

# QUALICOAT SPECIFICATIONS

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Appendix C – Specifications for Off-site Anodisers

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# QUALICOAT

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The anodising plant shall have a PRE-OX licence granted by QUALICOAT, according to Section 3 of this appendix.

Licensed coaters using off-site anodic pretreatment shall have a SEASIDE (PRE-OX) endorsement granted by QUALICOAT, according to Section of the Specifications.

## **1. Work specifications for off-site anodisers**

The following minimum requirements shall be met by the off-site anodiser:

### **a) Surface preparation**

The aluminium surface shall be treated to eliminate all impurities that could pose problems in the anodic pretreatment.

### **b) Etching**

The aluminium parts (extrusions and sheet, not cast) shall be etched with a minimum etching rate of 2 g/m<sup>2</sup>. In the case of alkaline etching, desmutting shall be necessary.

### **c) Thickness of the pre-anodised layer**

The anodic pretreatment shall be chosen to produce an anodic coating with a thickness of at least 4 µm (not more than 10 µm) without powdering or surface flaws.

The anodic pretreatment parameters can be as follows:

- Acid concentration (sulphuric acid): 180-220 g/l.
- Aluminium content: 5-15 g/l.
- Temperature: 20-30°C ( $\pm 1^\circ\text{C}$  of the temperature chosen by the anodiser).
- Current density: 0.8-2.0 A/dm<sup>2</sup>.
- Agitation of the electrolyte.

### **d) Post-treatment and rinsing after anodic pretreatment**

After anodic pretreatment, the aluminium shall be rinsed for such a time and at such a temperature as is required to remove the acid from the pores and to fulfil the requirements of the wet adhesion test.

Enhancing rinsing with a hot sealing step and/or a passivation step with a QUALICOAT approved chemical pretreatment system or chromate conversion coating is permitted.

The rinsing process shall not produce a sealed surface, as this increases the risk of adhesion failure. No-rinse passivation is not permitted when a period of 16 hours has passed.

When measured on open sections, the conductivity of the dripping water of the final rinse prior to coating shall not exceed a maximum of 30  $\mu\text{S}/\text{cm}$  at 25°C. The final rinse prior to the coating shall be performed in either the anodising or coating line. The conductivity of the dripping water shall be measured on open sections and can also be measured on hollow sections.

In the event that it is not possible to measure the conductivity of the dripping water for immersion installation, the conductivity of the rinse water in the tank shall be measured with a maximum conductivity of 15  $\mu\text{S}/\text{cm}$  at 25°C before immersion starts.

Sealing additives can decrease the quality of the final product. It is the responsibility of the anodiser and the coater to verify the compatibility with the coating process.

#### **e) Storage conditions**

Pre-anodised aluminium shall never be stored or transported in an atmosphere that is dusty, damp (condensation or similar), or detrimental to it. Good atmospheric and dry conditions shall always be maintained in storage areas during transportation. All workers handling pre-anodised aluminium shall wear clean textile gloves to avoid surface contamination.

#### **f) Storage time and transportation**

Pre-anodised parts shall not be stored for more than 16 hours. However, the parts may be stored (including transportation, where applicable) for up to 72 hours, provided that additional rinsing has occurred with demineralised water with a conductivity of maximum 30  $\mu\text{S}/\text{cm}$  at 25°C and drying has taken place prior to coating (no etching allowed). The risk of insufficient adhesion increases the longer the parts are stored.

#### **g) Mandatory minimum equipment**

The anodiser's laboratory shall have the apparatus and chemicals necessary for testing and controlling the process solutions and finished products. The laboratory shall at least be equipped with the following apparatus and equipment:

- Conductivity meter
- pH-meter
- Thickness meter
- Calibration tools for the tests stipulated

Each piece of apparatus shall have a data sheet showing the apparatus identification number and calibration records.

## **h) Recording of anodising bath test results**

The anodising plant shall perform and record the following additional tests when processing anodic pretreatment:

- The acid concentration and aluminium content of the anodising bath shall be analysed once daily.
- The temperature of the anodising bath shall be checked every 8 hours.
- The etching rate shall be checked once per day.
- The thickness of the anodic coating shall be checked (every load).

## **2. Cooperation between external anodiser and coater**

External anodisers and coaters shall cooperate closely.

The test results from the external anodiser shall be delivered to the coater with a delivery note, and the following information shall be included where applicable (i.e., if it was not already described in the general agreement between the external anodiser and the coater):

- Qualanod licence number or quality management system certificate number.
- Description of all pre-anodising process steps (type of surface treatment, chemical composition, temperature, and treatment time).
- Detailed description of rinsing conditions (30 µS), including information about the usage and the type of hot sealing or approved passivation, including parameters, values, and limits.
- Production date and time.
- Number of test panels that are produced in the same lot together with the material.
- Alloy.
- Etching requirements of cast material.
- Location of jigging marks.

For each delivery, the anodiser shall gather the following records from the coater:

- Name and licence number of the coater.
- Date of anodizing.
- Date of coating.
- Order number.
- Rinsing water conductivity.
- P-No and colour.
- Results of the wet adhesion test.

This information shall be readily available to the inspector.

### **3. Licensing of off-site anodisers**

The anodising plant shall have a QUALANOD licence or be certified by an accreditation body with a Quality Management System.

#### **a) Granting of a PRE-OX licence to an anodiser**

One inspection shall be satisfactory for a PRE-OX licence to be granted to an anodiser. This inspection will be made by appointment at the anodiser's request.

#### **b) Inspection**

The inspectors shall take along the following equipment:

- Conductivity meter.
- Thickness meter.
- Calibration tools for the tests stipulated.

The inspector shall check the following using the inspection form approved by QUALICOAT:

- Inspection of laboratory equipment.
- Delivery appointments.
- In-house control.
- Records for every delivery.

### **c) Final assessment for granting the PRE-OX licence**

The inspector submits the inspection report to the General Licensee for the evaluation.

Under the supervision of QUALICOAT, the General Licensee must adhere to the following procedure:

- If the results of the inspection meet the requirements, the PRE-OX licence shall be granted. A specific QUALICOAT PRE-OX certificate shall be issued stating that the anodising plant installation can produce finished products that meet the QUALICOAT PRE-OX requirements.
- If the results of the inspection do not meet the requirements, the anodiser shall wait at least three months before making a new application for a PRE-OX licence.

### **d) Licence renewal**

After an anodising plant is granted a PRE-OX licence, it shall be inspected once a year.

Routine inspections shall be conducted without prior notice. Inspectors will only be authorised by the GL or QUALICOAT Secretariat to announce an inspection in the case of travel safety issues or visa problems.

### **e) Inspection**

The inspectors shall take along the following equipment:

- Conductivity meter.
- Thickness meter.
- Calibration tools for the tests stipulated.

The inspector shall check the following using the inspection form approved by QUALICOAT:

- Inspection of laboratory equipment.
- Delivery appointments.
- In-house control.
- Records for every delivery.

#### **f) Review of in-house control and registers**

The inspector shall check that in-house control has been carried out in accordance with section 1 above and that the anodiser maintains close cooperation with the coater as described in section 2 above.

#### **g) Final assessment for renewing the licence**

Under the supervision of QUALICOAT, the General Licensee must adhere to the following procedure:

- If the inspection results meet the requirements, authorisation to use the quality label will continue.
- If the results of the inspection do not meet the requirements, another inspection shall be conducted within one month (allowing for holiday periods) after the anodiser has received a notification of an unsatisfactory inspection from the General Licensee and/or QUALICOAT. In the meantime, the licensee shall rectify the non-conformities and immediately inform the General Licensee or QUALICOAT.
- If the repeat inspection produces unsatisfactory results, the PRE-OX licence will be withdrawn immediately. The anodiser shall wait for at least three months before making a new application for a licence to use the quality label.

#### **h) Anodisers' right of appeal**

The anodising plant shall receive a copy of each inspection report. If the results do not meet the requirements, full details and reasons shall be given. The plant shall be entitled to appeal within 10 days.

#### **i) Confidentiality of information**

All information concerning the inspection results and their assessment shall be confidential.

#### **j) Deadlines for submission of inspection reports**

All inspection reports (including test results) shall reach QUALICOAT's Secretariat within three months of the dates of the inspections.

#### 4. Use of the logo by PRE-OX anodisers

The logo may be used on the products themselves, business stationery, quotations or invoices, price lists, cards, display boxes, on all company literature, brochures, catalogues and newspaper advertisements.

By applying the logo to a product, the anodiser guarantees that the quality of the finished product supplied to QCT licenced coaters meets all the requirements of the Specifications.

Whenever an anodiser mentions or references to QUALICOAT, it shall systematically indicate its licence number. This shall apply to both the use of the logo and in texts.

