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1. PURPOSE OF ANODIC OXIDATION (ANODISING)

The purpose of anodic oxidation is to create an oxide layer showing increased resistance to corrosion on the aluminium surface. Anodic oxidation can also give a decorative appearance to some alloys.

2. ANODIC OXIDATION

2.1 General information

Aliplast Sp. z o.o. ensures that the material used in the anodising process meets the requirements for the type of alloy needed to make protective-decorative coatings.


2.2. Pretreatment

The purpose of the (mechanical or chemical) pretreatment of components to be anodised is decorative surface preparation.

Appropriate treatment makes it possible to achieve various surface effects, which should be agreed between the Ordering Party and the Contractor.

Table No. 1 contains the abbreviations for anodic oxidation depending on the pretreatment

Abbreviation	Type of treatment		Guidelines and explanations
	pretreatment	main treatment	
E0	without significant pretreatment removing surface layer	anodised and fixed	anodic oxidation is carried out after degreasing and etching (removal of naturally formed oxide layer) without further pretreatment. The surface appearance obtained after the anodising process is maintained as on a raw section. The surface is glossy. Scars, scrapes, abrasions, file marks, scratches, longitudinal streaks that occurred during the section extrusion process remain visible. Traces of corrosion, previously invisible, become clearly visible.
E6	chemical treatment in special etching baths – satinizing	anodised and fixed	After degreasing and etching in a special bath, a satin matt surface is obtained. Streaks and defects created during production and treatment may not disappear completely but they are largely removed. Some traces of corrosion that are not very clear before etching may now become visible.
ES	shot blasting	anodised and fixed	Shot blasting makes it possible to obtain a uniform matt surface that does not require satinizing in the anodising process. This treatment eliminates surface defects with a limited depth (minor scratches, abrasions). The treatment designed mainly for decorative and furniture profiles as well as aluminium joinery. The standard length for shot blasting is from 4 to 7 m, smaller lengths require consultation.
E2	brushing	anodised and fixed	Brushing treatment gives the profiles a decorative effect in the form of longitudinal, jagged scratches. This treatment masks small surface defects whose traces are consistent with the direction of brushing. The minimum length of profiles is 4 meters. maximum 7.2 mb

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3. REQUIREMENTS FOR ANODISED COATINGS.

3.1. Oxide coating thickness.

Depending on the purpose of the material, sealed anodised oxide coatings on aluminium and aluminium alloys are recommended in accordance with Table No. 2.

<i>Use conditions</i>	<i>Minimum coating thickness "u"- sealed</i>
W - extremely difficult	Al/An 25 u
C - difficult	Al/An 20 u
U - moderate	Al/An 15 u
L - light	Al/An 10 u
B - very light	Al/An 5 u

W - very difficult conditions with a strong corrosive action, correspond to extremely difficult conditions of use

C - difficult environment with a strong corrosive action corresponding to difficult conditions of use

U - environment with a moderate corrosive action corresponding to moderate conditions of use

L - conditions with a light corrosive action corresponding to light conditions of use

B - environment with a very mild corrosive action corresponding to the lightest conditions of use.

3.2. Quality of oxide layer

The oxide layer must meet the control method conditions specified by the following standards: PN-801H-97023, PN- EN 12373 parts 1, 2, 3, 4, 5, 6.

3.3. External surface appearance

The Contractor shall agree acceptable colour deviations with the Ordering Party.


Deviations shall be in accordance with "The standard for colour-standard anodising" used in the company.

ATTENTION!

The Ordering Party should be informed about the necessity of using technological supports (applies to low stiffness, strip-type profiles) due to the formation of small uncoloured marks. Small shade deviations due to technological reasons are unavoidable. The differences in the shades obtained between the profiles with large and small dimensions (e.g. wing + clip) are a natural effect of the electro-colouring process and result from properties of current - they cannot be treated as a defect. If orders for electro-colouring in C-31, C-32, C-33, C-34, C-35 colours are completed at considerable time intervals, there is a risk that individual batches will differ in shades. Such shade differences cannot be the basis for claims.

Applicable symbols are described in [Table No. 3](#)

<i>No.</i>	<i>Symbol.</i>	<i>Colour</i>
1	C-0	natural aluminium-standard
2	C-31	light champagne-standard
3	C-32	champagne-standard
4	C-33	olive-standard
5	C-34	brown-standard
6	C-35	dark brown (close to black)-standard

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The surface effects after individual treatments are shown in Table No. 4 .

<i>No.</i>	<i>Symbol</i>	Type of pretreatment	Surface effect
1	E0	without pretreatment	raw material surface
2	E6	satining	matt, satin
3	ES	shot blasting	homogeneous, matt, satin

4. INFORMATION FOR CUSTOMER

Before placing an order for an anodising treatment service, the required pretreatment (Table No. 1), which has a direct impact on the decorative appearance of the final product, should be described in detail. After the anodising process, traces of fixing may be visible at each end of the profile, at a section up to 4 cm. In the case of aluminium plates, this trace may remain in each of the component corners, up to 4 cm wide. Sheets subjected to the anodizing process at Aliplast differ in the type of alloy and production technology from aluminium profiles. Due to technological limitations, they cannot be subjected to ES and E2 treatments, which may cause differences in colour and surface texture. The sheets offered by Aliplast Sp. z o.o. do not come from our own production, therefore we have no direct influence on their surface properties. Aliplast makes every effort to ensure that the quality of the anodized surface on the sheets is satisfactory. After the anodizing process, unexpected material features may appear on the sheet surface resulting from the sheet metal production process itself, for which Aliplast is not responsible. We guarantee that the coating is of the highest quality and visual defects that are not a derivative of the Anodizing process cannot be the basis for claims.

The surface heterogeneity resulting from the construction and design of the profile and the technology of its extrusion may be noticeable on the decorative components of the profile. The anodised coating is completely transparent and cannot mask imperfections resulting from the extrusion process. Aliplast Sp. z o.o. carries out the anodising process in accordance with the guidelines of the QUALANOD Quality Label.


Anodising of welded parts

1. The following defects and threats may occur when anodising parts made from welded open profiles:

- due to structural changes and discontinuities within the weld, changes occur in the current flow causing defects in the anodised coating within this weld, in extreme cases the coating does not form at all.
- due to its chemical composition, the weld has a different colour than the base material (chemical composition of the welding wire must be as close as possible to the chemical composition of the welded parts)
- wrong weld penetration may cause permanent damage to the weld during etching process, which may result in permanent damage to the welded part
- in micro-gaps, which act as capillaries, bath residues produce crystalline bloom in later operation, which proves that bath residues are permanently there and cause damage to the part.

2. The following defects and threats may occur when anodising parts made from welded closed profiles , in addition to those mentioned above:

- leaky weld - due to its penetrating properties, the etching bath based on sodium hydroxide enters the welded part. In the absence of technological openings that enable thorough rinsing after the etching process, the anodising bath based on sulfuric acid is trapped inside the part and its action is intensified in the next process stages. The bath residues inside the part destroy the welded part and weaken its mechanical strength.
- in addition, chemical substances inside the part pose a threat to people who assemble and use such a component.
The location and size of technological openings must be determined individually for each shape of the welded part.

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Cleaning and maintenance

Indoor applications

In general, components mounted indoors should be simply wiped regularly with a soft cloth. If components have not been cleaned for some time, you can clean them using an inert cleaning liquid and a soft cloth, and then rinse them with clean cold water. You can then polish the components with a soft, dry cloth to make them look like new ones.

Outdoor applications

In practice, the frequency of cleaning the structural components exposed to the atmospheric conditions depends on the type of component and the aggressiveness of the environment.

At least monthly cleaning is recommended for outdoor applications where the decorative appearance and protective function are particularly important, e.g. portals, entrances, shop fronts, etc. In this case, i.e. for regular cleaning, you can use water and chamois leather, and then wipe the components from top to bottom with a soft dry cloth.

Window frames, window sills and facades must be cleaned regularly; the frequency depends on aggressiveness of the environment and facade construction. You can preferably use a neutral, synthetic cleaning liquid and a cloth, sponge, chamois leather or a soft brush. Then rinse the component with clean water and wipe until completely dry. Stubborn dirt can be removed with a slightly abrasive cleaning agents or a cloth with fine polishing powder - however, this may result in coating getting damaged.

If you use a protective agent after cleaning the structural components, ensure that a thin film of residual water is removed before using the agent. This agent must not cause yellowing, attract dust and dirt or cause opalescence effect. Waxes, petroleum jelly, lanolin and similar agents are not suitable.

Universal cleaning agents must meet the same requirements.

Alkaline and acidic solutions should always be avoided. Also, do not use aggressive abrasive materials, scouring pads, wire brushes, etc.

Maintenance should be carried out by specialised companies or persons with relevant experience and certificates in the field of maintenance of anodised surfaces. Cleaning should be documented in the maintenance book.

ALIPLAST Sp. z o.o. is not responsible for defects in anodised products that are caused by inadequate quality of the material supplied for anodising.
