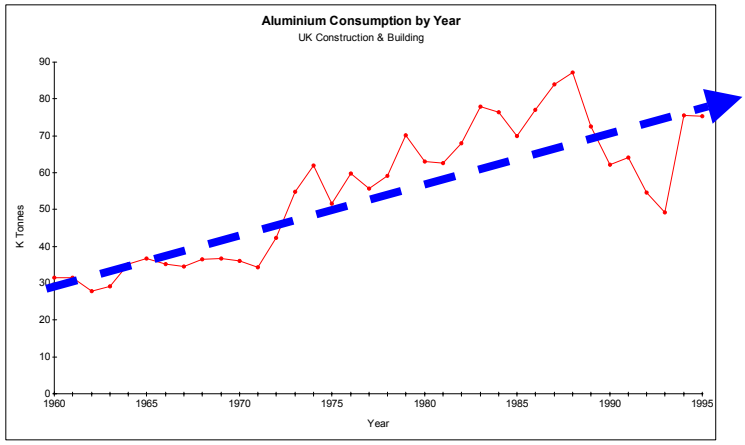
“Finally There Is Now An Excellent Alternative to Anodising”

Article written by: -
D. Sims BSc. PhD. FIM. And E.D.Finney BSc. CEng. MIM. MCIM.

For many years now, modern buildings have used Aluminum in their construction for window & doorframes, curtain walling. The chart below shows the growth over the last 40 years.



There are basically three types of protection applied to architectural Aluminium: -

- Powder coating
- Wet painting
- Anodising.

The most common is powder coating, which may be polyester, an epoxide or a mixed polyester-epoxy. The latter is normally used for internal finishes due to being unstable with UV exposure. These systems have a number of advantages, which are the ability to perform site remedial work following construction damage. Such coatings are at a mature state of development and long duration warranties are frequently available. A wide range of colours and finishes are available in either solid colours or metallic finish.

Anodising was used in the early years as either a plain finish or a dyed finish. These dyed finishes, whilst allowing architects to select from a wide range of colours were not particularly light fast and wear at entrances etc. soon became noticeable. Neither were they found to be particularly resistant to mortar attack.

In more recent times, the industry has developed a number of extremely attractive colours based upon the co-deposition in the anodised film of metallic particles such as tin or cobalt. These

deposits possess all the advantages of anodised finishes and are very attractive. Unfortunately they still suffer from mortar attack and cannot be site repaired and die lines in extrusions and weld zones in fabrications are difficult to disguise.

Until recently, wet painting has been a poor relation of powder coating. Like powder coating, it possesses the advantage that site remedial work is possible.

Macrosheen™ - the new innovation in wet paint protection for surface coating has been developed as the enhancement to anodising. This new finish has many advantages over traditional anodised finishes. Anodised aluminium has proved successful for many years, in areas of application where the finish might suffer accidental damage in large building projects with the inability to offer on-site remedial work is a positive disadvantage.

Macrosheen™ is the modern formulation based on a fluoropolymer system that incorporates ceramic pigmentation and is available in a full range of custom colour finishes. The material exhibits a low gloss or matt pearlescent finish that is highly advantageous due to the ability of such finishes to **hide fingerprints and smudges** thus making it the **ideal finish for use in public and high abrasion areas.**

Macrosheen™ has been specially developed for those high wear areas such as storefronts and entry systems and any other areas where there is exposure to an aggressive environment such as a salt containing atmosphere, acid rain or air pollution.

Macrosheen™ offers **superior weathering characteristics** to other coatings such as acrylic, polyester or TGIC powders. Typical applications are for fire escape system (fig 2). One excellent example is an impressive 20 feet high structure with a large **Macrosheen**™ coated sphere as it is focus suspended under a stainless steel net tethered to the ground by a set of positioning bollards (fig 3).

Fig.3

Fig. 2

Anodised aluminium is produced by electrolytic action in an acid bath and any colours produced by the action of a dye on the oxide surface or alternatively subjected to a co-deposited metal such as tin or cobalt. **Macrosheen**™ is a liquid system that is sprayed in an identical manner to conventional paint finishes onto a pre-treated surface produced by a chemical conversion process on aluminium. **Macrosheen**™ achieves complete batch-to-batch colour consistency.

Macrosheen™ demonstrates advantages over standard anodised finishes. The major advantage is the **increased resistance of the coating to abrasion.** Since the coating is **more ductile** it is **less susceptible to on-site damage**. In contrast to an anodised finish, if the coating is accidentally damaged the area can be subjected to on-site remedial work. A further advantage is the ability of **Macrosheen**™ to **cover over extrusion lines and weld patterns in aluminium fabrications**.

Macrosheen™ can be used on certain other substrates including steel to achieve a uniform appearance on multi-substrate structures. The ability to cover steel allows for reinforced aluminium structures such as storefronts to be uniformly coated. In the case of steel a class 3 zinc phosphate pre-treatment is required. Typical properties of **Macrosheen**™ on aluminium are given in Table 1.

A warranty of up to twenty-five years can be offered for colour consistency, chalking, fading and adhesion provided the original aluminium was subjected to a chromate conversion process. Unfortunately this warranty cannot yet be offered for steel. All warranties are subject to the application of a routine cleaning and maintenance program.

TOMBURN Ltd with their American associates, have developed the **Macrosheen**™ process to give a liquid paint system that reproduces the colour and textures available with all the advantages that are required by industry today.

It is a wet paint system that site remedial repair is available. It possesses mortar resistance, covers extrusion die lines and can be applied to fabrications to prevent weld pattern showing. It can also be used on other substrates so that architects can use several substrates with a common finish.

Table 1. Typical Properties of **Macrosheen**™ on Aluminium

Properties	Characteristics
Dry Film Thickness	30 microns (Min)
Pencil Hardness	2H (Min)
Gloss Level (60° head)	5 - 15 (Matt finish)
Solvent Resistance	100 double Rubs with MEK
Adhesion (dry cross hatch)	No loss of adhesion
Adhesion (wet cross hatch)	No loss of adhesion
Flexibility (1/4 in. mandrel)	No Cracking or Adhesion Loss
Weathering	Meets AAMA 2604
Chemical Resistance	Resistant to Both Acids & Alkali
Abrasion Resistance (Falling sand method)	Abrasion Coefficient 40 litres/0.001mm (Min)

For more details contact: -

David Hepburn
Managing Director
Tomburn Limited
Gunstore Road
Hilsea
Hampshire
PO3 5HL

Telephone 023 9269 2020
www.tomburn.co.uk
sales@tomburn.co.uk